

MAN-VEHICLE LABORATORY
PUBLICATIONS

March 2017

Department of Aeronautics and Astronautics
Kavli Institute for Astrophysics and Space Research
Room 37-219
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge, Massachusetts 02139

NOTES

Publications are listed in reverse chronological order, and include journal articles, abstracts, and technical reports. MVL student theses are indexed in a separate list, "Man-Vehicle Laboratory Theses," which is available upon request. Copies of all publications are available in limited numbers upon request. When requesting publications, give the MVL publication number listed with each citation. Numbers are assigned when author makes publication available for distribution, usually when it is accepted for publication or is in press. Some publication numbers are missing from sequence because the manuscripts originally assigned to them were reassigned to the year of actual publication in the open literature.

2017

17.01 Brooks, J. D., H. Groshong, A. Liu, P. Houpt and C. Oman (2017). "Survey of Future Railroad Operations and the Role of Automation." *Transportation Research Record: Journal of the Transportation Research Board* 2608: 10-18.

17.02 Young, L.R., Karmali, F., Galvan-Garza, R.C., Rosenberg, M.J.F., Diaz Artilles, A., Oman, C.M., Sherwood, D., Natapoff, A., Kenyon, R., Clark, T.K., "Spatial Orientation and Manual Control in Reduced Gravity", NSBRI HRP Investigators' Workshop, Galveston, TX, Jan. 23-27, 2017

17.03 Young, L.R., Natapoff, A., Greenberg, J., "The Harvard-MIT PhD Program in Bioastronautics", NSBRI HRP Investigators' Workshop, Galveston, TX, Jan. 23-27, 2017

17.04 Young, L.R., "The Harvard-MIT HST-MEMP Bioastronautics PhD Program", Poster for NSBRIP HRP, Investigators' Workshop, Galveston, TX, Jan. 23-27, 2017

2016

16.01 Young, L.R., Natapoff, A., Greenberg, J., "Graduate Training in Bioastronautics at MIT and Harvard", 2016 HRP Symposium, Galveston, TX, Feb. 2016

16.02 Karmali, F., Diaz Artilles, A., Galvan Garza, R., Clark, T.K., Sherwood, D.P., Young, L.R. (2016) "Development of a Countermeasure to Enhance Sensorimotor Adaptation to Altered Gravity Levels" IEEE Aerospace Conference, Big Sky MT. March 9, 2016.

16.03 Gibson, A. E., A. Webb, and L. Stirling, "User abilities in detecting vibrotactile signals on the feet under varying attention loads," HCI International 2016, Toronto, ON, July 17-22, 2016

16.04 Merfeld, D. M., Clark, T. K., Lu, Y. M., & Karmali, F. (2016). Dynamics of Individual Perceptual Decisions. *Journal of Neurophysiology*, 115(1), 39-59. doi:10.1152/jn.00225.2015

16.05 Cullinane, Conor, Richard Rhodes, and Leia Stirling. "Mobility and Agility: Pilot Study Evaluation of Locomotion in the MIII Space Suit Assembly." In *Annual Scientific Meeting of the Aerospace Medical Association*. Atlantic City, NJ, 2016.

16.06 Diaz Artilles, A., Heldt, T., Young, L.R., "Effects of artificial gravity on the cardiovascular system: Computational approach", *Acta Astronautica* 126(2016) 395-410

16.07 Johnson, A.W., Duda, K.R., Sheridan, T.B., Oman, C.M., "A Closed-Loop Model of Operator Visual Attention, Situation Awareness, and Performance Across Automation Mode Transitions", Special Section: Measuring Safety and Performance in Human-Automation Systems: Theories, Metrics, and Practice., September 1, 2016

2015

15.01 Mulavara A.P., Kofman, I.S., De Dios, Y.E., Galvan, R., Goel, R., Miller, C., Peters, B., Cohen, H.S., Jeevarajan, J., Reschke, M., Wood, S., Bergquist, F., Seidler, R.D., Bloomberg, J.J., "Improving Sensorimotor Adaptation Following Long-Duration Spaceflight by Enhancing Vestibular Information Transfer", Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015

15.02 Holshuh, B., Newman, D., "Mechanical Counter-Pressure Space Suit Design Using Active Materials", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015

- 15.03 Hilbert, A., Bertrand, P., Reyes, S., Anderson, A., Newman, D.J., "Human-Spacesuit Interaction: Experimental Results and Future Testing", poster, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.04 Duda, K.R., Vasques, R.A., Middleton, A.J., Hansberry, M.L., Newman, D.J., Jacobs, S.E., West, J.J., "Variable Vector Countermeasure Suit (V2Suit) for Space Exploration", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.05 Diaz, A., Beckers, N.W., Clark, T.K., Sherwood, D., Oman, C., Young, L.R., Karmali, M., "Development of a Countermeasure to Enhance Sensorimotor Adaptation to Altered Gravity Levels", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.06 Diaz, A., Young, L.R., "Artificial Gravity and Exercise on the MIT Compact-Radius Centrifuge", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.07 Kendrick, D., Newman, D., "The Gravity Loading Countermeasure Skinsuit", Poster, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.08 Holschuh, Gatto, G., Levrino, L., Bretl, K., Newman, D., "Active Material Technology Development for Mechanical Counter-Pressure Space Suits using 3D-Printed Components", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.09 Vadhavkar, N.A., Newman, D.J., "Modular Portable Life Support System (PLSS) for Advanced Suit Concepts, Poster, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.10 Vanegas, M., Stirling, L., "Characterization of Sensor Placement Variability on the Human Body upon Repeated Donnings", poster, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.11 Newman, D.J., Anderson, A., Bertrand, P., Diaz, A., Hilbert, A., Hoffman, J., Kracik, M., Reyes, S., Trotti, G., "Conclusions and Paths Forward in Space Suit Injury Countermeasures", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.12 Mulavara, A.P., Seidler, R.D., Feiveson, A., Oddsson, L., Zanello, S., Oman, C.M., Ploutz-Snyder, L., Peters, B., Cohen, H.S., Reschke, M., Wood, S., Bloomberg, J.J., "Physiological Observations and Omics to Develop Personalized Sensorimotor Adaptability Countermeasures using Bed Rest and Spaceflight Data", Abstract Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.13 Galva-Garza, R., Clark, T.K., Merfeld, D.M., Bloomberg, J.J., Mulavara, A.P., Oman, C.M., "Improving Sensorimotor Function using Stochastic Vestibular Stimulation", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.14 Clark, T.K., Galvan, R.C., Bermudez Rey, M.C., Yi, Y., Merfeld, D.M., "Perceptual Noise and Sensorimotor Adaptation", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.15 Clark, T.K., Newman, M.C., Oman, C.M., Merfeld, D.M., Young, L.R., "Modeling Human Orientation Perception in Altered Gravity", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.16 Robinson, S.K., Liu, A.M., Oman, C.M., Mindock, J., Byrne, V., Warren, L.E., Burbank, D.C., Reagan, M., "Customized Refresher and Just-in-Time Training for Long-Duration Spaceflight Crews", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015
- 15.17 Liu, A.M., Galvan, R.C., Rueger, M., Flynn-Evans, E.E., Natapoff, A., Lockley, S.W., Oman, C.M., "Validation of Assessment Tests and Countermeasures for Detecting and Mitigating Changes in Cognitive Function Due to Fatigue during Telerobotic Operations", Abstract, Human Research Program Investigators' Workshop, Galveston, TX, Jan. 13-15, 2015

- 15.18 Clark, T.K., Newman, M.C., Merfeld, D.M., Oman, C.M., and Young, L.R. (2015). Human Manual Control Performance in Hyper-Gravity. *Experimental Brain Research* 233, 1409-1420. doi: 10.1007/s00221-015-4215-y.
- 15.19 Diaz, Ana, Trigg, Chris, Young, Laurence R., "Combining ergometer exercise and artificial gravity in a compact-radius centrifuge", *Acta Astronautica* 113 (2015) 80-88.
- 15.20 Diaz, A., Young, L.R., "Effects of Artificial gravity on the Cardiovascular System: Computational Approach", (abstract), 66th International Astronautical Congress, October 12-16, 2015, Jerusalem, Israel
- 15.21 Clark TK, Newman MC, Oman CM, Merfeld DM, Young LR (2015) Human Perceptual Overestimation of Whole-Body Roll Tilt in Hyper-Gravity. *Journal of Neurophysiology* 113: 2062-2077.
- 15.22 Clark TK, Newman MC, Oman CM, Merfeld DM, Young LR (2015) Modeling Human Perception of Orientation in Altered Gravity. *Frontiers in Systems Neuroscience* 9.
- 15.23 Oman, C. M., "Towards Integrated Countermeasures for Deep Space Exploration: Vestibular Function for Balance and Beyond", Vestibular-Autonomic Responses Session, NSBRI Workshop, Houston, TX, May 7, 2015
- 15.24 Young, L.R., et al, "Review of NASA's Evidence Report on Human Health Risks", 2014 Letter Report, Institute of Medicine of The National Academies
- 15.25 Diaz, A. Sherwood, D., Beckers, N. W. M., Galvan-Garza, R. C., Natapoff, A., Oman, C. M., Clark, T. K., Karmali, F. Young, L. R. Development of a Countermeasure to Enhance Sensorimotor Adaptation to Altered Gravity Levels. National Space Biomedical Research Institute Symposium, May 7, 2015, Houston, TX.
- 15.26 Hall, S., Mitchell, C., Assad, C., Wolf, M., Hoffman, J., Stirling, L., "Intuitive Gesture Control for the ISS Space Station Remote Manipulator Arm", IAC 15-A5.3-B3.6.5, 66th International Astronautical Congress, Jerusalem, Israel, October 12, 2015
- 15.27 Meyen, F., Hoffman, J., Hecht, M., "Thermodynamic Model of Mars Oxygen ISRU Experiment (MOXIE)", 66th International Astronautical Congress, Jerusalem, Israel, IAC-15.B3.7.10, October 12-16, 2015
- 15.28 Meyen, F., Hoffman, J., Hecht, M., "Thermodynamic Model of Mars Oxygen ISRU Experiment (MOXIE)", abstract for 66th International Astronautical Congress, Jerusalem, Israel, October 12-16, 2015
- 15.29 Diaz Artilas, A., Heldt, T., Young, L.R., "Artificial gravity and Ergometer Exercise on the Cardiovascular System", manuscript submitted to JAP, November 2015
- 15.30 van Loon, J. et al, "Moon as a Stepping Stone for Mars: Centrifuge on the Moon!", (slides) Moon 2020-2030: A New Era of Coordinated Human and Robotic Exploration/Exploration Technology Showcase ESTEC, Noordwijk, The Netherlands, 14 December 2015
- 15.31 Beckers, Niek, Richard Fineman, and Leia Stirling. "Anticipatory Signals in Kinematics and Muscle Activity During Functional Grasp and Release." In *IEEE Body Sensor Networks*. Boston, MA, 2015.
- 15.32 Cullinane, Conor, Richard Rhodes, and Leia Stirling. "Mark III Technology Demonstrator Suit: Hip Brief Assembly Bearing Analysis." In International Conference on Environmental Systems. Bellevue, WA, 2015.
- 15.33 Vanegas, Morris, and Leia Stirling. "Characterization of inertial measurement unit placement on the human body upon repeated donnings." In *IEEE Body Sensor Networks*. Boston, MA, 2015

2014

- 14.01 Clark, T.K., Merfeld, D.M., Newman, M.C., Young, L. R. "Pilot control and Stabilization of a Rate-Controlled Vehicle in Hyper-Gravity", IEEE, 2014 Aerospace Conference, at the Yellowstone Conference Center in Big Sky, Montana, Mar 1 - 8, 2014
- 14.02 Diaz, A., Young, L.R., "Human Modeling and Experimentation under Artificial gravity using the MIT Compact Radius Centrifuge", poster for NASA's Human Research Program Investigators' Workshop, Galveston, TX, Feb. 11-13, 2014
- 14.03 Young, Laurence R., Retirement Remarks – Dec. 13, 2013
- 14.04 Young, L.R., "Sensory-Motor Adaptation What Have We Learned in 40 Years?", ppt presentation , WCBR 2014, Steamboat Springs, CO
- 14.05 Torin K. Clark, Alexander J. Stimpson, Laurence R. Young, Charles M. Oman, Alan Natapoff, and Kevin R. Duda, "Human Spatial Orientation Perception During Simulated Lunar Landing Motions," *Journal of Spacecraft and Rockets*, (2014), accessed February 11, 2014, doi: <http://arc.aiaa.org/doi/abs/10.2514/1.A32493>
- 14.06 Johnson, A.W., Oman, C.M., Sheridan, T.B., Duda, K.R., "Dynamic Task Allocation in Operational Systems: Issues, Gaps, and Recommendations", 2014, IEEE
- 14.07 Anderson, A., Hilbert, A., Bertrand, P., Newman, D.J., "Space Suit Trauma Countermeasure System – Pressure Sensing Capability for in-Suit Characterization", NASA Human Research Program Investigators' Workshop, Feb. 11-13, 2014, Galveston, TX
- 14.08 Young, L.R., Natapoff, A., Greenberg, J., "The Harvard-MIT PhD Program in Bioastronautics, NASA Human Research Program Investigators' Workshop, Feb. 11-13, 2014, Galveston, TX (poster)
- 14.09 Meyen, F., Duda, J.E., Opperman, R., N. Jawdat, J. Chambers, D.J. Newman, Hoffman, J., Perusek, G., "Pneumatic Exoskeleton for Space Suit Simulation, abstract, NASA Human Research Program Investigators' Workshop, Feb. 11-13, 2014, Galveston, TX
- 14.10 Johnson, A.W., Kaderka, J.D., "Pilot Visual Scan Patterns during Lunar Landing Mode Transitions", abstract, NASA Human Research Program Investigators' Workshop, Feb. 11-13, 2014, Galveston, TX
- 14.11 Diaz, A., Young, L.R., Human Modeling and Experimentations under Artificial Gravity using the MIT Compact Radius Centrifuge", NASA Human Research Program Investigators' Workshop, Feb. 11-13, 2014, Galveston, TX
- 14.12 Young, L.R., Beckers, N.W.M., Karmali, F., Clark, T.K. "Countermeasures to Reduce Sensorimotor Impairment and Space Motion Sickness Results from Altered Gravity Levels" NASA Human Research Program Investigator's Workshop, Feb. 11-13, 2014, Galveston, TX (abstract and presentation).
- 14.13 Clark, T.K., Newman, M.C. "Human Manual Control of Vehicle Roll Tilt in Hyper-Gravity" NASA Human Research Program Investigator's Workshop, Feb. 11-13, 2014, Galveston, TX (abstract and poster).
- 14.14 Beckers, N.W.M., Young, L.R., Karmali, F., Clark, T.K. "Studying the Innate Capacity for Sensorimotor Adaptation to Altered Gravity Levels" NASA Human Research Program Investigator's Workshop, Feb. 11-13, 2014, Galveston, TX (abstract and poster).
- 14.15 Galvan, R.C., Bloomberg, J.J., Mulavara, A.P., Clark T.K., Merfeld, D.M., Oman, C.M. "Improving Sensorimotor Function and Adaptation using Stochastic Vestibular Stimulation" NASA Human Research Program Investigator's Workshop, Feb. 11-13, 2014, Galveston, TX (abstract and poster).
- 14.16 Clark, T.K. "Predicting Sensorimotor Adaptation to Altered Gravity by Measuring Vestibular Perceptual Thresholds" NSBRI Symposium: Designing for the Future: Remote Rehabilitation and Integration of New Technologies in Spaceflight, May 6-7, 2014, Houston, TX (presentation)
- 14.17 Clark, T.K., Newman, M.C., Oman, C.M., Merfeld, D.M., Young, L.R. "Human Perception of Roll Tilt in Hyper-Gravity: Experiments and Modeling" XXVIIIth Barany Society Meeting, May 25-28th, 2014, Buenos Aires, Argentina (abstract and poster).

- 14.18 Clark, T.K., Yi, Y., Galvan-Garza, R. Bermudez Rey, M.C., Merfeld D.M. "How Many Decision Boundaries Contribute to Human Vestibular Decisions?" Society for Neuroscience meeting, Nov. 15-19, 2014, Washington, D.C. (abstract)
- 14.19 Newman, Dava, "A BioSuit Takes Shape", Textile Insight, May/June 2014
- 14.20 Diaz, A., Trigg, C., Young, L.R., "Combining Ergometer Exercise and Artificial Gravity", 65th International Astronautical Congress, Toronto, Canada, 2014.
- 14.21 Young, L., "New York City Ski Memories", Skiing History, Journal of the International Skiing History Association, Vol. 26, No. 4, July-August 2014.
- 14.22 Young, L. "Retirement Remarks: MIT President's Dinner", MIT Museum, May 21, 2014
- 14.23 Clark, T.K., Newman, M.C., Oman, C.M., Merfeld, D.M., Young, L.R., "Human Perceptual Overestimation of Whole-Body Roll Tilt in Hyper-Gravity", in Press, Journal of Neurophysiology (December 24, 2014). Doi:10.1152/jn.00095.2014
- 14.24 Mulavara A.P., Kofman, I.S., De Dios, Y.E., Galvan, R., Goel, R., Miller, C., Peters, B., Cohen, H.S., Jeevarajan, J., Reschke, M., Wood, S., Bergquist, F., Seidler, R.D., Bloomberg, J.J., "Improving Sensorimotor Adaptation Following Long-Duration Spaceflight by Enhancing Vestibular Information Transfer", Abstract, Human Research Program Investigators' Workshop, Galveston, TX Jan. 13-15, 2015
- 14.25 Anderson, A., Hilbert, A., Bertrand, P., McFarland, S., Newman, D.J., "In-Suit Sensor Systems for Characterizing Human-Space Suit Interaction", 44th International Conference on Environmental Systems, 13-17 July 2014, Tucson, Arizona

2013

- 13.01 Mateus, J., Hargens, A.R., (2013). "Bone Hemodynamic Responses to Changes in External Pressure", BONE 52(2) p.604-610.
- 13.02 L. R. Young¹, C. M. Oman¹, T. K. Clark^{1,2}, S. E. Tritchler¹, K. R. Duda², S. J. Wood³, and A. Estrada⁴ SENSORIMOTOR DISPLAYS AND CONTROLS TO ENHANCE SAFETY OF HUMAN/MACHINE COOPERATION DURING LUNAR LANDING: PROJECT REVIEW, Abstract, Human Research Program Investigators' Workshop, Galveston, TX , Feb. 12-14, 2013
- 13.03 MacLeish, M.Y., McNeel, R.L., Young, L.R., Turner, N.D., Hackler, A.E., Thomson, W.A., "Success in Mentoring is no Accident: Improving Mentoring in STEM Education", NASA Human Research Program Investigators' Workshop, Galveston, TX, Feb. 12-14, 2013
- 13.04 Holschuh, B., Obropta, E., and Newman, D. "Shape Memory Alloy (SMA) Coil Actuators for Use in Controllable Mechanical Counter-Pressure (MCP) Space Suits". NASA 2013 Human Research Program Investigators' Workshop, Galveston TX, February 12-14, 2013.
- 13.05 Diaz, A., Anderson, A., Kracik, R, Trotti, G., Hoffman, J. and Newman, D. J. (2013): "Development of a musculoskeletal human spacesuit interaction model". 2013 NASA Human Research Program Investigators' Workshop, Galveston, Texas, USA, February 12-14, 2013.
- 13.06 Clark, T.K., and Newman, M.C., "Human Perception of Roll Tilt in Hyper-Gravity", (abstract and poster) NASA 2013 Human Research Program Investigators' Workshop, Galveston, TX, February 12-14, 2013.
- 13.07 Clark, T.K., Newman, M.C., Young, L.R., "Effect of hyper-gravity on human perception of vehicle roll tilt", (abstract) NASA 2013 Human Research Program Investigators' Workshop, Galveston, TX , February 12-14, 2013.
- 13.08 Kaderka, J.D., Duda, K.R., "Pilot Detection of System Failures during a Lunar Landing Task in a Motion Simulator", poster, NASA Human Research Program Investigators' Workshop, Galveston, TX, February 12-14, 2013.

13.09 Trigg, Chris, Young, Laurence R., "Design of a Short Radius Centrifuge Artificial Gravity Test Platform", Poster presented at the 2013 NASA Human Research Program Investigators' Workshop, Galveston Texas, February 12-14, 2013.

13.10 Young, L., "MJ and Adaptation From the 1960's How Our Shared Interest in Aviation, Control Theory and Vestibular Function got started", (ppt)Symposium on Sensing Motion for Action a tribute to the career of Geoffrey Melvill Jones, July 13-14, 2013, Montreal, Canada

13.11 Hainley CJ, Duda KR, Oman CM, Natapoff A (2013) Pilot performance, workload and situation awareness during lunar landing mode transitions. *AIAA Journal of Spacecraft and Rockets* 50:793-801 doi: 10.2514/1.A32267

13.12 Clark, T.K., Newman, M.C., Young L.R., "Effect of Hyper-Gravity on Human Perception of Vehicle Roll Tilt", 19th IAA Humans in Space Symposium, Cologne, Germany, July 8-12, 2013.

13.13 Young, L. R. , "Countermeasure for a Mars Exploration Mission", presented at the International Forum for Space Life Science and Space Biotechnology, Beijing, September 24, 2013 (abstract)

13.14 Vadhavkar, N.A., Somers, J.T., "Correlation of Hybrid III numerical models with physical ATD responses in various loading directions, Poster presentation at 2013 NASA Human Research Program Investigators' Workshop, Galveston, Texas, February 12-14, 2013

13.15 Young, L.R., Trigg, C., "Design of a compact Short Radius Centrifuge Artificial Gravity Test Platform", abstract, presented at the 64th International Astronautical Congress, (IAC), Beijing, China, 23-27 September, 2013

13.16 Trigg, Chris, Young, Laurence, "Design of a Short Radius Centrifuge Artificial Gravity Test Platform", Poster, presented at the 64th International Astronautical Congress, (IAC), Beijing, China, 23-27 September, 2013

13.17 Young, L.R., "Padding- From Helmets to Towers" ppt. slides presented at the 2013 20th ISSS Congress, Bariloche, Argentina, Aug 4, 2013

13.18 Oman, C. M. (2013). Locomotive Alerter Technology Assessment. Transportation Research Board Railroad Operational Safety (AR070) Themed Meeting The Future Locomotive: How to Manage What You Have Today With a View to the Future. A. Mills, L. Fleischer, M. Jones, J. Keenan and H. Rosenhand. Union Pacific Center, Omaha, Nebraska, TRB Railroad Operational Safety Meeting, Omaha NB, July 30-31, 2013

13.19 Oman CM, Cullen KE (2013) Reafference Cancellation in Brainstem Vestibular Neurons: Implications for Motion Sickness Etiology. In: Horn CC, Yates BJ (eds) *Biology and Control of Nausea and Vomiting 2013*. University of Pittsburgh, Pittsburgh PA

13.20 Young, L.R., "Models for Adaptation of the VOR", Motion Sensing, Montreal, July 14, 2013

13.21 Young, L., "The Man Vehicle Lab at 50", Annual 2012-13, MIT, AeroAstro No. 10, July 2013

13.22 Schimizza, Benjamin, Son, Steven F., Goel, Rahul, Vechart, Andrew P., and Young, Laurence, "An experimental and numerical study of blast induced shock wave mitigation in sandwich structures", *Applied Acoustics* 74 (2013) 1-9

2012

12.01 Duda, K., Jarchow, T., Young, L., "Squat Exercise Biomechanics During Short-Radius Centrifugation", *Aviation, Space, and Environmental Medicine*, Vol. 83, No. 2, February 2012

12.02 Young, L.R., Natapoff, A., Greenberg, J., "The Harvard-MIT PhD Program in Bioastronautics", abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.03 Liu, A.M., Wang, V., Forman, R.E., Galvan, R.C., Natapoff, A., Oman, C.M., "Advanced Displays for Efficient Training and Operation of Robotic Systems", abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, Feb. 13-16, 2012

12.04 Young, L.R., Oman, C.M., Clark, T.K., Tritchler, S.E., Duda, K.R., Wood, S.J., Estrada, A., "Sensorimotor Interaction with Vehicle Displays and Controls to Enhance Human-Machine Cooperation during Precision Lunar Landing", abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.05 Clark, T.K. and Newman, M.C., "Human Orientation Perception of Roll Tilt in Hyper-Gravity", poster, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.06 Kaderka, J.D., Duda, K.R., Oman, C.M., "Development and Simulation of a Pilot Failure Detection Model within a Closed-Loop Human-System Model", poster, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.07 Wen, H.Y., Johnson, A.W., Duda, K.R., Oman, C.M., and Natapoff, A., "Investigating Human-Automation task Allocation in Lunar Landing Through Simulation and Human Subject Experiments", poster, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.08 Liu, A.M., Lowenthal, C.S., Galvan, R.C., Forman, R.E., Rueger, M., Flynn-Evans, E.E., Natapoff, A., Lockley, S.W., Oman, C.M., "Validation of Assessment Tests and Countermeasures for Detecting and Mitigating Changes in Cognitive Function during Robotic Operations", abstract, , NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.09 Duda, K. R., T. Jarchow, L. R. Young (2012) "Squat Exercise Biomechanics During Short-Radius Centrifugation." Aviation, Space, and Environmental Medicine, 83(2):1-9.
DOI: 10.3357/ASEM.2334.2012

12.10 Van Loon, J.W.A., Baeyens, Berte, J., Blac, S., Bok, K., Bos, J., Royle, R., Braak, L., Bravenboer, N., Chouker A., Clement, G., Cras, P., Cross, E., Custaud, M-A., Angelis, M.De, de Dreu, C., Delavaux, T., Delfos, R., Denise, P., eekhoff, M., Felsenberg, D., Fong, K., Fuller, C., Goswami, N., Grillner, S., Groen, E., Harlaar, J., Heer, M., Heglund, N., Hinghofer-Szalkay, H., Hughes-Fulford, M., Iwase, S., Karemaker, J., Langdahl, B., Linnarsson, D., Luthen, C., Manzey, D., Monici, M., Narici, M., Norsk, P., Paloski, W., Poelma, C., Prisk, K., Rutten, M., Singer, P., Stegeman, D., Stephan, A., Stienen, G., Suedfeld, P., Tesch, P., Ullrich, O., van de Heyning, P., van den Berg, R., Veys, J., Vico, L., Woodward, E. Young, L., Wuyts, F., "A Large Human Centrifuge for Exploration and Exploratory Research", (abstract) 39th COSPAR Scientific Assembly 2012

12.11 void

12.12 void

12.13 Duda K.R., Kaderka J.D., Johnson A.W., Wen H.Y., Hainley C.J. Jr., Oman C.M., Natapoff A., Marquez J.J., "Human-Automation Interactions and Performance Analysis of Lunar Lander Supervisory Control", NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.14 Duda J.E., Opperman R.A., Gilkey A.L., De Vivero C., Newman D.J., Hoffman J., Gilkey K., "Space Suit Simulator for EVA Experimentation and Training" abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

12.15 Anderson A., Diaz A., Kracik M., Kobrick R., Trotti G., Hoffman J., Newman D.J., "Methodology Toward Developing a Spacesuit Trauma Countermeasure System for Extravehicular Activity", abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012

- 12.16 Anderson A., Newman D.J., "Modeling Astronaut-Spacesuit Interaction to Develop a Spacesuit Trauma Countermeasure System for Extravehicular Activity", abstract, NASA Human Research Program Investigators' Workshop, Houston, TX, February 13-16, 2012
- 12.17 Clark, T.K., Young, L. R., Duda, K.R., Oman, C.M., "Simulation of Astronaut Perception of Vehicle Orientation during Planetary Landing Trajectories", presented at the 2012 IEEE Conference, Bozeman, MT, March 3, 2012
- 12.18 Rood, A., D. Dietrich, K. Sparks, D. Dashevsky, D. Wajda, J. Mateus, A. Johnson and D. Newman (2012). *Pulse Oximetry and Ventilation Data during Exposure to 7620m (25,000 feet) Normobaric Hypoxia*. 83rd Annual Meeting of the Aerospace Medical Association Atlanta, GA.
- 12.19 George A. Christou, Laurence R. Young, Rahul Goel, Andrew P. Vechart, Antoine Jérusalem, Shock attenuation of PMMA sandwich panels filled with soda-lime glass beads: A fluid-structure interaction continuum model simulation", *Journal of Impact Engineering*, Volume 47, September 2012, Pages 48-59
- 12.20 Small, R. L., C. M. Oman and T. D. Jones (2012). "Space Shuttle Flight Crew Spatial Orientation Survey Results." Aviation, Space, and Environmental Medicine **83**(4): 383-387
- 12.21 Young, L.R., Clark, T. K., Estrada, A., and Tritchler, S., "Lunar dust challenges to astronaut landing", abstract, Dust, Atmosphere and Plasma: Moon and Small Bodies Workshop, June 6-8, 2012, Boulder, CO
- 12.22 Oman, C. M. and K. E. Cullen (2012). "Brainstem processing of vestibular sensory reafference: implications for motion sickness etiology (Abstract 245)." Aviation Space and Environmental Medicine **83**(3): 279.
- 12.23 Lowenthal, C. S., A. Liu, A. Natapoff and C. M. Oman (2012). "Effect of sleepiness on performance and workload during space robotics tasks (abstract 227)." Aviation Space and Environmental Medicine **83**(3): 274.
- 12.24 Mateus, J. and A. R. Hargens (2012). "Photoplethysmography for non invasive *in vivo* measurement of bone hemodynamics." *Physiological Measurement* **33**(6): 1027-1042.
- 12.25 Liu, A.M., Oman, C.M., Galvan, R., Natapoff, A., "Predicting space telerobotic operator training performance from human spatial ability assessment", *Acta Astronautica* 92 (2013), 38-47, <http://dx.doi.org/10.1016/j.actaastro.2012.04.004>
- 12.26 Laurence R. Young^{a,*}, Laurence Bernard-Demanze^b, Michel Dumitrescu^b, Jacques Magnan^c, Liliane Borel^b, Michel Lacour^b Postural Performance of Vestibular Loss Patients Under Increased Postural Threat, *JVR*, 22 (2012) 129-138, May 2012, Joint World Congress of ISPGR and Gait & Mental Function. Trondheim, Norway, June 24-28, 2012
- 12.27 Arai, T., Lee, K., Marini, R. P., and Cohen, R. J., "Estimation of Changes in Instantaneous Aortic Blood Flow by the Analysis of Arterial Blood Pressure", *Journal of Applied Physiology*, vol. 112, no. 11 (2012) PP. 1832-1838.
- 12.28 Schimizza, Benjamin, Son, Steven F., Goel, Rahul, Vechart, Andrew P., and Young, Laurence, "An experimental and numerical study of blast induced shock wave mitigation in sandwich structures", *Applied Acoustics* (2012) <http://dx.doi.org/10.1016/j.apacoust.2012.05.011>
- 12.29 Anderson, A., D. Newman, "Developing a Spacesuit Injury Countermeasure System for Extravehicular Activity" International Conference on Environmental Systems 2012, San Diego. (Poster, 1st Place)
- 12.30 Anderson A., A. Diaz, M. Kracik, G. Trotti, J. Hoffman, and D. Newman, "Developing a Spacesuit Injury Countermeasure System for Extravehicular Activity: Modeling and Analysis" International Conference on Environmental Systems 2012, San Diego. (Paper + talk)
- 12.31 Anderson, A., D. Newman, "Modeling Astronaut-Spacesuit Interaction To Develop a Spacesuit Trauma Countermeasure System for Extravehicular Activity" NASA Human Research Program Investigator's Workshop 2012, Houston. (Poster)

12.32 Anderson A., A. Diaz, M. Kracik, R. Kobrick, G. Trotti, J. Hoffman, and D. Newman, "Methodology Toward Developing a Spacesuit Trauma Countermeasure System for Extravehicular Activity" NASA Human Research Program Investigator's Workshop 2012, Houston. (Poster)

12.33 void

12.34 void

12.35 Domingues, A.R., Marreiros, S.P., Martins, J.M., Silva, M.T., Newman, D.J., "Analysis of ankle skin deformation for the development of soft orthotics", [ESB 2012: 18th Congress of the European Society of Biomechanics](#), Lisbon, Portugal, Jul. 2012.

12.36 Kobrick, R.L., Carr, C.E., Meyen, F., Domingues, A.R. and Newman, D.J. (2012): "Using inertial measurement units for space vehicle safety, comfort, design, and performance optimization" (abstract). Next-Generation Suborbital Researchers Conference 2012. Session: Life Sciences. Palo Alto, California, USA.

12.37 Young, L.R., C.M. Oman, T.K. Clark, S.E. Tritchler, K.R. Duda, S.J. Wood, and A. Estrada (2012) "Sensorimotor interaction with vehicle displays and controls to enhance human-machine cooperation during precision lunar landing" [Abstract] NASA Human Research Program Investigators' Workshop. Houston, TX. 14-16 February.

12.38 Clark, T.K., L.R. Young, K.R. Duda, and C.M. Oman (2012) "Simulation of Astronaut Perception of Vehicle Orientation during Planetary Landing Trajectories" IEEE Aerospace Conference. Big Sky, MT. 3-10 March.

12.39 void

12.40 Diaz, A., Anderson, A., Kracik, M., Trotti, G., Hoffman, J. and Newman, D. J. (2012): "Development of a comprehensive astronaut spacesuit injury database". 63rd International Astronautical Congress 2012. Naples, Italy.

12.41 Wen, H.Y., Johnson, A.W., Duda, K.R., Oman, C.M., Natapoff, A., "Decision-Making and Risk-Taking Behavior in Lunar Landing", 56th Annual Meeting of the Human Factors and Ergonomics Society, 22-26 Oct. 2012.

12.42 Alibay, F., Desaraju, V., Cowlagi, R., Duda, J.E., Johnson, A.W., Hoffman, J.A., "Multi-Vehicle Lunar Operations Simulation Using SEXTANT", AIAA SPACE 2012 Conference, Pasadena, CA, 11-13 Sept. 2012.

12.43 Johnson, A., Stimpson, A., Clark T., "Turning the Tide: Big Plays and Psychological Momentum in the NFL", *Football Outsiders Almanac 2012*, Ed. Aaron Schatz, Football Outsiders, 2012, 518-522.

12.44 Johnson, A.W., Stimpson, A.J., Clark T.K., "Turning the Tide: Big Plays and Psychological Momentum in the NFL", poster presented at the 2012 MIT Sloan Sports Analytics Conference, Boston, MA, 2-3 Mar. 2012.

12.45 Clark, T.K., Johnson, A.W., Stimpson, A.J., "Why Devin Hester is a Better Returner when He Doesn't Touch the Ball: The Effectiveness of the Squib Kickoff in the NFL", paper submitted for the 2012 MIT Sloan Sports Analytics Conference, Boston, MA, 2-3 Mar. 2012.

12.46 Rood, A., D. Dietrich, K. Sparks, D. Dashevsky, D. Wajda, J. Mateus, A. Johnson and D. Newman (2012). *Pulse Oximetry and Ventilation Data during Exposure to 7620m (25,000 feet) Normobaric Hypoxia*. [83rd Annual Meeting of the Aerospace Medical Association](#) Atlanta, GA.

12.47 Johnson, A.W., Newman, D.J., Waldie, J.M., Hoffman, J.A., "An EVA Mission Planning Tool based on Metabolic Cost Optimization", SAE 2009-01-2562, 39th International Conference on Environmental Systems (ICES), Savannah, GA, 12-16 July 2012.

12.48 Wilcox, Ronald; Nikolaidis, Stefanos, Shah, Julie, "Optimization of Temporal Dynamics for Adaptive Human-Robot Interaction in Assembly Manufacturing," In Proc. Robotics, Science and Systems (RSS); Sydney, Australia; July 2012.

- 12.49 Gombolay, Matthew, Shah, Julie, "A Uniprocessor Scheduling Policy for Non-Preemptive Task Sets with Precedence and Temporal Constraints", AIAA Infotech@Aerospace; Garden Grove, California; June 2012.
- 12.50 Nikolaidis, Stefanos, Shah, Julie, "Human-Robot Interactive Planning using Cross-Training: A Human Team Training Approach AIAA Infotech@Aerospace; Garden Grove, California; June 2012.
- 12.51 Wilcox, Ron, Shah, Julie, "Optimization of Multi-Agent Workflow for Human-Robot Collaboration in Assembly Manufacturing", AIAA Infotech@Aerospace; Garden Grove, California; June 2012.
- 12.52 Nikolaidis, Stefanos, Shah, Julie., "Human-Robot Teaming using Shared Mental Models", IEEE/ACM International Conference on Human-Robot Interaction, Workshop on Human-Agent-Robot Teamwork; Boston, MA; Mar 2012.
- 12.53 Holschuh, B., Obropta, E., Buechley, L., and Newman, D. "Materials and Textile Architecture Analyses for Mechanical Counter-Pressure Space Suits using Active Materials", AIAA Space 2012 Conference and Exposition, Pasadena, CA, September 11-13, 2012. (accepted)
- 12.54 Kobrick, R.L., Carr, C., Newman, D.J., Meyen, F., Domingues, A.R. and Jacobs, S. (2012): " Using inertial measurement units for measuring spacesuit mobility and work envelope capability for intravehicular and extravehicular activities" (abstract). 63rd International Astronautical Congress. Space Life Sciences Symposium, Life Support and EVA Systems Session. Naples, Italy. IAC-12,A1,6,6,x13275.
- 12.55 Newman, Michael, Clark, Torin, "Human Orientation Perception in Hyper Gravity ETC Newsletter, June 29, 2012, <http://www.etcusa.com/etc-newsletter/?p=170>
- 12.56 van Loon, J.J.W.A., Young, L.R., et al., "An Centrifuge for Exploration and Exploitation Research" manuscript for publication in ANNALES KINESIOLOGIAE, received 2012-07-12
- 12.57 Alibay, F., V. Desaraju, R. Cowlagi, J. Duda, A.W. Johnson, and J.A. Hoffman (2012) Multi-Vehicle Lunar Operations Simulation using SEXTANT. AIAA Space 2012 Conference and Exposition, Sep 11-13, Pasadena, CA.
- 12.58 Alibay, F., V. Desaraju, J. Duda, and J.A. Hoffman (2012). Fractionated Robotic Architectures for Planetary Surface Mobility Systems. Paper and presentation, International Astronautical Congress, Oct. 1-5, Naples, Italy.
- 12.59 Jeevarajan, J.A., Fiedler, M.J., Duda, K.R., Oman, C.M., Young, L.R., Wood, S.J, MAINTAINING CONTROL OF TILT AND TRANSLATION POSITION WITH AND WITHOUT VISUAL FEEDBACK, abstract, AsMA Conference in Chicago
- 12.60 Oman, C.M., "Introduction – 8th Symposium on the Role of the Vestibular Organs in Space Exploration", Houston, TX, April 8-10, 2011, Journal of Vestibular Research 22 (2012) 55, IOS Press
- 12.61 Oman, C.M., Paloski, W. H., Young, L.R., "In Memoriam F. Owen Black, M.D.", Journal of Vestibular Research 22 (2012) 56, IOS Press
- 12.62 Oman, Charles M., "Are Evolutionary Hypotheses for Motion Sickness "Just-So" Stories? Manuscript of paper first presented at : 8th Symposium on the role of the Vestibular Organs in Space Exploration, Houston, TX, April 9, 2011, Journal of Vestibular Research, 22 (2012) 117-127
- 12.63 Selva, P., Oman, C.M., "Relationships between Observer and Kalman Filter models for human dynamic spatial orientation", Journal of Vestibular Research, 22, (2012) 69-80, IOS Press
- 12.64 MVL@50 – Program Brochure, September 14, 2012
- 12.65 Young, L.R., "My Second Quarter Century with the MIT Man-Vehicle Lab (1987-2012), included in the MVL @50 Program Brochure, September 14, 2012

2011

11.01 see 12.28

11.02 Stimpson, A.J., Young, L.R., Clark, T.K., Duda, K.R., and Oman, C.M., "Effects on an Achievability Display on Pilot Decision Making and Behavior in Simulated Lunar Landings", (abstract) 18th IAA Humans in Space Symposium, Houston, TX, 11-15 April 2011

11.03 Hainley, C.J., Duda, K.R., and Oman, C.M., "Graceful" Automation transitions in a Multi-Modal Lunar Landing Vehicle, (abstract) 18th IAA Humans in Space Symposium, Houston, TX, 11-15 April 2011

11.04 Wen, H.Y., Duda, K.R. and Oman, C.M., "Modeling Effects of Human-Automation Task Allocation on Lunar Landing Performance", (abstract) 18th IAA Humans in Space Symposium, Houston, TX, 11-15 April 2011

11.05 Domingues, A.R., Marreiros, S.P., Martins, J.M., Silva, M.T., Newman, D.J., "Skin Strain Field Analysis of the Human Ankle Joint", 4^o Congresso Nacional de Biomecânica (CNB2011), Coimbra, Portugal, Feb. 2011.

11.06 Kobrick, R.L., Anderson, A., Wagner, E.B., Newman, D.J., "MIT's Man Vehicle Laboratory Capabilities for Suborbital Spaceflight, 2011 Next Generation Suborbital Researchers Conference, Orlando, FL, Mar. 2011 (submitted)

11.07 Rood, A., Dashevsky, D., Fast, B., Kobyljanec, A., Glickman, E., Newman, D.J., Dietrich, D., "A Novel Hypoxia Monitoring, Prediction and alert System, Aerospace Medical Association, Ankorage AK, May 2011 (submitted)

11.08 Meyen, F.E., Holschuh, B., Kobrick, R.L., Jacobs, S., and Newman, D.J., "Robotic Joint Torque Testing: A Critical Tool in the Development of Pressure Suit Mobility Elements" 41st International Conference on Environmental Systems 2011, Portland, OR, July 2011.

11.09 Gilkey, A., Kobrick, R.L., Johnson, A.W., Hoffman, J.A., Newman, D.J., "Evaluation of a Surface Exploration Traverse Analysis and Navigation Tool", 41st International Conference on Environmental Systems 2011, Portland, OR, July 2011 Session ICES400: AMSE Extravehicular Activity: Space Suits, Portland, Oregon, USA, AIAA Control ID: 1022016. (submitted)

11.10 Gilkey, A., Melo, P.L., Kobrick, R.L., Kuan, J.-Y., Young, D., Newman, D.J., "Using IMU Sensors for Real-Time Manipulation of Robot Spacesuit Tester to Determine Internal Joint Torque Measurements in Spacesuits", 41st International Conference on Environmental Systems 2011, Portland, OR, July 2011. (submitted)

11.11 Young, L. R., "Optimal Estimator Models for Spatial Orientation and Vestibular Nystagmus", Experimental Brain Research (2011) 210:465-476

11.12 Mateus, J., Hargens, A.R. "Non-Invasive Bone Hemodynamics by Photoplethysmography", 18th IAA Humans in Space Symposium, Houston, TX, 11-15 April 2011.

11.13 Mateus, J., Hearn, A.N., Canizales, J., Young, L.R. " Cross-coupled stimulus during artificial gravity: Asymmetric tumbling sensation response", Poster Session 4, Journal of Vestibular Research, 21 (2011) 77-85, IOS Press, Special Issue, Abstracts from the Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX, April 8-10, 2011

11.14. Newman, M.C., McCarty, G.W., Comtois, P.W., Glaser, S.T., Bonato, F., "Adaptation to coriolis-iducing head movements in a sustained-G high performance flight simulator, Poster Session 4, Journal of Vestibular Research, 21 (2011) 78-79, IOS Press, Special Issue, Abstracts from the Eight Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX, April 8-10, 2011

11.15 Rosales-Velderrain, A., Cardno, M., Mateus, J., Schlabs, T., Kumar, R., Hargens, A.R., "Toe Blood Pressure and Leg Muscle Oxygenation with Body Posture", Experimental Biology, April 9-13, 2011, Washington D.C.

- 11.16 Bachman, L.L.Jr., Mateus, J., Hargens, A.R., "Hemodynamics of Bone and Muscle in the Lower Limb with Head-up and Head-down Tilt", 18th IAA Humans in Space Symposium, April 11-15, 2011, Houston, TX
- 11.17 Mateus J, Canizales J, Hearn AN, Young LR (2011) Asymmetry in vestibular responses to cross coupled stimulus. *Exp Brain Res* 209 (4):561-569. doi:10.1007/s00221-011-2588-0
- 11.18 Young, Laurence R., Vechart, Andrew P., "Head Impact Protection Through Filler Materials Embedded in a Helmet Liner", (abstract) 2011 ISSS symposium in Keystone, CO, May 1-7, 2011
- 11.19 Rader, Andrew, A., Oman, Charles, M., "Perceived tilt and translation during variable-radius swing motion with congruent or conflicting visual and vestibular cues", *Exp Brain Res* (2011) 210:173-184
- 11.20 Arai, Tatsuya, Lee, Kichange, Stenger, Michael B., Platts, Steven H., Meck, Janice V., Cohen, Richard J. "Preliminary application of a novel algorithm to monitor changes in pre-flight total peripheral resistance for prediction of post-flight orthostatic intolerance in astronauts", *Acta Astronautica* 68 (2011) 770-777
- 11.21 Mulugeta, L., Battler, M., Persaud, R., Kobrick, R.L., Thaler, J., and Shelaga, R. (2011): "Expedition Mars: A Mars Analogue Program Dedicated to Advancing Competency in Human Planetary Surface Exploration" (abstract). 41st International Conference on Environmental Systems 2011, Session ICES308: AIChE Education Outreach, Portland, Oregon, USA. AIAA Control ID: 1026686.
- 11.22 Kobrick, R.L., Street, Jr., K.W., and Klaus, D.M. (2011): "Custom Scratch Tips for Evaluation of Two-Body Abrasion on Lunar Spacecraft Materials" (abstract). 41st International Conference on Environmental Systems 2011, Session ICES510: AIAA Lunar and Martian Dust Properties and Mitigation Technologies, Portland, Oregon, USA. AIAA Control ID: 1021777.
- 11.23 Kobrick, R.L., Russ, R.B., and Bailey, T.J. (2011): "Yuri's Night: Linking the World Together with an International Space Celebration" (abstract). 41st International Conference on Environmental Systems 2011, Session ICES308: AIChE Education Outreach, Portland, Oregon, USA. AIAA Control ID: 1021104.
- 11.24 Oman, C.M., "Eight Symposium on the Role of the Vestibular Organs in Space Exploration", Introduction, *Journal of Vestibular Research*, 21 (2011) 63, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011
- 11.25 Oman, C.M., "Are evolutionary hypotheses for motion sickness "Just So" stories?, Oral Session 5: Motion Sickness and Pharmacology, *Journal of Vestibular Research*, Volume 21, Number 2, 2011, pp. 89, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX, April 8-10, 2011
- 11.26 Young, L.R., Bernard-Demanze, L., Borel, L., Lacour, M., "Fear of falling: Posture control as influenced by perceived fall height", Oral Session 6: Sensorimotor Integration, *Journal of Vestibular Research*, 21, (2011) 91, IOS Press, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011.
- 11.27 Selva, P., Oman, C.M., "Relationships between observer and Kalman filter models for human dynamic spatial orientation", (abstract), *Journal of Vestibular Research*, 21, (2011) 71, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011.
- 11.28 Small, R.L., Keller, J.W., Wickens, , Oman, C.M., Jones, T.D., "Modeling and mitigating spatial disorientation in low G environments: A progress report", (abstract), *Journal of Vestibular Research*, 21, (2011) 69, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011.
- 11.29 Newman, M.C., Oman, C.M., Clark, T.K., Mateus, J., Kaderka, J.D., "Pseudo-coriolis effect: A 3D angular velocity storage phenomenon described by a left-hand rule", (abstract) *Journal of Vestibular Research*, 21, (2011) 70-71, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011.

- 11.30 Sheehan, S., Oman, C., Duda, K., "Motion sickness etiology: A cholinomimetic agent hypothesis", *Journal of Vestibular Research*, 21, (2011) 84-85, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011.
- 11.31 Young, L.R., "Head Impact Protection Through Filler Materials Embedded in a Helmet Liner", ppt slides presented at ISSS 2011, Keyston, Colorado, May 1-7, 2011
- 11.32 Clark, T. K., Young, L.R., Stimpson, A.J., Duda, K.R., Oman, C.M, "Numerical Simulation of Human Orientation Perception during Lunar Landing", manuscript, submitted to *Acta Astronautica*, Jan. 2011
- 11.33 MVL Presentations, MIT 150 Symposia, Earth, Air, Ocean and Space: The Future of Exploration, April 26-27, 2011, Kresge Auditorium, MIT, Moderators: Jeffrey Hoffman, Laurence Young, Panelists: Buzz Aldrin, Timothy Creamer, Terry Hart, Frederick Hauck, Byron Lichtenberg, Michael Massimino
- 11.34 Vechart, Andrew, "Making Army Helmets Tougher and Safer", *SIMULIA Realistic Simulation News*, May/June 2011, pp.4-5
- 11.35 Duda, K., Jarchow, T., Young, L., "Squat Exercise Biomechanics During Short-Radius Centrifugation", Manuscript ASEM2334R2, October 12, 2011, accepted to *Aviation, Space, and Environmental Medicine*
- 11.36 Young, L.R., Bernard-Demanze, L., Dumitrescu, M., Magnan, J., Borel, L., Lacour, M., "Does Fear of Falling Influence Control of Posture? A comparative study in healthy subjects and compensated unilateral vestibular loss patients", *CNRS/Aix-Marseille Univ., UMR 6149 Neurosciences Integratives et Adaptatives*, Marseille, France
- 11.37 Oman, Charles M., "Are Evolutionary Hypotheses for Motion Sickness "Just-So" Stories? Manuscript of paper first presented at : 8th Symposium on the role of the Vestibular Organs in Space Exploration, Houston, TX, April 9, 2011, Submitted: July 30, 2011, Accepted with minor revisions, Sept. 1, 2011, Revised October 26, 2011, JVR revised manuscript 10.26.11
- 11.38 Young, L.R., "PhD Bioastronautics Training Program", American Society for Gravitation and Space Biology, November 2-6, 2011, slides
- 11.39 Young, L.R., Oman, C.M., Clark, T.K., Tritchler, S.E., Duda, K.R., Wood, S.J., Estrada, A., "Sensorimotor interaction with vehicle displays and controls to enhance human-machine cooperation during precision lunar landing", Abstract, Human Research Program Investigator's Workshop, Houston, TX, February 14-16, 2012
- 11.40 Young, L.R., YT Li Memorial – Draft 6 Sept. 2, 2011
- 11.41 Sheehan, S. E., C. M. Oman and K. R. Duda (2011). "Motion sickness: A cholinomimetic agent hypothesis." *Journal of Vestibular Research* 21(3): 209-217
- 11.42 Young, L.R., "Artificial Gravity – What Still Needs to be Done", abstract, 18th IAA Humans in Space Symposium (2011)
- 11.43 Iwase, S., Sugeno, J., Nishimura, N., Paloski, W.H., Young, L.R., van Loon, Jack J.W.A., Wuyts, Floris, Clement, G., Rittweger, J., Gerzer, R., Lackner, J., "Artificial Gravity with Ergometric Exercise as the Countermeasure for the Spaceflight Deconditioning in Humans", abstract, 18th IAA Humans in Space Symposium (2011)
- 11.44 Spatz, J.M., Ellman, R., Cloutier A.M., Bouxsein, M.L., "Treatment with anti-sclerostin antibody increases bone mass during hindlimb unloading", abstract, 18th IAA Humans in Space Symposium (2011)
- 11.45 Young, L.R., Wagner, E.B., Vernikos, J., Duda, J.E., Fuller, Charles A., Souza, K.A., Martin-Brennan, C., McKay, C.P., "Another Go-Around: Revisiting the Case for Space-Based Centrifuges", *Gravitational and Space Biology*, Vol. 25 (1), Sept. 2011
- 11.46 Domingues, A.R., Marreiros, S.P., Martins, J.M., Silva, M.T., Newman, D.J., "Analysis of the skin deformation for the development of soft orthotics", *EUROMECH51, Açores, Portugal*, Mar. 2011.

11.47 Clark, T.K., L.R. Young, A.J. Stimpson, K.R. Duda, and C.M. Oman (2011) "Numerical Simulation of Human Orientation Perception During Lunar Landing" *Acta Astronautica*, doi:10.1016/j.actaastro.2011.04.016

11.48 Holschuh, B. and Newman, D. "Investigation of Compression Technologies Using Advanced Materials for Mechanical Counter Pressure Planetary Exploration Suits", poster, 41st International Conference on Environmental Systems, Portland, OR, July 18-21, 2011.

11.49 Duda, J.E., D.J. Newman, J. Hoffman, J. Peverill, and G.P. Perusek (2011). The Use of Artificial Muscles in Space Suit simulation for Partial Gravity Experimentation and Training. Paper and presentation, IEEE Aerospace Conference, Mar 4-12, Big Sky, MT.

11.50 Anderson, A., S. Wilcox, E. Gundersen, G. Trotti, D. Newman, "Using Space-Inspired Education Tools to Enhance STEM Learning in Rural Communities" American Society of Engineering Education Annual Conference 2011. Vancouver. (Paper+talk)

11.51 Anderson, A., M. Kracik, G. Trotti, D. Newman, "Preliminary Astronaut Injury Countermeasure and Protection Suit Design." IAA Humans Space Conference 2011, Houston. (Poster)

2010

10.01 Young, L.R., Duda, K.R., Clark, T.K., Stimpson, A.J. and Oman, C.M. "Sensorimotor Interaction with Vehicle Displays and Controls to Enhance Human-Machine Cooperation During Precision Lunar Landing, NASA Human Research Program Investigator's Workshop, Houston, TX, February 2-4, 2010

10.02 Clark, T.K., Stimpson, A.J., Young, L.R., Oman, C.M. and Duda, K.R., "Analysis of Human Spatial Perception during Lunar Landing", IEEE AC paper #183, Submitted, February, 2010

10.03 Kaderka, J., Mateus, J., Liu, A., Young L. R. (2010). Partial Gravity Effects on Slope Estimation (poster). The Aerospace Medical Association 81st Annual Scientific Meeting, Phoenix, AZ, Aerospace Medical Association

10.04 Young, LR; Stimpson, AJ; Clark, TK; Duda, KR; Oman, CM. Sensorimotor Controls and Displays for Safe and Precise Lunar Landing. 61st International Astronautical Congress. Prague, Czech Republic. Sept. 27 - Oct. 1, 2010

10.05 Harris, L. R., M. R. M. Jenkin, H. L. M. Jenkin, R. T. Dyde and C. M. Oman (2010). "Where's the Floor?" [Seeing and Perceiving](#) 23: 81-88.

10.06 Young, L.R., "Artificial Gravity: Is Short Radius Centrifugation the Universal Countermeasure for Long Space Missions?", ELGRA News, Vol., 26, September 2009
ELGRA Biennial Symposium and General Assembly "In the Footsteps of Columbus"
Bonn, Germany: 1st-4th September, 2009

10.07 Goel, R., Vechart, A., Schimzize, B., Christou, G., Jerusalem, A., Young L.R., Son, S., " Design of an Advanced Helmet Liner to Reduce TBI: the case for simulations", IMPLAST SEM Fall Conference, Providence, RI, USA, 12 – 14 Oct, 2010.

10.08 Young, L.R. , "Space, The Vestibular System, and MIT's Man-Vehicle Laboratory", *Journal of Vestibular Research*, Special Issue, Aerospace Medical and Human Factors Challenges, Cambridge, MA , March 5, 2009, IOS press, Volume 20, Numbers 1,2, 2010, pp. 1-2.

10.09 Stimpson, A.J., Clark, T.K., Young, L.R., Duda, K.R., and Oman, C.M., "Sensorimotor Interaction with Vehicle Displays and Control during Precision Lunar Landing", IEEE/AIAA Aerospace Conference 2011 Abstract: Big Sky, Montana, March 6-13, 2011

10.10 A.M. Liu. (2010) "Modelling differences in behavior between and within drivers." In C. Cacciabue et al., Eds., *Human Modelling in Assisted Transportation*, Springer.

10.11 see 12.56 -

10.12 Kaderka, J.D., L.R. Young, and W.H. Paloski (2010). A critical benefit analysis of artificial gravity as a microgravity countermeasure. *Acta Astronautica* 67: 1090-1102.

10.13 Mateus, J., Canizales, J., Hearn, A.N., Young, L.R., "Asymmetry in Vestibular Responses to Cross-Coupled Stimulus", (Abstract) presented at the XXVI Barany Society Meeting, Iceland, August 16, 2010

10.14 see 10.15

10.15 Stewart, D., Young, L.R., Goel, R., Christou, G., and Gilchrist, M.D., "Evaluating the Performance of Helmet Linings Incorporating Fluid Channels, *Journal of ASTM International*, Vol, 7, No. 10, Paper ID JAI 102821, 2010, published in the JAI, STP1525, on Skiing Trauma and Safety, 18th Volume, Feb. 2011

10.16 Iwase, S.¹; Sugeno, J.¹; Nishimura, N.¹; Paloski, W.H.²; Young, L.R.³; van Loon, J.J.W.A.⁴; Wuyts, F.⁵; Clément, G.⁶; Rittweger, J.⁷; Gerzer, R.⁷; Lackner, J.⁸. "Artificial Gravity with Ergometric Exercise on International Space Station as the Countermeasure for Space Deconditioning in Humans" - presentation - given at the ESA Space Life Sciences Symposium, Trieste, June 2010

10.17 Clark, T.K., Young, L.R., Stimpson, A.J., Duda, K.R., Oman, C.M., Natapoff, A., (abstract and poster) "Astronaut Spatial Orientation Perceptions during Simulated Lunar Landing", *Journal of Vestibular Research*, 21, (2011) 79, Special Issue, Eighth Symposium on the Role of the Vestibular Organs in Space Exploration, Houston, TX April 8-10, 2011

10.18 See 10.20

10.19 Wen, Hui Ying, Duda, Kevin R., Oman, Charles M., "Simulating Human-Automation Task Allocations for Space System Design", NEC HFES Student Conference 2010 Abstract, Boston, MA October, 2010

10.20. see 12.19

10.21 Stimpson, A.J., Young, L.R., Clark, T.K., Duda, K.R., Oman, C.M., "Effects of an Achievability Display on Pilot Decision Making and behavior in Simulated Lunar Landings", Abstract, 18th IAA Humans in Space Symposium, Houston, TX, April 11-15, 2011

10.22 Young, L.R., "Mathematical Models of the Vestibular System", presentation at the XXVI Barany Society Meeting, Iceland, August 16, 2010.

10.23 Young, L.R., "VOR Adaptation", Reykholt, Iceland, Barany Satellite Meeting to Honor Jay Goldberg, August 2010.

10.24 Stirling, L., Willcox, K., Newman, D., "Development of a Computational Model for Astronaut Reorientation", *Journal of Biomechanics*, Vol. 43, Issue 12, pp. 2309-2314, August 2010.**

10.25 Stirling, A. Arsie, L., Willcox, K., Frazzoli, E., Newman, D., "Application of Quantized Control to Human Reorientation Maneuvers in Microgravity", *Journal of Biomechanics*, (accepted), 2010. **

10.26 Waldie, J., Newman, D., "A Gravity Loading Countermeasure Skinsuit", *Acta Astronautica*, vol. 67, Dec. 2010.

10.27 R. A. Opperman, J. M. Waldie, A. Natapoff, D. J. Newman, J. A. Jones, "Probability of Spacesuit-Induced Fingernail Trauma is associated with Hand Circumference," *Journal of Aviation, Space Environmental Medicine*, vol. 81, pp.907-913, Oct.

2010. **

10.28 Wagner, E.B., Granzella, N.P., Saito, N., Newman, D.J., Young, L.R., Bouxsein, M.L., "Partial weight Suspension: A Novel Murine Model for Investigation Adaptation to Reduce Musculoskeletal Loading", *Journal of Applied Physiology*, 2010 (re-submitted).

10.29 Johnson, A.W. , Hoffman, J. , Newman, D.J., Mazarico, E. , Zuber, M., "An Integrated EVA Mission Planner and Support Tool for Future Planetary Exploration", 2010 NASA Human Research Program Investigators' Workshop, Houston, TX, Feb. 3-5, 2010.

10.30 Melo, P.L. , Silva, M. T. , Martins, J.M. , Newman, D.J. , "Validation procedure for a multibody dynamics model of the human leg and foot for functional electrical stimulation actuation and control", The 1st Joint International Conference on Multibody System Dynamics, Lappeenranta, Finland, May, 2010.

10.31 Wagner E.B., Newman D.J., Stern S.A., "Commercial Payload Specialist Training", Aerospace Medical Association (AsMA), Annual Meeting, Phoenix, AZ, May 2010.

10.32 Anderson, A., Turner, J., Gunderson, L., Trotti, G., Newman, D., "Framework for Space-Inspired Informal Education Exhibits", International Conference on Environmental Systems (ICES), Paper number 2010, Barcelona, Spain, July 2010.

10.33 Anderson, A. , Waldie, J., Newman, D.J, "Modeling and Design of a BioSuit™ Donning System for Advanced Extravehicular Activity", International Conference on Environmental Systems (ICES), Paper number 2010, Barcelona, Spain, July 2010.

10.34 Young D., D'Orey S. , Opperman R., Hainley C., and Newman D.J. , "Estimation of Lower Limb Joint Angles During Walking Using Extended Kalman Filtering", *6th World Congress on Biomechanics*, Singapore, Aug. 2010.

10.35 Goel, R., Kaderka, J., Manyapu, K., and Newman, D., "Enhancing the Benefits of Artificial Gravity Countermeasure Coupled with Exercise and Vibration", *International Astronautical Congress*, Prague, Sept 2010.

10.36 Opperman, R.A., Wicht, A.C., and Newman, D.J., "Orbital Collisions and Space Debris – Incidence Impact and International Policy", *International Astronautical Congress*, Prague, Sept 2010.

10.37 Johnson, A.W., Hoffman, J.A., Newman, D.J., Mazarico, E.M., and Zuber, M.T., "An Integrated Traverse Planner and Analysis Tool for Future Planetary Exploration", AIAA 2010-8829, SPACE 2010 Conference, Anaheim, CA, 30 Aug. - 2 Sept. 2010.

10.38 Satoshi Iwase, Junichi Sugeno, Naoki Nishimura, William H. Paloski, Laurence R. Young, Jack J.W.A. van Loon, Floris Wuyts, Gilles Clement, Jorn Rittweger, Rupert Gerzer, James Lackner, "Artificial Gravity Facility with Ergometer on International Space Station, *Space Utiliz Res*, 26(2010)

10.39 Duda, J.E. and E.B. Wagner (2010). Emerging Opportunities for Centrifugation: Flight Studies in Humans and Model Organisms. Abstract and presentation, 26th Annual Meeting of the American Society for Gravitational and Space Biology, Nov 4-7, National Harbor, MD.

10.40 Sheehan, Scott, Jarchow, Thomas, Young, Laurence R., "Artificial Gravity: Head turn Velocity Modulation of Cross-Coupled Stimulus Magnitude", Poster

2009

09.01 Young, L.R., "Gravitational effects on Brain and Behavior", *Encyclopedia of Neuroscience*, Volume 4, pp. 975-979., 2009. Oxford: Academic Press

- 09.02 Oravetz, C.T., Young, L.R., Hecht, H., "Slope and Distance Estimation Errors in a Lunar Environment", AsMA 80th Annual Scientific Meeting, May 5, 2009, Los Angeles, CA, Aviation, Space, and Environmental Medicine, Vol., 80, No. 3, March 2009, pp. 266-267.
- 09.03 Stirling, L., Newman, D.J., Willcox, K., "Self-Rotations in Simulated Microgravity: Performance Effects of Strategy Training" *Journal of Aviation, Space Environmental Medicine*, 80:1 5-14, 2009
- 09.04 Stirling, L., Willcox, K., Ferguson, P., Newman, D.J., "Kinetics and Kinematics for Translational Motions in Microgravity During Parabolic Flight" , *Journal of Aviation, Space Environmental Medicine*, Vol. 80, No. 6, June 2009
- 09.05 Duda, K.R., Young, L.R., Oman, C.M., Liu, A.M., Stimpson, A.J., and Clark, T.K., "Evaluation of Sensorimotor Performance During Lunar Landing", Aviation, Space, and Environmental Medicine, Vol., 80, No. 3, March 2009 pp.230.
- 09.06 Oman, C. M., & Newman, M. C. (2009). Observer model for spatial orientation research and accident investigation (abstract). *Aviation Space and Environmental Medicine*, 80(3), 208.
- 09.07 Tomlinson, Z. A., Oman, C. M., Liu, A. M., Natapoff, A., Collins, A., & Silverman, J. B. (2009). Influence of spatial ability on primary and secondary space telerobotics operator performance (abstract). *Aviat Space Environ Med*, 80(3), 221.
- 09.08 Hecht, Heiko, "Questioning The Rules of Continuity Editing: An Empirical Study", *Empirical Studies of the Arts*, Vol. 27(1) 1-23, 2009
- 09.09 Young, L.R. "Cutting Wholesome Sports", NY Times, May 3, 2009
- 09.10 Duda, K.R., Young, L.R., Oman, C.M., Liu, A.M., Stimpson, A.J., Clark, T.K., " Sensorimotor Displays and Controls to Enhance the Safety of Human/Machine Cooperation During Lunar Landing", NSBRI NRA NNJ07ZSA002N, The Aerospace Medical Association, 80th Annual Scientific Meeting, Los Angeles, CA, May 4, 2009
- 09.11 Young, L.R., "Comments on the Influence of Dr. Robert Seamans", Giant Leaps Symposium, June 10-12, 2009, MIT, Department of AeroAstro
- 09.12 Mindell, D.A., Uebelhart S.A., Gerovitch, S., Hoffman, J., Lanford, E., Logsdon, J., Muir-Harmony, T., Newman, D., Newsome S., McGlynn, L., Perry, R., Siddiqi, A., Tomlinson, Z.A., Tylko, J., Weigel, A.L., Young, L.R., "The Future of Human Spaceflight", Space, Policy, and Society Research Group, MIT, December 2008, pp.1-15.
- 09.13 Mindell, D.A., Uebelhart, S.A., Siddiqi, A., Gerovitch, S., Logsdon, J., Hoffman, J., Young, L.R., Newman, D., Oman, C., Tomlinson, Z.A., Hoffstetter, W., "The Future of Human Spaceflight: Objectives and Policy Implications in a Global Context", Space, Policy, and Society Research Group, MIT, Preliminary Draft, July 2009, pp.1-58.
- 09.14 Clark, T., Stimpson, A., Young, L.R., Oman, C.M., "Analysis of Human Spatial Perception During Lunar Landing" Abstract, AIAA/IEEE conference, submitted, July 1, 2009
- 09.15 Young, L.R., "Humans in the Air and Space – Looking beyond 2020", Aviation Space Environmental Medicine – Space Medicine Association News, Vol, 80, No. 7, July 2009
- 09.16 Jarchow, T., Young, L.R., "Neurovestibular Effects of Bed Rest and Centrifugation", *Journal of Vestibular Research*, Special Issue for the Strategic Planning Activity on Aerospace Medical and Human Factors Challenges and Celebration Honoring Dr. Charles M. Oman, Director of the MVL on this 65th Birthday, March 5, 2009, MIT, Marlar Lounge, Room 37-252, Volume 20, Numbers 1,2, 2010, 45-51, IOS Press
- 09.17 Alley, M., Christou, G., Goel, R., Son, S., Young, L. Experimental Studies of Mitigation Materials for Blast Induced TBI, 16th APS Tropical Conference on Shock Compression of Condensed Matter, Nashville, USA, 28 June - 3 July, 2009.

- 09.18 Young, L.R., Yajima, K., Paloski, W., "Artificial Gravity Research to Enable Human Space Exploration", pp. 1-37, (Study Group 2.2 Final Report) International Academy of Astronautics (IAA) September 2009
- 09.19 Oravetz CT, Young LR, Liu AM. "Slope, distance, and height estimation of lunar and lunar-like terrain in a virtual reality environment", *Gravit Space Biol.* 2009 Sep;22(2):57-66.
- 09.20 ESA Topical Team :H3-Young, L., The Large Radius Human Centrifuge 'A Human Hypergravity Habitat, H3', IAC-09.A1.2.3, paper presented "Human Health: Countermeasures": Symposium A1. SPACE LIFE SCIENCES SYMPOSIUM., Korea, October, 2009
- 09.21 Stewart, D., Young, L.R., Goel, R., Christou, G., "Helmet Lining Incorporating Fluid Channels", ASTM, October 2009
- 09.22 Rader, A.A., Oman, C.M., and Merfeld, D.M., "Motion Perception During Variable-Radius Swing Motion in Darkness, J. Neurophysiol, 102:2232-2244, 2009
- 09.23 Grenon, M.S., Mateus, J., Hsiang, Y., Sidhu, R., Young, L.R., Gagnon, J., "Use of Short-Radius Centrifugation to Augment Ankle-Brachial Indices, *Journal of Investigative Medicine*, Vol, 57, Number 5, June 2009
- 09.24 Johnson, A.W., Dowding, J., Marquez, J., Sierhuis, M., Newman, D., Hoffman, J., Clancey, W.J., "An Integrated EVA Mission Planner and Exploration Support Tool for Lunar Exploration", poster presented at the 2nd Lunar Science Forum, NASA Ames Research Center, CA, 21-23 July 2009.
- 09.25 Holschuh, B., Waldie, J., Hoffman, J., and Newman, D. "Characterization of Structural, Volume, and Pressure Components to Space Suit Joint Rigidity", 39th International Conference on Environmental Systems, Savannah, GA, July 12-16, 2009
- 09.26 Newsome, S., Yamamoto, N., Grindle, A., Holschuh, B., Ono, M., and Weigel, A. "Analysis of US Policy Options for the Future of the International Space Station", AIAA Space 2009 Conference and Exposition, Pasadena, CA, September 14-17, 2009.
- 09.27 Holschuh, B., Gray, T., and Blair, K., "Golf Drive/Ball Impact Acoustic Measurement System", 4th Asia-Pacific Congress on Sports Technology, Honolulu, HI, September 2009.
- 09.28 Stirling, Leia, Allison Anderson, and Dava Newman. "On Iberall, Spacesuits, and Assistive Mobility Devices." In International Conference on Perception and Action. Minneapolis, MN, 2009
- 2008**
- 08.01 Mateus, J. and Young, L., "Effect of Sleep on the Adaptation to the Cross-Coupled Stimulus", (abstract) AsMA 79th Annual Scientific Meeting, May 11-15, 2008, Boston, MA
- 08.02 Young, Laurence R., "Short Radius Centrifugation is a Practical Space Flight Countermeasure", (abstract) 79th AsMA Annual Scientific Meeting, May 11-15, 2008, Boston, MA
- 08.03 Young, Laurence R., "Lunar sensorimotor research", (abstract), Aerospace Medical Association 79th AsMA Annual Scientific Meeting, May 14, 2008
- 08.04 Edmonds, J., Young, L. (abstract) "Fitness benefits of stair-stepping in an artificial gravity environment", Submitted for Review, 79th AsMA Annual Scientific Meeting, May 11-15, 2008, Boston, MA
- 08.05 Young, L.R., Jarchow, T., Elias, P., Pouly, J., Sheehan, S., Mateus, J., "Adapting to Coriolis Cross Coupled Head Movements at Centrifuge Speeds up to 30 RPM¹", (abstract), XXV Barany Society Meeting, March 31, 2008, Kyoto, Japan
- 08.06 Mateus, J., Young, L.R., "Effect of Sleep on the Adaptation to the Cross-Coupled Stimulus", (abstract), XXV Barany Society Meeting, March 31, 2008, Kyoto, Japan

08.07 void

08.08 Garrick-Bethell, I., Jarchow, T., Hecht, H., Young, LR, "Vestibular adaptation to centrifugation does not transfer across planes of head rotation", *JVR*, 18 (2008) 25-37

08.09 Elias P.Z., Jarchow T., Young .LR., "Incremental Adaptation to Yaw Head Turns During 30 RPM Centrifugation" *Experimental Brain Research*, 2008 Aug;189(3):269-77

08.10 Young, L.R., Liu, A.M., Oravetz, C.T., "Lunar Slope and Distance Estimation", conference paper, 10th ESA Life Sciences Symposium, 22-27 June 2008, Angers, France
accepted abstract for Aerospace Medical Association's 80th Annual Scientific Meeting, LA, CA

08.11 Lee, P. and Oman, C., "Pilot Computer Model Development and Aircraft Computer Model Integration", Task 2 Final Technical Report, Aircraft/Pilot Kinematic Model, Man-Vehicle Lab, Center for Transportation and Logistics, MIT, March 16, 2008

08.12 void

08.13 Edmonds, J.L., T. Jarchow, and L.R. Young (2008). Physiological benefits of exercise in artificial gravity: A broadband countermeasure to space flight related deconditioning. *Acta Astronaut* 63:2-7.

08.14 Grenon, M., Mateus, J., York, H., Ravi, S., Young, L.R., Gagnon, J. "Use of Artificial Gravity to Increase Ankle-Brachial Indexes", poster for CIMIT Conference, Boston, MA, October 28, 2008

08.15 Sheehan S.E., Young, L.R., Jarchow, T., "The effect of head turn velocity on cross-coupled stimulation during centrifugation", *JVR*, 28 (2008) 1-14

08.16 Aoki, H, Oman, C.M., Buckland, D.A., Natapoff, A. " Desktop-VR system for preflight 3D navigation training", *Acta Astronautics* 63 (2008) 841-847

08.17 Young, L.R., "Using the Moon to Learn About Living on Mars", *ASK Magazine*, pp34-35
Fall 2008, Special Issue NASA's 50th.

08.18 Ahn J., de Weck, O., Hoffman, J., "An Optimization Framework for Global Planetary Surface Exploration Campaigns", *Journal of the British Interplanetary Society*, accepted for publication, September, 2008.

08.19 Fulford-Jones, T., Kotsiaros, S., Hoffman, J., "Engineering and Operational validation of a Closed-Loop ECLSS Test Platform for the Mars Gravity Biosatellite", *International Conference on Environmental Systems*, 081CES-0019, July 2008.

08.20 Guest, A., Hofstetter, W., Cunio, P., Crawley, E., Hoffman, J., de Weck, O., "Use of Small Logistics Containers for Crewed Lunar Exploration Campaigns", *AIAA-2008-7683*, Space 2008.

08.21 Hong, S., Hoffman, J., "Design of Power Systems for Extensible Surface Mobility Systems on the Moon and Mars", *AIAA-2008-7905*, Space 2008.

08.22 Hofstetter W., Hong, S., Hoffman, J., Crawley, E., "Analysis of Architectures for Long-range Crewed Moon and Mars Surface Mobility", *AIAA-2008-7814*, Space 2008.

08.23 Guest, A.N., Hoffman, J.A., de Weck, O., "Micro-Logistics: Extending Space Logistics to Planetary Surface Exploration", *International Astronautical Federation*, 2008.

08.24 Guest A.N., Cunio, P.M., Hoffman, J.A., de Weck, O., "Development and Field Testing of Smart Small Logistics Containers for Crewed Planetary Exploration", *IAC-08.D.3.3.11*, *International Astronautical Federation*, 2008.

08.25 Cooper, C., Hofsetter, W., Hoffman, J.A., Crawley, E.F., "Assessment of Architectural Options for Surface Power Generation and Energy Storage on Human Mars Missions", *IAC-08-A3.3B*, *International Astronautical Federation*, 2008.

- 08.26 Arai, T., Aoki, H., Fanchiang, C., Newman, D.J., "Educational Tool for Modeling and Simulation of a Closed Regenerative Life Support System" *Acta Astronautica* 63 (2008) pp. 1100-1105
- 08.27 Wagner, Erika B., Granzella, Nicholas P., Saito, Hiraoki, Newman, Dava J., Young, Laurence R., Bouxsein, Mary L. "Partial Weight Suspension: A Novel Murine Model for Investigating Adaptation to reduced Musculoskeletal Loading", submitted to *Journal of Applied Physiology*, 2008.
- 08.28 Rush, M., Wallace, D., Newman, D. J., "Creative Thinking in a First Year Mechanical Engineering Design Course at the Massachusetts Institute of Technology: A Community of Practice Model", ASME Conference, IDETC/CIE 2008, Boston, MA, May 2008.
- 08.29 L. Stirling, M. Newman, V. Stolyar, P. Ferguson, and D. Newman. "Quantifying Astronaut Translational Motion During Parabolic Flight." *Aerospace Medical Association (AsMA) Annual Science Meeting*, Boston, MA, 12-15 May, 2008, vol 79, No. 3.
- 08.30 Tan, J. and Newman, D.J., "*Initial study of commercial innovation in the lower limb O&P industry*". RESNA 2008 Annual Conference, June 26-30. Arlington, VA, 2008.
- 08.31 Opperman, R., Waldie, J., Newman, D.J. "EVA Injury, Comfort and Protection: Improving the Plight of the Hand and Shoulder for the Constellation Program", International Conference on Environmental Systems (ICES), San Fran, IL July 2008 (Best Student Paper Award).
- 08.32 L. Stirling, D. Newman, and K. Willcox. "Astronaut Rotational Motion During Simulate Microgravity." *North American Congress on Biomechanics*, Ann Arbor, MI 5-9, August 2008.
- 08.33 Liu, A.M., Oman, C. M., Natapoff, A. & Coleman, C. (2008). Spatial Ability as a Predictor of Space Robotics Training Performance (abstract). *Aviation Space and Environmental Medicine*, 79(3), 288
- 08.34 Stewart, D., and Young, L., "Helmet Lining Incorporating Fluid Channels", *ASTM 2008 Meeting on Headgear and Helmets*, Denver, Colorado, 4 - 8 May, 2008.
- 08.35 Carr CE, Newman DJ. "Characterization of a lower-body exoskeleton for simulation of space-suited locomotion", *Acta Astronautica* 62 (2008) 308-323.
- 08.36 Paloski, W.H., C.M. Oman, J.J. Bloomberg, M.F. Reschke, S.J. Wood, D.L. Harm, B.T. Peters, A.P. Mulavara, J.P. Locke, and L.S. Stone. Risk of sensory-motor performance failures affecting vehicle control during space missions: a review of the evidence. *J. Grav. Physiol.* 15(2):1-29, 2008

2007

- 07.01 Edmonds, J.L., Jarchow, T., Young, L.R., "A stair-stepper for exercising on a short radius centrifuge", *Aviation, Space, and Environmental Medicine*, 2007;78:129-134
- 07.02. See 08.09
- 07.03 Ho, Nhut Tan, Clarke, John-Paul, Riedel, Robin, Oman, Charles, "Development and Evaluation of a Pilot Cueing System for Near-Term Implementation of Aircraft Noise Abatement Approach Procedures", *AIAA Journal of Aircraft* (accepted for publication)
- 07.04 Buckland, D.A., Oman, C.M., Aoki, H. "Alternative Training Methodologies for Spatial Orientation in Spacecraft" (Abstract). 78th Annual Meeting Aerospace Medical Association, May 14-18, New Orleans, LA.

07.05 Aoki, H., Oman, C.M., Buckland, D.A., Natapoff, A. Development of a desktop virtual reality based preflight training system for three-dimensional orientation and navigation. 78th Annual Meeting, Aerospace Medical Association, May 14-18, 2007, New Orleans, LA.

07.06 Aoki, H, Oman, C., Buckland, D. Natapoff, A. Desktop VR system for preflight 3D navigation training (abstract) 16th IAA Humans in Space Symposium May 20-24, 2007, Beijing, China

07.07 Cizaire, C., Oman, C., Buckland, D., Natapoff, A., Aoki, H., and Liu A. Effect of two-module docked spacecraft configurations on spatial orientation, 16th IAA Humans in Space Symposium May 20-24, 2007, Beijing, China

07.08 Mencha-Brandan, M, Liu, A.M. Oman, C.M. and Natapoff, A. Influence of perspective-taking and mental rotation abilities in space teleoperation. Proc. 2nd ACM/IEEE Conference on Human-Robot Interaction (HRI 07), March 9-11, 2007. Paper HRI 210.

07.09 T. Jarchow, L.R. Young, "Adaptation to head movements during short radius centrifugation, Acta Astronautica, doi: 1016/j.actaastro.2006.12.022, Vol. 61 (2007) pp. 881-888.

07.10 Young, L.R., Jarchow, T., presentation at the 28th Annual International Gravitational Physiology Meeting San Antonio, TX, April 8-13, 2007 (IMAG Pilot Study Recommendations, ppt. slides)

07.11 Young, L.R., Space Science, Environmental Ethics and Policy Conference, NASA Ames Research Center, April 13, 2007, presentation "Ethical Problems with Human Health in Space" Ppt. slides.

07.12 Young, L.R., Chan, N., Ruchelsman, J., PCT Patent Application for Fluid Safety Liner, April 12, 2007, MIT Ref: 12117

07.13 Jarchow, T., & Young, L.R., Neuro-Vestibular Responses to the SRC Bed Rest and Short Radius Centrifugation Influences Subjective Postural Position, Preliminary Finding Conference IMAG IWG 2007 0306-08

07.14 H.L. Jenkin, J.E. Zacher, M.R. Jenkin, C.M. Oman, L.R. Harris, "Effect of field of view on the Levitation Illusion", JVR, 17 (2007) 271-277, November 2007

07.15 Elias, Paul Z., Jarchow, Thomas, Young, Laurence R., "Modeling Sensory Conflict and Motion Sickness in Artificial Gravity" IAA-Acta Astronautica Journal, 62 May 2007, pp.224-231

07.16 Aoki, H., Oman, C. M., Natapoff, A., Virtual-Reality Based 3D Navigation Training for Emergency Egress from Spacecraft, Aviat Space Environ Med, Vol. 78, No. 8, pp: 774-738, August 2007

07.17 Oman, C. M., Spatial Orientation and Navigation in Microgravity, Chapter 13; Spatial Processing in Navigation, Imagery and Perception, Springer Verlag, NYC, pp.209-247, 2007

07.18 Sanderson, Jeffrey, Oman, C. M. Harris, L, Measurement of oscillopsia induced by vestibular coriolis stimulation, Journal of Vestibular Research 17 (2007) 289-299.

07.19 Aoki, H., Oman, C., Buckland, D., and Natapoff, A., Development of a Desktop Virtual reality Based Preflight Training System for Three-Dimensional Navigation, AsMA 2007 Meeting Abstract, Aviation, Space, and Environmental Medicine, Vol. 78, No. 3, March 2007

07.20 Buckland, D., Oman, C., Aoki, H., and Natapoff, A., Alternative Training Methodologies for Spatial Orientation in Spacecraft, AsMA 2007 Meeting Abstract, Aviation, Space, and Environmental Medicine, Vol. 78, No. 3, March 2007

07.21 Rader, A.A, Newman, D.J., and Carr C.E., Loping: A strategy for reduced gravity human locomotion? In 37th International Conference on Environmental Systems, Chicago, IL, July 9-12, 2007

Society of Automotive Engineers, Inc., Warrendale, Pennsylvania, USA. SAE paper 2007-01-3134

07.22 Sim, Liang, Cummings, M.L., and Smith, Cristin A., "Past, Present and Future Implications of Human Supervisory Control in Space Missions", accepted by *Acta Astronautica*, 2007

07.23 Wagner, E.B., Granzella, N.P., Newman, D.J., Young, L.R., Bouxsein, M.L., "Partial weight Suspension: A New Rodent Model for Investigating Adaptation to Titrated Musculoskeletal Loading", *Journal of Applied Physiology*, 2007 (to be submitted).

07.24 Jordan, N. C., Saleh, J. H., Newman, D. J., "Shifting the emphasis: From cost models to satellite utility or revenue models. The case for a value-centric mindset in space system design", *Acta Astronautical*, (accepted January 2007).

07.25 Carr, C. E., Newman, D. J., "Space Suit Bioenergetics: Cost of Transport During Walking and Running", *J Aviation, Space Environmental Medicine*, (accepted), 2007.**

07.26 void

07.27 void

07.28 Stirling, Leia, Willcox, Karen, and Newman, Dava, "Development of Astronaut Orientation Strategies Using Optimization Methodologies", *Multibody Dynamics 2007, ECCOMAS Thematic Conference*, Milano, Italy, 25-28 June 2007

07.29 see 07.55

07.30 Young, L.R., Christou, G., Steward, D., "Fluid Helmet Liner for Blast Protection", poster session for CIMIT Innovation Congress 2007 Conference, Nov. 13, 2007

07.31 Duda, Kevin and Young, Laurence, R. "Practical Exercise During Short Radius Centrifugation", *ESA Symposium*, Dec. 10-12, 2007, *Technology for Artificial Gravity and Microgravity Simulation*, ESTEC, Noordwijk,, The Netherlands

07.32 Mateus, Jaime and Young, Laurence R., "Sleep consolidates adaptation to artificial gravity", *ESA Symposium*, Dec. 10-12, 2007, *Technology for Artificial Gravity and Microgravity Simulation*, ESTEC, Noordwijk,, The Netherlands

07.33 Cheung, C.C., Hecht, H., Jarchow, T., Young, L.R. "Threshold-based vestibular adaptation to cross-coupled canal stimulation." *Journal of Vestibular Research* 17 (2007): 171:181.

07.34 Edmonds, J., Migeotte, P., Vanspauwen, R., Young, L.R., Wuyts, F., "Physiological Effects of Varying Tilt Angle and G-level during Short-Radius Centrifugation", Dec. 12, 2007, *Technology for Artificial Gravity and Microgravity Simulation*, ESTEC, Noordwijk,, The Netherlands

07.35 Young, L.R., and Jarchow, T., (abstract) How to Adapt to Head Movements During Artificial Gravity Rotation", *Humans in Space Symposium*, Beijing, May 2007

07.36 Edmonds, J.L., K.R. Duda, T. Jarchow, and L.R. Young (2007). Stair-stepping and squats during centrifugation: feasibility, biomechanics, and fitness benefits. Abstract and poster, 28th Annual International Gravitational Physiology Meeting, Apr. 8-13, San Antonio, TX.

07.37 void

07.38 Young, L.R., "Motion Sensing: From Mach to Now", Delft and Boston 2007 SIMONA symposium, *Fidelity in Motion*, TU Delft, March 29, 2007, Keynote speaker

07.39 Shah, J., Saleh, J., Hoffman, J., "Analytical basis for Evaluating the Effect of Unplanned Interventions on the Effectiveness of a Human-Robot System", *Journal of Reliability, Engineering, and Safety Systems*, August, 2007.

- 07.40 Fong, A., Hofstetter, W., Hong, S., Judnick, D., McCloskey, S., Mellein, J., de Weck, O., Hoffman, J., Crawley, E., "Design of a Platform-based Surface Mobility System for Human Space Exploration", *AIAA Space* 2007.
- 07.41 Hoffman, J.A., "The Ride of a Lifetime", Popular Magazine Article, New Scientist, 2007
- 07.42 Saleh, J. H., Jordan, N. C., Newman, D. J., "Shifting the Emphasis: From Cost Models to Satellite Utility or Revenue Models", -The case for a value-centric mindset in space system design." *Acta Astronautica*, Vol. 69, No. 10, 2007, p. 889-900.
- 07.43 Carr, C. E., Newman, D. J., "Space Suit Bioenergetics: Framework and Analysis of Unsuiting and Suited Activity", *Aviation, Space Environmental Medicine*, 78:1013-1022, 2007.
- 07.44 Carr, C. E., Newman, D. J., "Space Suit Bioenergetics: Cost of Transport During Walking and Running", *Journal of Aviation, Space Environmental Medicine*, 78:1093-1102, 2007.
- 07.45 see 08.35
- 07.46 Newman, D.J., Canina, M. Trotti, G.L., "Revolutionary Design for Astronaut Exploration – Beyond the Bio-Suit", CP880, Space Technology and Applications International Forum—STAIF-2007, Albuquerque, NM, February 11-15, 2007
- 07.47 Arai, T., Fanchiang, C., Aoki, H., Newman, D., "Educational Tool for Modeling and Simulation of a Closed Regenerative Life Support System", (Best Paper award) 16th IAA Human in Space Symposium, Beijing, China, 20-24 May 2007.
- 07.48 see 07.28
- 07.49 Rader, A. R., Newman, D.J., Carr, C.E., "Loping: A Strategy for Human Locomotion?", International Conference on Environmental Systems (ICES), Paper number 07ICES-28, Chicago, IL, July 2007
- 07.50 Marquez, J.M., Newman, D.J., "Recommendations for Real-Time Decision Support Systems for Lunar and Planetary EVAs", International Conference on Environmental Systems (ICES), 07ICES-90, Chicago, IL July 2007.
- 07.51 Judnick, D.C., Newman, D.J., Hoffman, J., "Modeling and Testing of a Mechanical Counterpressure Bio-Suit System", International Conference on Environmental Systems (ICES), (2007-01-3172), Chicago, IL July 2007.
- 07.52 Tan, J.J., Newman, D.J., Cabral, J., Mota, M., Nunes da Ponte, M., "A Novel Engineering Systems Approach for Bioengineering Education: the MIT–Portugal Collaboration", International Conference on Engineering Education, 2007 ICEE Annual Conference Proceedings, Coimbra, Portugal, Sept. 2007.
- 07.53 Rush, M., Newman, D. and D. Wallace, "Project-Based Learning in First Year Engineering Curricula: "Course Development and Student Experiences in Two New Classes at MIT," International Conference on Engineering Education, 2007 ICEE Annual Conference Proceedings, Coimbra, Portugal, Sept. 2007.
- 07.54 Matthew G. Richards, Daniel E. Hastings, and Dava J. Newman, "Technological Emergence and Adaptation: The Case of Earth-Orbiting Satellites", *Atlanta Conference on Science, Technology, and Innovation Policy 2007*, Atlanta, GA, Oct. 19-20, 2007.
- 07.55 Stirling, L., Arsie, A., Frazzoli, E., Wilcox, K., Newman, D.J., "Application of Quantized Control to Self-Rotation Maneuvers in Microgravity", IEEE Conference on Decision and Control, New Orleans, LA, Dec. 2007.
- 07.55 Oman, Charles, M., "Introduction – Seventh Symposium on the Role of the Vestibular Organs in Space Exploration Noordwijk, The Netherlands, June 7-9, 2006, *Journal of Vestibular Research* 17 (2007) 207-208.
- 07.56 Hoffman, J., "Confessions of an astronaut", *New Scientist*, September, 5, 2007

07.57 Arya, M., Paloski, W.H., Young, L.R., "Centrifugation Protocol for the NASA Artificial Gravity-Bed Pilot Study", Journal of Gravitational Physiology, Vol 14 (1) p5-8, 2007

07.58 Young, L. R. , Paloski, W.H., "Short radius intermittent centrifugation as a countermeasure to bed-rest ad 0-G deconditioning: IMAG pilot study summary and recommendations for research", J Gravit Physiol, 2007 Jul;14(1):P31-3.

2006

06.01 Oman, C.M., Benveniste, D., Buckland, D., Hirofumi, A., Liu, A., and Natapoff A., "Spacecraft Module Visual Verticals and Training Affect Spatial Task Performance", Habitation 10(3/4):202-203, 2006, Orlando, FL, Feb-5-8, 2006,

06.02 Marquez, J., Arnold, J., Hoffman, J., and de Weck, O., "Defining Parameters for Planetary Extra-vehicular Activities: A Study of Excursions in a Mars Analog Environment", Habitation 2006

06.03 Edmonds, J.L., T. Jarchow, and L.R. Young. "Exercise in Artificial Gravity - Implementation and Validation of a Stair-Stepper on a Short Radius Centrifuge." Abstract, Bone Loss During Spaceflight conference, Cleveland, OH, June 23-24, 2006.

06.04 Jenkin Heather L., Zacher James E., Oman, Charles M., Harris, Laurence R., " Effect of Field of View on Visual reorientation Illusion: Does the Levitation illusion depend on the view seen or the scene viewed?", Abstract submitted to ESTEC 7th Symposium on the Role of Vestibular Organs in Space Exploration, June 7-9, 2006 Nordwijk, the Netherlands, <http://www.congrex.nl/06a07/>

06.05 Harris, Laurence R., Dyde, Richard, Oman, Charles M., Jenkin, Michael, "Visual cues to the direction of the floor", 7th Symposium on the Role of Vestibular Organs in Space Exploration, June 7-9, 2006, ESTEC, Nordwijk, the Netherlands, <http://www.congrex.nl/06a07/>

06.06 Aoki, Hirofumi, Oman, Charles M., Natapoff, Alan, Liu, Andrew, "The effect of the configuration, frame of reference, and spatial ability on spatial orientation during virtual 3-dimentional navigation training", Abstract submitted to Seventh Symposium on the Role of Vestibular Organs in Space Exploration, June 7-9, 2006 Nordwijk, the Netherlands, <http://www.congrex.nl/06a07/>

06.07 Sanderson, Jeff, Kalsey, Jas, Oman, Charles M., Harris, Laurence R., "Measuring and attenuating head-movement induced oscillopsia", (Abstract) Seventh Symposium on the Role of Vestibular Organs in Space Exploration, ESTEC, Nordwijk, the Netherlands, June 7-9, 2006, <http://www.congrex.nl/06a07/>

06.08 Oman, Charles M., Benveniste, David, Buckland, Daniel A., Aoki, Hirofumi, Liu, Andrew M., Natapoff, Alan, Kozhevnikov, Maria, "Incongruent Spacecraft Module Visual Verticals Affect Spatial Task Performance", ESTEC 7th Symposium on the Role of Vestibular Organs in Space Exploration, June 7-9, 2006, ESTEC, Nordwijk, the Netherlands, <http://www.congrex.nl/06a07/>

06.09 Paul Z. Elias, Thomas Jarchow, Laurence R. Young, "Artificial Gravity: Incremental Adaptation to Yaw Head Turns During 30 RPM Rotation" HST Forum Student Poster Session: March 23, 2006. Walker Memorial (Building 50), MIT

06.10 Warren, L.E., Paloski, W.H., and L.R. Young, "Artificial gravity as a Multi-system countermeasure to Bed Rest Deconditioning: Preliminary Results, Gravitational and Space Biology, Volume 20, Number 1., November 2006.

06.11 Young, L.R., "Artificial Gravity – an integrative solution for long duration space flights", Keynote Lecture Topic D: Central Regulation and Coordination, 2ndSymposium of the Zurich Center for Integrative Human Physiology (ZIHP), September 22, 2006.

- 06.12 Young, L.R., "Why Mars?", *Humanity 3000, Humans in Space: The Next Thousand Years*, Proceedings, Bellevue, Washington, USA, Section 4.2.4 transcripts, pp. 71-81 June 2005
- 06.13 see 07.15
- 06.14 see 07.01
- 06.15 Shebilske, W.L., Tubre, T., Tubre, A.H., Oman, C.M. and Richards, J.T. "Three-dimensional spatial skill training in a simulated space station: random vs. blocked designs. *Aviation, Space and Environmental Medicine*, 77(4):404-409
- 06.16 see 08.35
- 06.17 Saleh, J. H., Torres-Padilla, J-P., Hastings, D. E., Newman, D. J., "To Reduce or to Extend a Spacecraft Design Lifetime?", *Journal of Spacecraft and Rockets*, vol. 43, No. 1, Jan-Feb. 2006
- 06.18 Jordan, N. C., Saleh, J. H., Newman, D. J., "The extravehicular mobility unit: A review of environment, requirements, and design changes in the US spacesuit", *Acta Astronautica*, Volume 59, Issue 12, Pages 1135-1145, July 2006
- 06.19 Oman, C.M., Benveniste, D., Buckland, D.A., Aoki, H., Liu, A., Natapoff, A., and Kozhevnikov, M. "Spacecraft Module Visual Verticals and Individual Spatial Abilities Determine 3D Spatial task Performance" (Abstract) ASMA 2006, Orlando, FL, May 15-18, 2006
- 06.20 Shah, J., Saleh, J., Hoffman, J., "Review and Synthesis of Considerations in Architecting Heterogeneous Teams of Humans and Robots for Optimal Space Exploration", *IEEE Transactions on Systems, Man, and Cybernetics- Part C (Applications and Reviews)*, November 2006
- 06.21 Smith, C. A., Jordan, N. C., Hassan, R. A., Saleh, J. H., and Newman, D. J., "Multi-Objective Optimization Approaches in Spacesuit Design", *44th AIAA Aerospace Sciences Meeting and Exhibit AIAA-2006-0338*, Reno, Nevada, Jan., 2006.
- 06.22 Jordan, N. C., Smith, C. A., Saleh, J. H., and Newman, D. J., "Development and Validation of a Multidisciplinary Spacesuit Model", *44th AIAA Aerospace Sciences Meeting and Exhibit*, Reno, Nevada, Jan., 2006.
- 06.23 Ferguson, P. A., Krebs, C. P., Stirling, L. A., Newman, D. J., "Kinetic and Kinematic Sensing System for the MICRO-G/Adapt International Space Station Experiment", *IEEE Conference*, Houston, Texas, Feb. 8-9, 2006.
- 06.24 Ferguson, P. A., Stirling, L. A., Willcox, K., Metaxas, D., Newman, D. J., "Modeling Strategies for Predicting and Measuring Astronaut Locomotor Control Adaptation", *Habitation 2006 Conference*, Orlando, FL, Feb. 2006.**
- 06.25 Bethke, K. A., Newman, D. J., "Applying K-8 science and technology curricula to engineering education: What can be learned from the Educator Resource Center at the Museum of Science, Boston", *ASEE*, Chicago, IL, June 2006.
- 06.26 Wolfrum, N., Newman, D.J., Bethke, K. "An automatic procedure to map the skin strain field with application to advanced locomotion space suit design", *Proceedings of the 5th World Congress of Biomechanics*, Munich, Germany, July 2006.
- 06.27 Marquez, J.J. and Newman, D.J. "Mission Planning and Re-planning for Planetary Extravehicular Activities: Analysis of Excursions in a Mars-Analog Environment and Apollo Program." *Proc. International Conference on Environmental Systems*. Norfolk, VA, July 16 – 20, 2006
- 06.28 Canina, M., Newman, D. J., Trotti, G. L., "Preliminary considerations for wearable sensors for astronauts in exploration scenarios", *3rd IEEE-EMBS International Summer School and Symposium on Medical Devices and Biosensors (ISS-MDBS 2006)*, Massachusetts Institute of Technology, Cambridge, MA, September 4-6, 2006.
- 06.29 Arnold, J.A., Saleh, J.H., Hoffman, J. A., "Considerations in architecting heterogeneous teams of humans and robots for optimal space exploration", *IEEE transactions on Systems, Man, and Cybernetics Part C (Applications and Reviews)*, November, 2006.

06.30 Kobrick, Ryan L., Dara, Sarita, Burley, John, Gill, Stuart, "A new countermeasure device for long duration space flights", *Acta Astronautica* 58 (2006) 523-536

2005

05.01 Adenot, S., Jarchow, T., and L. Young, "Adaptation of VOR to Coriolis Stimulation", *Clinical and Basic Oculomotor Research*, Volume 1039 of the *Annals of the New York Academy of Sciences*, (www.annalysnyas.org) Ann. N.Y. Acad. Sci. 1039: 1–9 (March 2005)

05.02 Meliga, P., Hecht, H., Young, L.R., and Mast, F.W., "Artificial gravity—head movements during short-radius centrifugation: Influence of cognitive effects", *Acta Astronautica* 56 (2005) 859-866, www.sciencedirect.com

05.03 Wong, Julielynn, Wu, Amy, Jarchow, Thomas, & Hecht, Heiko, "The Cognitive Effects of Artificial Gravity Created by Short-Radius Centrifugation", presented at ASMA, 2005.

05.04 Young, L.R., "Some Memories of Larry Stark's Years at MIT and afterwards", Berkeley, CA May 2005

05.05 Young, L.R., Beyond Mars, Keynote Address, Foundation for the Future, Seattle, WA
June 2005

05.06 Young, L., and Adenot, S. "Mars, Un Nouvel Espace Pour L'Homme", Mars, a New Space for Humans, Chapter in book "Les espaces de l'Homme" ("Man and his Spaces").author of book:Berthoz, A. and Recht, R., Publisher: Editions Odile Jacob, Date of publication June 2005

05.07 void

05.08 Burki-Cohen, J. and Go, T. H., "The Effect of Simulator Motion Cues on Initial Training of Airline Pilots," AIAA Paper 2005-6109, presented at the AIAA Modeling and Simulation Technologies Conference, San Fransisco, CA, August 2005.

05.09 Hecht, Heiko, Bertamini, Marco, and Gamer, Matthias, "Naïve Optics: Acting on Mirror Reflections" *Journal of Experimental Psychology: Human Perception and Performance* 2005, Vol. 31, No. 5 1023-1038

05.10 Jarchow, Thomas, Young, Laurence R., "Neurovestibular Aspects of Short-Radius Artificial Gravity: Parameters determining adaptation, Abstract for the 15th Humans in Space Symposium Meeting, Graz, Austria, May 22-26, 2005 submitted to *Astra Astronautica*

05.11 See 06.13

05.12 Jarchow, Thomas, Young, Laurence R., "Parameters Determining Neurovestibular Adaptation to Short-Radius Artificial Gravity", IAC-05-A1.2.08, submitted to *Acta Astronautica*

05.13 Jarchow, Thomas, Young, Laurence R., "Neruoestibular Adaptation to Short Radius Centrifugations", submitted to *Journal of Gravitational Physiology*

05.14 Marquez, J.J., Cummings, M.L., Roy, N, Kunda, M., Newman, D. (2005) "Collaborative Human-Computer Decision Support for Planetary Surface Transversal" AIAA Infotech@Aerospace. September 2005. Arlington, VA.

05.15 Oman, C.M., Harris, L.R., Taube, J.S., Dyde, H.L., Jenkin, Liu, A.M., Aoki, H., Benveniste, D., Buckland, D.A., Natapoff, A. and J. Richards, "Visual Orientation, Navigation and Spatial Memory: Mechanisms and Countermeasures", Abstract 2057, Bioastronautics Investigators' Workshop, Galveston, TX, January 2005.

05.16 Carr, C.E. and D.J. Newman. "When is running in a space suite more efficient than walking in a space suit? " In 35th International Conference on Environmental Systems and 8th European Symposium on Space Environmental Control Systems, Rome, Italy, 2005. Society of Automotive Engineers, Inc., Warrendale, Pennsylvania, USA (SAE 2005 Transactions Journal of Aerospace, V. 114 July 2005. SAE paper 2005-01-2970.

05.17 MacLeish, M.Y., Moreno, N. P., Thomson, W. A., Newman, D. J., Gannon, P. J., Smith, R. S., Denton, J. J., James, R. K., Wilson, C., Sognier, M., Illman, D. L., "Communicating Bioastronautics Research to Students, Families and the Nation", *Acta Astronautica*, vol. 56, pp 773-782, March 2005.

05.18 see 07.41

05.19 Carr, C.E. and D.J. Newman. "When is running in a space suit more efficient than walking in a space suit?", Society of Automotive Engineers, Inc., Warrendale, Pennsylvania, USA. SAE paper 2005-01-2970, 2005.

05.20 Saleh, J.H., Hassan, R., Torres-Padilla, J. P., Hastings, D. E., and Newman, D.J., "Impact of Subsystem Reliability on Satellite Revenue Generation and Present Value", *AIAA Journal of Spacecraft and Rockets*, vol. 42, No. 6, November-December 2005.

05.20 Ferguson, P. A., Newman, D. J., "Novel Dynamic Joint Torque Estimation using Force-Plate and Joint Angle Data", (submitted to journal), December 2005.

2004

04.01 Ferguson, P.A., Carr, C.E., Pitts, B., Newman, D.J., "Adaptation and Performance Analysis of Human Motion During Intra- and Extra-vehicular Activities," Proceedings of the Habitation 2004 Conference, Orlando, FL, January, 2004

04.02 see 05.06

04.03 Hayashi, M., Oman, C. M., & Zuschlag, M. (2004, in press). Effects of Head-Up Display Airspeed Indicator and Altimeter Formats on Pilot Scanning and Attention Switching. Paper presented at the 5th in a Series of Conferences on Human Performance, Situation Awareness and Automation Technology, Daytona Beach, FL, Mar. 22-25. (Best Student Paper Award).

04.04 Garrick-Bethell, I, Jarchow, T., Hecht, H., and Young, L.R., "Cross-Plane Transfer of Vestibular Adaptation to Coriolis Cross-Coupled Stimuli", Abstract, Barany Society, XXIII International Congress, 7-9 July 2004.

04.05 Young, L.R., "Testimony to US House of Representatives, Committee on Science Hearing on *Perspectives on the President's Vision for Space Exploration*", March 10, 2004, Washington, DC.

04.06 Young, L.R. "Terrain Park Features The Physics and Metaphysics", ASDA Meeting, Cortina, Italy, March 2004.

04.07 Saleh, J.H., Hastings, D.E., and D.J. Newman, "Weaving Time into System Architecture: Satellite Cost per Operational Day and Optimal Design Lifetime," *Acta Astronautica*, 54 (2004) 413-431.

04.08. See 05.01

04.09 Mast, Fred W. and Oman, Charles M. "Top-Down Processing and Visual Reorientation Illusions in a Virtual Reality Environment", *Swiss Journal of Psychology* 63 (3), 2004, 143-149.

04.10 Taube, J.S., Stackman, R.W., Calton, J.L., Oman, C.M., "Rat Head Direction Cell Responses in Zero-Gravity Parabolic Flight", *J. Neurophysiol* 92: 2887-2997, June 2004.

04.11 Saleh, J.H., Torres-Padilla, J.P., Hastings, D.E., Newman, D.J., "To Reduce or to Extend a Complex Engineering System Design Lifetime? What is at Stake, for Whom, and How to Resolve the Dilemma", AIAA International Communications Satellite Conference, 9-12 May 2004, Monterey, California

04.12 Newman, D.J., Marquez, J.J., Wagner, E.B., Merfeld, D. Trotti, G. (2004) "Explore space: Integrating Space Biomedical Engineering Education and Research". *Proceedings of 55th International Astronautical Congress*. October 4-8, 2004. Vancouver, Canada

04.13 Marquez, J.J., Oman, C.M., Liu, A.M. (2004) 'You-are-here maps for International Space Station: Approach and Guidelines". *Proc. International Conference on Environmental Systems*. July 19-22, 2004

04.14 Jarchow, T., Young, L.R., "Adaptation to head movements during short radius centrifugation", presented at the 55th *International Astronautical Congress*. October 4-8, 2004. Vancouver, Canada
Submitted to *Acta Astronautica*

04.15 Carr, C.E., Schwartz, S.J., and D.J. Newman, "Preliminary Considerations for Wearable Computing in Support of Astronaut Extravehicular Activity," (in progress), 2004.

04.16 Saleh, J. H., Hassan, R., Torres-Padilla, J-P, Hastings, D. E., Newman, D. J., "Impact of Subsystem Reliability on Satellite Revenue Generation and Present Value", *Journal of Spacecraft and Rockets*, (Accepted) November 2004.

04.17 Bethke, K., Carr, C. E. Pitts, B. M., Newman, D.J., "Bio-Suit Development: Viable Options for Mechanical Counter Pressure", Society of Automotive Engineers, Inc., Warrendale, PA, USA, SAE paper 2004-01-2294, 2004

04.18 Saleh, J.H., Hastings, D.E., and D.J. Newman, "Weaving Time into System Architecture: Satellite Cost per Operational Day and Optimal Design Lifetime," *Acta Astronautica*, vol.54, pp 413-431 2004.

04.19 Young, L. R., "Predicting the Landing on a Terrain Park Feature, Mt. Hood, OR, May 2004

2003

03.01 Mast, F.W., Newby, N.J., Young, L.R., "Sensorimotor Aspects of High-Speed Artificial Gravity: II. The Effects of Head Position on Illusory Self Motion", 2003, *Journal of Vestibular Research* 12(5/6), pp.283-289.

03.02 Johnson, K. E., Ren, L., Kuchar, J. K., and C. M. Oman, "Interaction of Automation and Time Pressure in a Route Replanning Task", *Human-Computer Interaction in Aeronautics Conference*, Cambridge, MA, October 23-25, 2002, pp. 132-137.

03.03 Young, L. R., "Artificial Gravity." *Encyclopedia of Space Science and Technology*. New York: John Wiley & Sons, Inc., publication, volume 1, pp. 138-151, 2003.

03.04 Oman, C.M., "Human Visual Orientation in Weightlessness", *Levels of Perception*, Springer-Verlag, NY, Inc. 2003, Editors Laurence Harris, Michael Jenkin, chapter 19, pp. 375-398.

03.05 Brown, E.L., Hecht, H., Young, L.R., "Sensorimotor aspects of high-speed artificial gravity: I. Sensory conflict in vestibular adaptation", *Journal of Vestibular Research*, pp, 271-282, 2003

03.06 see 05.02

03.07 Oman CM, Howard IP, Smith T, Beall AC, Natapoff A, Zacher JE, Jenkin HL. (2003) The Role of Visual Cues in Microgravity Spatial Orientation, in: *The Neurolab Spacelab Mission: Neuroscience Research In Space*; Buckley JC and Homick JL, Editors. NASA SP-2003-535, pp.69-82

03.08 Oman, CM (2003) Neurolab Virtual Environment Generator. , in: *The Neurolab Spacelab Mission: Neuroscience Research In Space*; Buckley JC, Homick JL, Editors. NASA SP-2003-535, pp.253-258

03.09 Hain, T.C. and Oman, C.M., "Why does reading in a moving car cause motion sickness?", *Ask The Experts*, Scientific American, July 2003, p 93.

03.10 Young, L. R., "Models for Neurovestibular Adaptation: A Personal Approach", Presented at the Sixth NASA Symposium on the Role of Vestibular Organs in Space Exploration, October 1-3, 2002, Portland, OR.

03.11 Young, L.R., Sienko, K.H, Lyne, L.E., Hecht, H., and Natapoff, A., "Adaptation of the vestibulo-ocular reflex, subjective tilt, and motion sickness to head movements during short-radius centrifugation." *Journal of Vestibular Research*, Volume 13, Numbers 2-3 / 2003, pp. 65-77.

03.12 Go, Tiau H., Burki-Cohen, J., Chung, W.W., Schroeder, J.A., Saillant, G., Jacobs, S., Longridge, T., "The effects of enhanced hexapod motion on airline pilot recurrent training and evaluation", AIAA-2003-5678 pp. 1-11.

03.13 see 04.10

03.14 Oman, Charles M., (2003) "Neurovestibular adaptation to spaceflight: Research progress", *Journal of Vestibular Research*, 12(5/6) pp.201-203.

03.15 VOID

03.16 Saleh, J.H., Hastings, D.E., and D.J. Newman, "Flexibility in System Design and Implications for Aerospace Systems", *Acta Astronautica* 53 (2003) 927-944.

03.17 Saleh, J.H., Hastings, D.E. and D.J. Newman, "Weaving Time into System Architecture: Satellite Cost per Operational Day and Optimal Design Lifetime", *Acta Astronautica*, 54(2004) 413-431.

03.18 Saleh, J.H., Lamassoure, E.S., Hastings, D.E., and D.J. Newman, "Flexibility and the Value of On-Orbit Servicing: A New Customer-Centric Perspective", *AIAA Journal of Spacecraft and Rockets*, vol. 40, No. 2, pp279-291, March-April 2003.

03.19 White, R.J., Bassingthwaite, J.B., Charles, J.B., Kushmerick, M.J., Newman, D.J., "Issues of Exploration: Human Health and Wellbeing During a Mission to Mars", *Adv. Space res.*, Vol. 31, No. 1 pp7-16, 2003.

03.20 void

03.21 Baroni, G., Pedrocchi, A., Ferrigno, G., Pedotti, A., Newman, D. J., "Human Body Orientation in Transient Microgravity", abstract, 14th IAA Humans in Space Symposium, Banff, Alberta, Canada, May 2003

03.22 Carr, C.E., Hodges, K.V. Hodges, Newman, D.J., "Geologic Traverse Planning for Planetary EVA", AIAA and SAE International Conference on Environmental Systems (ICES 2003), Vancouver, B.C., Canada, July 2003

03.23 Blaya, J.A., Newman, D.J., Herr, H.M., "Comparison of a variable impedance control to a free and rigid ankle foot orthoses (AFO) in assisting drop foot gait," (Paper #44) Proceedings of the International Society of Biomechanics (ISB) XIXth Congress, Dunedin, New Zealand, July 10, 2003

03.24 Newman, D.J., "Quantifying Astronaut Tasks: Robotic Technology and Future Space Suit Development," Final Report under NASA Grant NAG9-1089, 2003

03.25 Newman, D.J., April 1993, "The Mechanics of Human Locomotion: An Investigation into the Influence of Gravitational Acceleration," Department of Mechanical Engineering, Stanford University, Stanford, CA.

03.26 Newman, D.J., November 2001 - July 2003, "Galatea Odyssey: World Contact / A Global Education Project," Peabody Essex Museum, Peabody, MA; Panama City, Panama; Darwin, Australia; Univ. of Stellenbosch, Stellenbosch, South Africa

03.27 Richards, J.T., Oman, C.M, Shebilske, W.L., Beall, A.C., Liu, A., and A. Natapoff, " Training, transfer, and retention of three-dimensional spatial memory in virtual environments", *Journal of Vestibular Research*, 12(5/6)pp.223-238, 2002/2003.

03.28 Young, L.R., " Models for Neurovestibular Adaptation", Journal of Vestibular Research, Vol. 13 (2003) 297-307, IOS Press. Presented at the Sixth NASA Symposium on the Role of Vestibular Organs in Space Exploration, October 1-3, 2002, Portland, OR.

03.29 Hayashi, M. (2003). Hidden Markov Models to Identify Pilots Instrument Scanning and Attention Patterns. Paper presented at the IEEE International Conference on Systems, Man & Cybernetics, 2889-2896, Washington D.C., Oct. 5-8. (Best Student Paper Award)

03.30 Hayashi, M., Oman, C. M., & Zuschlag, M. (2003). Hidden Markov Models as a Tool to Measure Pilot Attention Switching during Simulated ILS Approaches. Paper presented at the 12th International Symposium on Aviation Psychology, 502-507, Dayton, OH, Apr. 14-17.

03.31 Burki-Cohen, J., Go, T.H., Chung, W.W., Schroeder, J. et al, "Simulator Fidelity Requirements for Airline Pilot Training and Evaluation Continued: An Update on Motion Requirements Research", Proceedings of the 12th International Symposium on Aviation Psychology, April 2003.

03.32 Young, L. R. "Spatial Orientation." , chapter 3, Principles and Practice of Aviation Psychology. P. S. Tsang and M.A. Vidulich, Eds. Mahwah, NJ: Erlbaum pp 69-114, 2003.

03.33 Marquez, J.J., Hilstad, M.O., Hines, E.K., Lamamy, J.A., (2003) "Trade Space Analysis of Mars Surface Explorers." *Poster in Sixth International Conference on Mars* at Pasadena, CA July 2003.

03.34 Oman, Charles M., Harris, Laurence, R., Shebilske, Wayne L., Taube, Jeffrey S., Liu, Andrew M., Howard, Ian, P., and Jason T. Richards, "Visual Orientation and Spatial Memory: Mechanisms and Countermeasures", Abstract 2003, Bioastronautics, Galveston, TX 2003.

03.35 Hodgson, E., Sidgreaves, R., Braham, S., Hoffman, J., Carr, C., Lee, P., Marmolejo, J. Miller J. , Rosenberg, I., Schwartz, S., "Requirements and Potential for Enhanced EVA Information Interfaces, 33rd International Conference on Environmental Systems, Vancouver, Canada, 2003. SAE paper 2003-01-2413.

2002

02.01 Young, L.R., The International Space Station at Risk, Editorial, SCIENCE, vol. 296, April 19, 2002

02.02 K. Johnson, J.K. Kuchar, and C.M. Oman, "Experimental Study of Automation to Support Time-Critical Replanning Decisions.

02.03 Oman, C.M. ,Shebilske W.L., Richards, J.T., Tubre, T.C., Beall, A.C., and Natapoff, A., Three dimensional spatial memory and learning in real and virtual environments, *Spatial Cognition and Computation 2*: 355-372, 2000. *Kluwer Academic Publishers, 2002*.

02.04 Hecht, H., Brown, E.L., and Young, L.R., "Adapting to artificial gravity (AG) at high rotational speeds", presented at the 23rd ESA ISBP Symposium 'Life in Space for Life on Earth' held in Stockholm, Sweden June 2-7, 2002. Published in *Journal of Gravitational Physiology, Vol 9(1) P1-P5, 2002*.

02.05 Croucher, C. J., Bertamini, M., & Hecht, H. (2002). Naive optics: Understanding the geometry of mirror reflections. *Journal of Experimental Psychology: Human Perception and Performance*, 28, 546-562.

02.06 Hecht, H., Kaiser, M. K., Savelsbergh, G. J. P., & Van der Kamp, J. (2002). The impact of spatio-temporal sampling on time-to-contact judgments. *Perception & Psychophysics*.

- 02.07 Koenderink, J. J., Van Doorn, A. J., Arend, L., & Hecht, H. (2002). Ecological optics and the creative eye. In R. Mausfeld & D. Heyer (Eds.), *Perception and the physical world: Psychological and philosophical issues in perception* (pp. 271-304). Chichester, UK: John Wiley & Sons, Ltd.
- 02.08 Atamer, A., Delaney, M. and Young, L.R., "An Expert System for Fault Management Assistance on a Space Sleep Experiment", *Archives Italiennes de Biologie*, 140 No.3 303-313, July 2002.
- 02.10 Oman, C.M. (2002) Neurovestibular Countermeasures for Long Duration Spaceflight. (Abstract). *Aviation, Space and Environmental Medicine* 73(3): 237
- 02.11 Oman, C.M. (2002) Human visual orientation and navigation in weightlessness. (Abstract). *Aviation, Space and Environmental Medicine* 73(3): 237
- 02.12 Taube, J.S, Calton, J.L., Stackman, R.W., Oman, C.M., Steven, M.S. (2002) The neurobiology for a sense of direction: an update from on the ground, upside down and space-bound (abstract). *Journal of Vestibular Research* 11(3-5): 320-321.
- 02.13 Richards, J.T., Clark, J.B., Oman, C.M., Marshburn, T.H. (2002) Neurovestibular effects of long-duration spaceflight: a summary of Mir phase 1 experiences. (abstract). *Journal of Vestibular Research* 11(3-5): 322.
- 02.14 Liu A, Duda K, Oman C, Natapoff A. (2002) Effects of parabolic flight zero-gravity on looming linear vection. (abstract). *Journal of Vestibular Research* 11(3-5): 325.
- 02.15 Marquez J.J., Oman, C.M., Liu, A.M. and Beall, A.C. (2002) "Spacecraft in miniature": a tool for the acquisition of mental representations of large environments (abstract). *Journal of Vestibular Research* 11(3-5): 338-339.
- 02.16 Johnson K.E., Kuchar, J.K., Oman, C.M. (2002) Experimental study of automation to support time-critical replanning decisions. HFES 2002 Annual Meeting, Baltimore MD, October.
- 02.17 Johnson K, Ren L, Kuchar J, and Oman C (2002) Interaction of automation and time pressure in a route replanning task. Proceedings of 2002 International Conference on Human-Computer Interaction in Aeronautics (HCI-Aero2002), Cambridge, MA October 24, 6 pp.
- 02.18 Oman, C.M. (2002) Human spatial orientation and navigation in weightlessness (abstract), *Journal of Vestibular Research*, 11(3-5): 323
- 02.19 Mast, F., Newby, N., Young, L.R., The effect of head position on illusory self-motion in artificial gravity, (abstract) *Vestibular Influences on Movement Satellite Meeting*, *Journal of Vestibular Research*, 11(3-5): 199
- 02.20 Young, L.R., Micro-gravity and artificial gravity: Two challenges to neuro-vestibular adaptation (abstract), 6th NASA Symposium on the Role of the Vestibular Organs in the Exploration of Space, *Journal of Vestibular Research*, 11(3-5):311
- 02.21 Young, L.R. and Hecht, H., Neurovestibular Aspects of Artificial Gravity (AsMA 2002 Meeting Abstract) *Aviation, Space, and Environmental Medicine*, Vol. 73, No. 3, pp. 237, March 2002.
- 02.22 Young, L.R., Sienko, K.H., Lyne, L.E., Hecht, H., Natapoff, A., Adaptation of the Vestibulo-Ocular Reflex, Subjective Tilt, and Motion Sickness to Head Movements During Short-Radius Centrifugation, (abstract) XXII Barany Society Meeting, *Journal of Vestibular Research*, 11(3-5): 256-257
- 02.23 Newman, D.J., Interactive Aerospace Engineering and Design, Introductory engineering textbook with accompanying CD-ROM, McGraw-Hill, Inc., January 2002.

- 02.24 Frazer, A., Pitts, B., Schmidt, P., Hodgson, E., and Newman, D. "Quantifying Astronaut Tasks: Robotic Technology and Future Space Suit Design", abstract, Second Biennial Space Human Factors Workshop, Houston, TX, January 2002.
- 02.25 Saleh, J.H., Marais, K.S., Hastings, D.E., and D.J. Newman, "The Case for Flexibility in System Design," 12th Annual INCOSE International Systems Engineering Symposium (INCOSE 2001), Las Vegas, NV, July-August 2002.
- 02.26 Gustafsson, G., Newman, D.J., Stafstrom, S., and H.P. Wallin, "First-Year Introductory Courses as a Means to Develop Conceive – Design – Implement – Operate Skills in Engineering Education Programmes," 30th European Society for Engineering Education Annual Conference (SEFrenze2002), Florence, Italy, September 2002.
- 02.27 Newman, D.J., Interactive Aerospace Engineering and Design, Introductory engineering textbook with accompanying interactive CD-ROM, McGraw-Hill, Inc., January 2002.
- 02.28 Gustafsson, G., Malmqvist, J., Newman, D.J., Stafstrom, S., and H.P. Wallin, "Towards a New Model for First-Year Introductory Courses in Engineering Education Programmes," Design Society 4th NordDesign Seminar (NordDesign 2002), Trondheim, Norway, August 2002.
- 02.29 Frazer, A. L., Pitts, B. M., Schmidt, P. B., Hoffman, J. A. and Newman, D. J., "Astronaut Performance: Implications for Future Spacesuit Design", 53rd International Astronautical Congress, Paper No. IAC-02-6.5.03, Houston, TX, October 2002
- 02.30 Poon, C.S., Tryfonidis, M., and D. J. Newman, "Bayesian Optimization of Visuomotor Performance in Human Decision," *Science*, (in review) 2002.
- 02.31 Newman, D.J., Merfeld, D., Brown, E., and J. Marquez, "Space Biomedical Sciences and Outreach Project," National Space Biomedical Research Institute Retreat, Houston, TX, January 2002
- 02.32 Newman, D.J., "Astronaut Bio-Suit System for Exploration Class Missions," Phase I Final Report under the Universities Space Research Association, NASA Institute for Advanced Concepts, Subcontract Agreement USRA 07600-075, January 2002
- 02.33 Newman, D.J., "Microgravity Investigation and Crew Reactions in Zero-Gravity," Final Report under NASA Grant NAG9-1003, August 2002.
- 02.34 Saleh, J.H., Marais, D.E., Hastings, D.E., and D.J. Newman, "The Case for Flexibility in System Design," INCOSE 2002 International Symposium, July 28 - August 1, 2002. Las Vegas, Nevada
- 02.35 Go, T.H. & R.V. Ramnath, "Analysis of the Two-Degree-of-Freedom Wing Rock in Advanced Aircraft", *Journal of Guidance, Control and Dynamics*, Vol., No. 2, March-April 2002.
- 02.36 Young, L., "Un defi pour la physiologie humaine: l'exploration par l'homme de la planete Mars", Seminaire, Le jeudi 28 novembre 2002, College de France, Paris
- 02.37 Carr, C.E., Schwartz, S.J., and Rosenberg, I., "A Wearable Computer for Support of Astronaut Extravehicular Activity", *Proceedings of the 6th International Symposium on Wearable Computers*. IEEE. Seattle, October 2002.
- 2001**
- 01.1 Oman, C. M., Kendra, A. J., Hayashi M., Stearns, M. J., and Burki-Cohen, J., "Vertical Navigation Displays: Pilot Performance and Workload During Simulated Constant Angle of Descent GPS Approaches", *The International Journal of Aviation Psychology*, 11(1), 15-31, 2001.
- 01.2 Newman, D.J. and A.R. Amir, "Innovative Aerospace Design Course at MIT," *ASEE Journal of Engineering Education*, 90(3):375-381, July 2001.

01.3 Newman, D.J., Amir, A.R. and S.M. Beck, "Astronaut-Induced Disturbances to the Microgravity Environment on Board the Mir Space Station: Results of the Enhanced Dynamic Load Sensors Spaceflight Experiment," *AIAA Journal of Spacecraft and Rockets*, 38(4): 578-583, July-August 2001.

01.4 Amir, A.R., Baroni, G., Pedrocchi, A., Newman, D.J., Ferrigno, G. and A. Pedotti, "Measuring Astronaut Performance on the ISS: Advanced Kinematic and Kinetic Instrumentation," *IEEE Transactions on Instrumentation and Measurement*, 50(5): 1450-1455, October 2001.

01.5 Schmidt, P., Newman, D., and E. Hodgson, "Modeling Space Suit Mobility: Applications to Design and Operations," AIAA and SAE International Conference on Environmental Systems (ICES 2001), Orlando, FL, June 2001.

01.6 Saleh, J.H., Kaliardos, W.N., Hastings, D.E., R.J. Hansman, and D.J. Newman, "On Flexibility in System Design," (to be presented) 11th Annual INCOSE International Systems Engineering Symposium (INCOSE 2001), Melbourne, Australia, (to be presented) July 2001.

01.7 Newman, D.J., Wu, R., Jackson, D.K. and D.E. Krebs, "Electromyographic Analysis of Human False Platform Jumping Experiments," *Journal of Applied Physiology*, (in review) 2001.

01.8 See 02.30

01.9 Jackson, D.K., D.J. Newman and D.E. Krebs, "False Platform Jump Landings in Humans Reveal Commanded Free Trajectories and Leg Impedance," *Journal of Biomechanics*, (in progress) 2001.

01.10 See 02.23.

01.11 See 02.08.

01.12 See 01.32

01.13 Saleh, J.H., Hastings, D.E., and D.J. Newman, "Extracting the Essence of Flexibility in System Design," 3rd NASA/DoD Workshop on Evolvable Hardware, Long Beach, CA, July 2001

01.14 Baroni, G., Newman, D.J., Pedrocchi, A., Ferrigno, G., Cotronei, V., Bracciaferri, F., and A. Pedotti, "Kinematic and Kinetic Analysis in Weightlessness: the Parabolic Flight Campaign of the Micro-G Project", Workshop Nazionale: La Scienza e la Tecnologia sulla Stazione Spaziale Internazionale (ISS), Turin, Italy, May 2001.

01.15 see 03.03

01.16 Young, L.R., Sienko, K.H., Lyne, L.E., Hecht, H., and Natapoff, A., "Adaptation of the vestibulo-ocular reflex, subjective tilt, and motion sickness to head movements during short-radius centrifugation." Submitted to *Experimental Brain Research*, August 25, 2001

01.17 Young, L.R., Hecht, H., Lyne, L.E., Sienko, K.H., Cheung, C.C., Kavelaars, J. "Artificial Gravity: Head Movements During Short-radius Centrifugation", *Acta Astronautica*, 49 (3-10): 215-226.

01.18 Hecht, H., Kavelaars, J., Cheung, C., Young, L. "Orientation illusions and heart-rate changes during short-radius centrifugation." *Journal of Vestibular Research* 11 (2001) 115-127, IOS Press.

01.19 Oman, C.M., "NeuroLab Virtual Environment Generator", scientific results NASA Publication in press, editors: J. Buckey, J. Homick.

01.20 Oman, C.M., (companion article to NeuroLab paper.)

01.21 Liu, A., Oman, C.M., Beall, A.C., Howard, I.P., Smith, T., Young, L.R., Harris, L., Jenkin, M., "Human Orientation in Prolonged Weightlessness (ISS HRF-E085), American Institute of Aeronautics and Astronautics, AIAA 2001-4906, pp. 1-11.

01.22 Hecht, H. (2001). Regularities of the physical world and the absence of their internalization. *Behavioral and Brain Sciences*, 24, 608-617.

01.23 Hecht, H. (2001). Universal internalization or pluralistic micro-theories? *Behavioral and Brain Sciences*, 24, 746-753.

01.24 see 01.18

01.25 see 01.17.

01.26 Kerzel, D., Hecht, H., & Kim, N. G. (2001). Time-to-passage judgments on circular trajectories are based on relative optical acceleration. *Perception & Psychophysics*, 63, 1153-1170.

01.27 Hecht, H., Vogt, S., & Prinz, W. (2001). Motor learning enhances perceptual judgment: a case for action-perception transfer. *Psychological Research/Psychologische Forschung*, 65, 3-14.

01.28 Kerzel, D., & Hecht, H. (2001). Visual causality. In M. May & U. Oestermeier (Eds.), *Interdisciplinary perspectives on causation* (pp. 119-139). Bern: Books on Demand. (Series: *Bern Studies in the History and Philosophy of Science*, Vol. 4, Eds. G. Graßhoff, T. Lampert & T. Sauer)

01.29 Young, L. R., Henn, V., & Scherberger, H. Fundamentals of the Theory of Movement Perception. New York: Kluwer Academic/Plenum Press. Translation of Mach, Ernst. Grundlinien der Lehre von den Bewegungsempfindungen. Leipzig: Verlag von Wilhelm Engelmann, 1875. **(Published Dec. 2001.)**

01.30 Oman CM, Liu AM, Marquez JJ, Sachtler WB, Hutchison WE, Beall AC, Natapoff A. (2001) Advanced Displays and Controls for Six Degree of Freedom Orientation and Navigation in Virtual Microgravity (Abstract) Paper 009 in Bioastronautics Investigators Workshop, Galveston, TX, USRA Technical Report/CD ROM, USRA Division of Space Life Sciences, Houston, TX

01.31 Gronqvist, R., Abeysekera, J., Gard, G., Hsiang, S.M., Leamon, T.B., Newman, D.J., Gielo-Perczak, K., Lockhart, T.E., and C.Y. C. Pai, "Human-Centered Approaches in Slipperiness Measurement", *Ergonomics: The Official Journal of the Ergonomics Society and the International Ergonomics Association*, 44(1): 1167-1199, October 2001.

01.32 Saleh, J.H., Hastings, D.E., and D.J. Newman, "Spacecraft Design Lifetime", *AIAA Journal of Spacecraft and Rockets*, 39(2): 244-257, March-April 2002.

01.33 Carr, C.E. and D.J. Newman, Health Management Strategies for Long Duration Human Spaceflight and Planetary Surface Exploration, Harvard-MIT Division of Health Sciences and Technology, Spring Forum, March 2001.

01.34 Carr, C.E. and D.J. Newman, "Supporting Martian Field Geology," IAIR Human Systems 2001: The International Conference on Psychosocial Adaptation and Human Factors Technologies, Houston, TX June 2001.

01.35 Carr, C.E. and D.J. Newman, "Supporting Martian Field Geology", Geological Society of America Annual Meeting & Exposition, Boston, MA, October 2001.

01.36 Saleh, J.H., Lamassoure, E.S., Hastings, D.E., and D.J. Newman, "Flexibility and the Value of On-Orbit Servicing: A New Customer-Centric Perspective," 2001 Core Technologies for Space Systems Conference, Colorado Springs, CO, November 2001.

01.37 Newman, D.J. National Research Council, Laying the Foundation for Space Solar Power: An Assessment of NASA's Space Solar Power Investment Strategy, Hoover, W., Committee Chair, Committee for the Assessment of NASA's Space Solar Power Investment Strategy, Aeronautics and Space Engineering Board, Division on Engineering and Physical Sciences, National Academy Press, Washington DC, September 2001.

01.38 Newman, D.J., Schmidt, P., Hodgson, E., "A Model of Space Suit Joint Mobility with Applications to EVA Operations", NASA Bioastronautics Investigators' Workshop, Galveston, TX, January 2001.

01.39 Newman, D.J., February 2001, "Human Spaceflight: From Mir to Mars," 2001 Darwin Festival, Salem State College, Salem, MA.

01.40 Newman, D.J., March 2000 - May 2001, "Human Space Exploration: Mir to Mars," *AIAA Distinguished Lecturer Series*: Orange County, CA; San Francisco, CA; Phoenix AZ; White Sands, NM; Baltimore, MD; Sydney & Adelaide, Australia.

01.41 Newman, D.J., June 2001, "Human Space Exploration: From Mir to Mars," Institute for Human and Machine Cognition, University of West Florida, Pensacola, FL.

01.42 Newman, D.J., November 2001, C.E. Carr and D.J. Newman, "Distributed Architectures and Traverse Planning for Mars Exploration", Workshop on Revolutionary Aerospace Systems Concepts for Human/Robotic Exploration of the Solar System, ICASE/USRA/NASA Langley Research Center, Hampton, VA.

01.43 McIntyre, J. "Reference Frames and Internal Models Studied in Microgravity", Conference and Exhibit on International Space Station Utilization -2001, Cape Canaveral, FL 15-18 Oct. 2001
AIAA 2001-4907

01.44 Go, T.H., Ramnath, R.V., "An Analytical Approach to the Aircraft Wing Rock Dynamics", AIAA 2001-4426, AIAA Atmospheric Flight Mechanics Conference, August 6-9, 2001, Montreal, Canada, pp. 1-9.

01.45 Burki-Cohen, J., Go, T.H., Longridge, T., "Flight Simulator Fidelity Considerations for Total Air Line Pilot Training and Evaluation", AIAA-2001-4425 Proceedings of the AIAA Modeling and Simulation Technologies Conference, 6-9 August 2001, Montreal, Canada, pp. 1-9.

01.46 Marquez, J.J., Oman, C.M., Liu A.M., Beall, A.C., (2001) "Spacecraft in Miniature: a Tool for the Acquisition of Mental Representations of Large, Complex 3D Virtual Environments" (poster). *Human. Systems Conference* at Houston, TX, June 2001

01.47 Carr, C.E., Schwartz, S.J., and Newman, D.J., "Preliminary Considerations for Wearable Computing in Support of Astronaut Extravehicular Activity, Technical Report 551, MIT Media Laboratory, September 2001.

2000

00.1 Oman, C.M., Kendra, A.J. Hayashi, M., Stearns, M.J., & Burki-Cohen, J. Vertical Navigation Displays: Pilot Performance and Workload During Simulated Constant-angle-of-descent GPS Approaches. Proceedings of the Tenth International Symposium on Aviation Psychology, Vol. 1, May 3-6, 1999. Ohio State University.

00.2 Rasmussen, S. A., Oman, C. M., Huntley, Jr., M. S., & Hannon, D. J. "Track Angle Error Display's Format Affects Simulated Non-precision GPS Approach Performance and Workload." Proceedings of the Tenth International Symposium on Aviation Psychology, Vol. 2, Pages 1344-1349, May 3-6, 1999. Ohio State University.

00.3 Young, L. & Seddon, Rhea. "Spacelab Contributions to Space Life Sciences." Proceedings of the Spacelab Accomplishments Forum, March 1999. Originally published as AIAA 94-4649, Part II. Now in CD-ROM, September 2000.

00.4 See 01.29

00.5 See 03.32

00.6 Young, L.R. (2000). Vestibular reactions to space flight: human factors issues. Paper presented at International Workshop on Human Factors in Space, Tokyo, Japan, July 8, 1999. *Aviat. Space and Environ. Med.*, Vol. 71, No.8: A100-A104.

00.7 Oman, C.M. (2000) In search of a cure for seasickness, in: Safety at Sea, Textbook for US Sailing Association/Cruising World Safety-At-Sea seminars, pp. 26-28. Cruising World Safety-At-Sea Institute, Newport RI.

00.8 Callini, G., Essig, S.M., Heher, D., & Young, L.R. (2000). "Effectiveness of an Expert System for Astronaut Assistance on a Sleep Experiment." *Aviation, Space, and Environmental Medicine*, Vol. 71, No. 9: 1023-1032.

00.9 (See 01.17.)

00.10 Young, L.R. From Systems to Genes and Back (Forthcoming in *Annals of Biomedical Engineering*).

00.11 Raj, A.K., McGrath, Braden J., Rochlis, J. L., Newman, D. J., Rupert, A.H., "The Application of Tactile Cues to Enhance Situation Displays", In: *Proceedings for the Third Annual Symposium and Exhibition on Situational Awareness in the Tactical Air Environment*, 2-3 June 1998, pp. 77-84.

00.12 Rochlis, J.L., Newman, D.J., "A Tactile Display for International Space Station (ISS) Extravehicular Activity (EVA), *Aviation, Space, and Environmental Medicine*, Vol. 71, No. 6, pp. 571-578, June 2000.

00.13 Oman, C.M., Howard, I.P., Carpenter-Smith, T., Beall, A.C., Natapoff, A., Zacher, J.E, & Jenkin, H.L. "Neurolab Experiments on the Role of Visual Cues in Microgravity Spatial Orientation", Abstract presented at 2000 Annual Scientific Meeting of the Aerospace Medical Association, Westin Galleria & Oaks, Houston, TX, *2000 Aviation Space and Environmental Med. 71(3) p. 293*.

00.14 Schaffner, G., Newman, D.J. and S. Robinson, "Computational Simulation of Extravehicular Activity Dynamics During a Satellite Captur Attempt," *AIAA Journal of Guidance, Control, and Dynamics*, 23(2): 367-369, March-April 2000.

00.15 Baroni, G., Rigotti, C., Amir, A.R., Ferrigno, G., Newman, D.J. and A. Pedotti, "Multifactorial Movement Analysis in Weightlessness: A Ground Based Feasibility Study," *IEEE Transactions on Instrumentation and Measurement*, 49(3):476-483, June 2000.

00.16 Newman, D.J., "Life in Extreme Environments: How Will Humans Perform on Mars?" *ASGSB Gravitational and Space Biology Bulletin*, 13(2):35-47, June 2000.

00.17 Jackson, D.K. and D.J. Newman, "Adaptive Effects of Space Flight as Revealed by Short-Term Patial Weight Suspension," *Aviation Space and Environment Medicine*, 71(9), September 2000.

00.18 Amir, A.R., and D.J. Newman, "Research into the Effects of Astronaut Motion on the Spacecraft: A Review," *Acta Astronautica*, 47(12): pp 859-869, December 2000.

00.19 Bishop, R.H., Byrnes, D.V., Newman, D.J., Carr, C.E., and B. Aldrin, "Earth-Mars Transportation Opportunities: Promising Options for Interplanetary Transportation," Paper AAS 00-255, Proceedings of the Richard H. Battin Astrodynamics Conference, College Station, TX , March 2000.

00.20 Neogi, N. and D.J. Newman, "Estimation of the Transfer Function for the Russian Space Station Mir due to Astronaut Loads," Proceedings of the 41st AIAA/ASME/ASCE/AHS/ASC Structural Dynamics, and Materials Conference, AIAA-2000-1736, Atlanta, GA, April 2000.

- 00.21 Wu, R. and D.J. Newman, "Astronaut Adaptation Across the Spectrum of Gravity," Proceedings of the 13th Humans in Space Symposium, Santorini, Greece, May 2000.
- 00.22 Nghiem, D. and D.J. Newman, "Considerations for a Future Martian Spacesuit Design –What Does It Mean to You?," Intelligent Textiles Conference: A Look at the Future, Providence, RI, June 2000.
- 00.23 Lathan, C.E., Newman, D.J., et al., "Promoting Leadership in Girls in an Informal Education Environment: The FAIHM Program," (Selected as Best Paper) Proceedings of the Society of Women Engineers National Conference, Washington, DC, June/July 2000.
- 00.24 Newman, D.J., Schmidt, P., Rahn D.B., Metaxas, D., and Badler, N., "Modeling the Extravehicular Mobility Unit (EMU) Space Suit: Physiological Implications for Extravehicular Activity (EVA)," AIAA and SAE International Conference on Environmental Systems (ICES 2000), Toulouse, France, July 2000.
- 00.25 White, R.J., Bassingthwaite, J.B., Charles, J.B., Kushmerick, M.J. and D. J. Newman, "Issues of Exploration: Human Health and Wellbeing during a Mission to Mars," 33rd Committee on Space Research Scientific Assembly (COSPAR 2000), Paper Number FO.1-0002, Warsaw, Poland, July 2000.
- 00.26 Newman, D.J and D.K. Jackson, Chapter 20: "Altered Astronaut Performance Following Spaceflight: Control and Modeling Insights," Neural Control of Posture and Movement, J.Winters and P. Crago, eds., Springer-Verlag Publishing, 282-291, 2000.
- 00.27 Ruff, C., Beck, T., Newman, D.J., Z.M. Oden, and G. Schaffner, "Skeletal Consequences of Reduced Gravity Environments," National Space Biomedical Research Institute Retreat, Houston, TX, January 2000.
- 00.28 Oesker, M., Hecht, H., & Jung, B. (2000). Psychological evidence for unconscious processing of detail in real-time animation of multiple characters. *Journal of Visualization and Computer Animation*, 11, 105-112.
- 00.29 Hecht, H. (2000). The failings of three event perception theories. *Journal for the Theory of Social Behaviour*, 30, 1-25.
- 00.30 Hecht, H., & Bertamini, M. (2000). Understanding projectile acceleration. *Journal of Experimental Psychology: Human Perception and Performance*, 26, 730-746.
- 00.31 Hecht, H. (2000). Are events and affordances commensurate terms? *Ecological Psychology*, 12, 57-63.
- 00.32 Jung, B., Oesker, M., & Hecht, H. (2000). Virtual RoboCup: Real-time 3D visualization of 2D soccer games. In M. Veloso, E. Pagello and H. Kitano (Eds.), *RoboCup-99: Robot Soccer World Cup III, Lecture Notes in Artificial Intelligence*, Vol. 1856, (pp. 331-344). Berlin: Springer
- 00.33 Wood, S. J., Ramsdell, C.D., Oman, C.M., Mullen, T.J., Harm, D.L., Paloski, W.H., (2000) Transient Cardio-Respiratory Responses to Visually-Induced Tilt Illusions, *Brain Research Bulletin*, Vol . 53(1), pp.25-31.
- 00.34 Oman, C. M, Wall, C. III, and Shelhamer, M.J. (2000) Neurovestibular Adaptation Research In The National Space Biomedical Research Institute (Abstract) Panel presentation: Maintaining Human Performance During Long Duration Spaceflight. *Aviation, Space, and Environmental Medicine* 71(3):271
- 00.35 Carr, C.E., and D.J. Newman, "Applications of Wearable Computing to Exploration in Extreme Environments", 3rd Annual International Mars Society Conference, Toronto, Ontario, Canada, August 2000.

00.36 Newman, D.J. National Research Council, Engineering Challenges to the Long-Term Operation of the International Space Station, Kelly, T., Committee Chair, Committee on the Engineering Challenges to the Long-Term Operation of the International Space Station, Aeronautics and Space Engineering Board, Commission on Engineering and Technical Systems, National Academy Press, Washington, DC, February 2000

00.37 Newman, D.J., Wu, R., Jackson, D.K. and D.E. Krebs, "Electromographic Analysis of Human False Platform Jumping Experiments," abstract, Proceedings of the 13th Humans in Space Symposium, Santorini, Greece, May 2000.

00.38 Burki-Cohen, J., Boothe, E., Soja, N., DiSario, R., Go, T.H., "Simulator Fidelity – The Effect of Platform Motion", In Proceedings of the International Conference Flight Simulation – The Next Decade, Royal Aeronautical Society, 10-12 May 2000, London, UK, pp.23. 1-23.7.

00.39 Go, T.H., Burki-Cohen, J., Soja, N., "The Effect of Simulator Motion on Pilot Training and Evaluation", AIAA Modeling and Simulation Technologies Conference, Denver, Colorado, 14-17 August 2000.

00.40 Young, L.R., "Human Space Exploration in the 21st Century-Beyond Mars", Notes for Aero-Astro Celebration – September 14, 2000.

1999

99.1 Young, L.R. "Artificial gravity considerations for a Mars exploration mission." *Otolith Function in Spatial Orientation and Movement*, vol. 871, May 29, 1999: 367-78.

99.2 Taube, J.S., Stackman, R.W., Oman, C.M., "Rat Head Direction Cell Responses in 0-G" Abstract submitted to society for Neuroscience 1999 Annual Meeting.; Dept of Psychological & Brain Sciences, Dartmouth College, Hanover, NH 03755; Dept. of Behavioral Neuroscience, Oregon Health Sciences University, Portland, OR 97201. (1999). Society for Neuroscience Abstr 25(2): 1383

99.3 Oman, C.M., Kendra, A.J., Hayashi, M., Stearns, M.J., Burki-Cohen, J., "Vertical Navigation Displays: Pilot Performance and Workload During Simulated Constant-Angle-of-Descent GPS Approaches" Proceedings of 10th International Symposium on Aviation Psychology, May 2, 1999, Columbus, OH, pp. 13-18.

99.4 Young, L.R. Spaceflight influences on ocular counterrolling and other neurovestibular reactions. Abstract of paper presented at Conference on Perception of Motion in Space, European Research Council, Italy, April 1999.

99.5 Young, L.R. Padding in ski areas. Presented at the 13th Congress on Ski Trauma and Skiing Safety, ISSS, Cervinia, Italy, May 13, 1999.

99.6 See 00.6.

99.7 Oman, C. M., Wood, S.J., Ramsdell, C.D., Mullen, T.J., Harm, D.L., Paloski, W.H., "Transient Cardio-Respiratory To Visually-Induced Virtual Tilts." Baylor College of medicine, Harvard medical School, Massachusetts Institute of Technology and NASA Space Center, Presented at Programming Autonomic Function for Action Conference, Opio France, September 1999.

99.8 See 99.2

99.9 See 00.3.

99.10 Young, L. R. "A New Star on the Horizon: The International Space Station is on-orbit and Growing." Presented at 50th International Astronautical Federation Congress, Amsterdam, The Netherlands, Oct. 4-8, 1999.

99.11 Lathan, C.E., Sebrechts, M.M., Newman, D.J. and C.R. Doarn, "Heuristic Evaluation of a Web-Based Interface for Internet Telemedicine," *Telemedicine Journal*, 5(2): 177-185, 1999.

- 99.12 Newman, D.J., Beck, S., Amir, A.R., Baroni, G., Ferrigno, G. and A. Pedotti, "Measuring Astronaut Performance in Microgravity: Loads and Modeling," Proceedings of the First Biennial Space Biomedical Investigators' Workshop, League City, TX, January 1999.
- 99.13 Ruff, C.B., Beck, T.J., Newman, D.J., Oden, Z.M., Scaffner, G., LeBlanc, A., Shackelford, L. and N. Rianon, "Skeletal Structural Consequences of Reduced Gravity Environments," Proceedings of the First Biennial Space Biomedical Investigators' Workshop, League City, TX, January 1999.
- 99.14 Amir, A.R., Baroni, G., Pedrocchi, A., Newman, D.J., Ferrigno, G. and A. Pedotti, "Measuring Astronaut Performance on the ISS: Advanced Kinematic and Kinetic Instrumentation," Special Session on *Instrumentation and Measurement on the International Space Station II*, Proceedings of the 16th IEEE Instrumentation and Measurement Technology Conference: Measurement for the New Millennium, Vol. 1, pp. 397-402, Venice, Italy, May 1999.
- 99.15 Baroni, G., Rigotti, C., Amir, A.R., Ferrigno, G., Newman, D.J. and A. Pedotti, "Multifactorial Movement Analysis in Weightlessness: A Ground Based Feasibility Study," Special Session on *Instrumentation and Measurement on the International Space Station II*, Proceedings of the 16th IEEE Instrumentation and Measurement Technology Conference: Measurement for the New Millennium, Vol 1, pp. 403-408, Venice, Italy, May 1999.
- 99.16 Newman, D.J., "Quantifying Astronaut-Induced Loads in Microgravity," Astronaut Microgravity Awareness Training, NASA John Glenn Research Center, April 1999.
- 99.17 Bloomberg, J.J., Layne, C.S., McDonald, P.V., Peters, B.T., Huebner, W.P., Reschke, M.F., Berthoz, A., Glasauer, S., Newman, D.U. and D.K. Jackson, "Effects of Space Flight on Locomotor Control," in Extended Duration Orbiter Medical Project, Final report 1989-1995, NASA SP-1999-534, NASA Johnson Space Center, 1999.
- 99.18 McDonald, P.V., Riccio, G.E. and D.J. Newman, "Understanding Skill in EVA Mass Handling: Vol IV, An Integrated Methodology for Evaluating Space Suit Mobility and Stability," NASA TP-1999-3684, NASA Johnson Space Center, November 1999.
- 99.19 Badler, N., Metaxis, D., Newman, D.J. and B.T. King, "Quantifying Astronaut Intravehicular and Extravehicular Activity," NASA Annual Report, March 1999.
- 99.20 Oman, C.M. and Cohen, M. (1999) Neurovestibular Session Summary, Proceedings of the First Biennial Space Biomedical Investigator's Workshop, January 11-13, 1999, League City, Texas, pp. 402-406, University Space Research Association Division of Space Life Sciences, Houston, TX 77058
- 99.21 Oman, C.M., Howard, I., Shebilske, W., Taube, J., and Beall, A. (1999) Human Visual Orientation in Unfamiliar Gravitational-Inertial Environments. Proceedings of the First Biennial Space Biomedical Investigators Workshop, January 11-13, 1999, League City, Texas, pp. 429-431. University Space Research Association Division of Space Life Sciences, Houston, TX 77058.
- 99.22 Newman, D.J. and C.E. Lathan, "Memory Processes and Motor Control in Extreme Environments," *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews*, 29(3):387-394, August, 1999.
- 99.23 Newman, D.J., October 1999, "Human Space Exploration from the Russian Mir Space Station to Mars," Jones Seminar Series, Thayer School of Engineering, Dartmouth College, Hanover, NH
- 99.24 Newman, D.J., November 1999, "Life in Extreme Environments: How will Humans Perform on Mars?" Keynote Speaker, American Society for Gravitational and Space Biology 15th Annual Meeting, Seattle, WA.
- 99.25 O'Neil, D.A., Young, L. R., "Passengers, Crew, Life Support, and Insurance Considerations", General Public Space Travel and tourism- Volume 2 Workshop Proceedings, Summary of a Space Act Agreement Study, including a workshop held at Georgetown University, Washington, DC, February 19-21, 1997

99.26 Paloski, W.H., Young, L.R., Proceedings and Recommendations, 1999 Artificial Gravity Workshop, League City, TX, January 14-15, 1999.

1998

98.1 Mullen, T.J., Berger, R.D., Oman, C.M. & Cohen, R.J. "Human Heart Rate Variability Relations is Unchanged During Motion Sickness." *Journal of Vestibular Research*, 8(1):95-105, 1998.

98.2 Schmidt, P. B., Young, L.R. "Tactile Cueing Model for G-Seat Use in Flight Simulation." Abstract presented at the Aerospace Medical Association Annual Scientific Meeting, May 17-21, 1998, Seattle, WA. Presented also at the Bárány – Satellite Conference: The Contributions of the Vestibular System to Oculo-moto, Skeleto-motor and Percetual Function, Freiberg, Germany, Sept. 7-11, 1998.

98.3 Schmidt, P. B., Young, L.R. "The Effect of G-Seat Tactile Cueing on Linear Motion Perception." Abstract presented at the AIAA Modeling and Simulation Technologies Conference, August 10-12, 1998, Boston, MA.

98.4 Young, L.R. (contributor & participant) International Cooperation in Space: New Government and Industry Relationship. Report of an AIAA/CEAS/CASI Workshop, January 1998. AIAA. Reston, VA.

98.5 Young, L.R. Report of a Task Group at the International Workshop of Neuroscience aboard the International Space Station. Paris, April 1997. Prepared July 1998 and forthcoming in an issue of *Brain Research Reviews*.

98.6 See Entry 00.8.

98.7 Stanney, K., Salvendy, G. *et al.*, "Aftereffects and Sense Of Presence In Virtual Environments: Formulation Of A Research And Development Agenda," *International Journal of Human-Computer Interaction*, 10(2), 135-187, 1998.

98.8 Newman, D.J. and A.R. Amir, "Innovative Aerospace Design Course at MIT," ASEE Annual Conference, Seattle, WA, July 1998. *Nominated for Best Paper*.

98.9 Newman, D.J., "Interactive Web-based and Hands-on Engineering Education: A Freshman Aerospace and Design Course at MIT," ICEE '98 International Conference on Engineering Education, Rio de Janeiro, Brazil, August 1998.

98.10 Lathan, C.E. and D.J. Newman, "Memory processes and motor control during a space simulation mission," Canadian Astronaut Program Space Unit Life Simulation (CAPSULS) 7-Day Mission: Final Report and Scientific Results, pp. 85-90, Canadian Space Agency, October 1998

98.11 Newman, D.J., Schaffner, G. and Z.M. Oden, "Finite Element Modeling of Strength Changes in the Proximal Femur following Long-Term Spaceflight," National Space Biomedical Research Institute Symposium, Houston, TX, June 1998.

98.12 Chance S.S., Gaunet, FI, Beall, A.C., and Loomis, J.M., "Locomotion Mode Affects the Updating of Objects Encountered During Travel: The Contribution of Vestibular and Proprioceptive Inputs to Path Integration.

98.13 Newman, D.J. and G. Schaffner, " Computational Dynamic Analysis of Extravehicular Activity: Large Mass Handling," *AIAA Journal of Spacecraft and Rockets*, 35(2):225-227, 1998.

1997

97.1 Young, L.R. "Greater sway may represent more postural stability," abstract, 13th International Symposium on "Multi-sensory control of posture and gait," Paris, France, June 1997.

97.2 Teiwes, W., Merfeld, D.M., Young, L.R. & Clarke, A.H. "Comparison of the scleral search coil and video-oculography techniques for three-dimensional eye movement measurement," *Three-Dimensional Kinematics of Eye, Head and Limb*

Movements. Ed. Michael Fetter, Thomas Haslwanter, Hubert Misslisch and Douglas Tweed. Singapore: Harwood Academic Publishers, July 1997: 429-444. (See 93.20 for earlier version.)

97.3 Young, L. R. and Sinha, P. "Spaceflight influences on ocular counterrolling and other neurovestibular reactions." Supplement to *Otolaryngology-Head and Neck Surgery*, March, 1998, 118: S31-S34.

97.4 Young, L. R. "Human exploration of space: The next steps." *Ad Astra* March/April 1997 (vol. 9, no. 2): 32-35.

97.5 Hastreiter, Dawn and Young, Laurence R. "Effects of gravity gradient on human cardiovascular responses." *Journal of Gravitational Physiology* Proceedings of the 18th International Gravitational Physiology Meeting, Copenhagen, Denmark, April 1997, 4 (2): 23-26.

97.6 Young, L. R. "Space flight: Loosening the bonds of creativity." Presented at the 12th International Man-in-Space Symposium, Washington, DC, June 1997.

97.7 Markmiller, M. & Young, L.R. "Effects of body axis on estimation of horizontal linear translation." IEEE Engineering Conference on Biology and Medicine, Chicago, IL, Oct. 31, *Final Program and Abstracts*, 1997: 174.

97.8 Oman, Charles M., Skwersky, Adam. "Effect of scene polarity and head orientation on illusions in a tumbling virtual environment." (Abstract), *Aviation, Space and Environmental Medicine* 68:7 649, 1997.

97.9 Oman, C M., Howard, I. P., Carpenter-Smith, T. & Beall, A. C. "Neurolab Experiments on the Role of Visual Cues in Microgravity Spatial Orientation." (Abstract) 12th Man-In-Space Symposium, "The Future of Humans in Space", Washington, D.C., June 8-13, 1997

97.10 Oman, Charles M. "Neurovestibular research in Microgravity." (Abstract) CNES workshop on Neurosciences Research in Space, 22-24 April, Paris, France, 1997.

97.11 A. E. Petropoulos, Wall, C. & Oman, C. M. "Yaw Sensory Rearrangement Alters Pitch Vestibulo-Ocular Reflex Responses". *Acta Otolarygol* (Stockh) 117, pages 647-656, 1997.

97.12 D.J. Newman, K.U. Schultz, J.L. Rochilis "Closed-Loop, Estimator-Based Model of Human Posture Following Reduced Gravity Exposure". *Journal of Guidance, Control, and Dynamics*, 19:5, 1102-1108, 1996.

97.13 Young, L.R. "Gravitational effects on brain and behavior." In *Encyclopedia of Neuroscience*, 2nd edition (CD-ROM), Adelman, G., and Smith, B.H. eds. Amsterdam: Elsevier Science, 1997. (See 96.9 for reference to print version.)

97.14 Young, L.R. Abstract of "Artificial Gravity for Human Missions." Astrobiology Workshop: Final Report, proceedings of a workshop held at NASA Ames Research Center, Sept. 9-11, 1997. NASA Conference Publication No. 10153: A40-A41.

97.15 Lathan, C.E. and D.J. Newman, "Quantification of Human Performance in Extreme Environments," *Advances in Human Factors/Ergonomics*, 21B:1005-1008, 1997.

97.16 Rochlis, J. and D.J. Newman, "EVA Navigation in Space: A Demonstration of the Tactile Situation Awareness System," 68th Aerospace Medical Association Meeting, Chicago, IL, May 1997, *Aviation, Space, Environmental Medicine*, Vol.68, No. 7, July 1997.

97.17 National Research Council, Advanced Technology for Human Support in Space, Bagian, J., Committee Chair, Aeronautics and Space Engineering Board, Commission on Engineering and Technical Systems, National Academy Press, Washington DC, 1997.

97.18 Newman, D.J., Schaffner, G. and D.B. Rahn, "Data-Driven Models to Describe Astronaut Performance in Microgravity: Full-Body Dynamics and Postural Control," 2nd Annual Status Report under NASA Grant NAGW-4336, January 1997.

97.19 Rochlis, J., Newman, D.J. and A.H. Rupert, "EVA Navigation in Space: An Investigation of the Tactile Locator System as a Position Aid," Naval Aerospace Medical Research Laboratory (NAMRL) Report, 1997.

97.20 Hyer, R.N. and D.J. Newman, "Optimized Spacesuit Glove Design with Integral Active Heating," MVL Report, May 1997.

97.21 Newman, D.J., Jackson, D.K., and J.J. Bloomberg, "Altered Astronaut Lower-Limb and Mass Center Kinematics in Downward Jumping Following Space Flight", *Exp. Brain Res.*, 117:30-42, 1997.

97.22 Schaffner, G., Newman, D.J. and S. Robinson, "Inverse Dynamic Simulation and Computer Animation of EVA," AIAA-97-0232, AIAA 35th Aerospace Sciences Meeting, Reno, NV, January 1997.

97.23 Newman, D.J. and M. Barratt, Chapter 22: "Life Support and Performance Issues for Extravehicular Activity (EVA)," Fundamentals of Space Life Sciences, S. Churchill, ed., Krieger Publishing Co., Malabar, FL, 337-364, January 1997.

97.24 Newman, D.J. National Research Council, Advanced Technology for Human Support in Space, Bagian, J., Committee Chair, Committee on Advanced Technology for Human Support in Space, Aeronautics and Space Engineering Board, Commission on Engineering and Technical Systems, National Academy Press, Washington, DC, June 1997.

97.25 Newman, D.J., January 1997, "Investigating Astronaut Performance: Modeling and Biomechanics," Orthopedics and Biomechanics Laboratory, Beth Israel Hospital, Harvard Medical School, Boston, MA.

97.26 Newman, D.J., June 1997, "Performing Spaceflight Experiments: the US-Russian Experience," Argentinas National Commission of Space Activities (CONAE) and INVAP S.E., San Carlos de Bariloche, Argentina

97.27 Newman, D.J., October 1997, "The Enhanced Dynamic Load Sensors (EDLS) Onboard the Mir Space Station," Symposium on Human Motor Performance in Reduced Gravity, Politecnico di Milano University, Milano, Italy

97.27 Newman, D.J., November 1997, "Investigating Astronaut Performance: On the Mir Space Station, in Partial Gravity, and during Extravehicular Activity," Dept. of Biology, The College of William and Mary, Williamsburg, VA. *Voted by the graduate students as the best seminar of the 1997 series.*

1996

96.1 Newman, D.J. "Dynamic load sensors (DLS) spaceflight experiment," World wide web site, MVL Report 96-1, 1996. <<http://web.mit.edu/dept/aeroastro/www/labs/DLS>>

96.2 Newman, D.J. & Schaffner, G. "Dynamic simulation and computer animation of EVA - spartan payload manipulation," submitted to the AIAA Journal of Guidance, Control, and Dynamics, January, 1996.

96.3 Young, L.R., Prest, J. & Zimmerman, C. "Foam padding impact analysis," abstract, IRCOBI Conference on Biomechanics of Impact, Dublin, September, 1996. (Never submitted.)

96.4 Jackson, D.K., Newman, D.J. & Bloomberg, J.J. "Altered astronaut performance in downward jumping following spaceflight-I. Lower-limb kinematics," submitted to *Experimental Brain Research*.

96.5 D.K., Newman, D.J. Jackson, Bloomberg, J.J. "Altered astronaut performance in downward jumping following spaceflight-II. Mass center kinematics," *Experimental Brain Research*. 117:30-42, 1997.

96.6 No entry for this number

- 96.7 Natapoff, A. "A mathematical one-man one-vote rationale for Madisonian presidential voting based on maximum individual voting power," accepted for publication in *Public Choice* 88, 259-273 (1996).
- 96.8 Newman, D.J. & Barratt, M. "Life support and performance issues for extravehicular activity," in *Fundamentals of Space Life Sciences*, S. Churchill, ed., Krieger Publishing Co., Melbourne, Florida, 1996.
- 96.9 Young, L.R. "Gravitational effects on brain and behavior." In *Sensory Systems II: Senses Other than Vision, Encyclopedia of Neuroscience*, 2nd edition, Adelman, G., and Smith, B.H. eds. Amsterdam: Elsevier Science, 1996.
- 96.10 Newman, D.J. & Lathan, C.E. "Memory processes and motor control during spaceflight: Implications for teleoperation," submitted to *IEEE Transactions on Systems, Man, and Cybernetics*, February, 1996.
- 96.11 Oman, C.M. "Roll vection in a tumbling virtual environment depends on scene polarity and head orientation," abstract, XIXth meeting of the Barany Society, Sydney, August, 1996.
- 96.12 Young, L.R. "Estimating linear translation - saccular vs utricular influences," abstract, XIXth meeting of the Barany Society, Sydney, August, 1996. (See also 96.24.)
- 96.13 Young, L.R. "Altered weighting of sensory cues for spatial orientation in weightlessness," abstract, Barany Society, Vestibular Compensation Meeting, Hamilton Island, Australia, August, 1996.
- 96.14 Oman, C.M., Mills, T. & deSouza, J. "A virtual environment generator for microgravity spatial orientation research," abstract, Aerospace Medical Association Annual Scientific Meeting, Atlanta, Georgia, May, 1996.
- 96.15 Likowsky, D.R., Frey, M.A.B., Sulzman, F.M. & White, R.J. "The Neurolab mission and biomedical engineering: A partnership for the future," *BME*, Vol. 10, No. 1, 1996.
- 96.16 Oman, C.M., Huntley, Jr., M. S. & Rasmussen, S.A. "Analog track angle error displays improve simulated GPS approach performance," *Proceedings, 40th Annual Meeting, Human Factors and Ergonomics Society, Aerospace Systems Technical Group*, Philadelphia, September, 1996
- 96.17 Newman, D.J., Tryfonidis, M. & Van Schoor, M. "Astronaut-induced disturbances in microgravity," submitted to *AIAA Journal of Spacecraft and Rockets*, 34(2):252-254, 1997.
- 96.18 Hastreiter, D., "The effects of short-arm centrifugation on the cardiovascular system," poster presentation, Gordon Research Conference, July 14-18, 1996, New London, New Hampshire.
- 96.19 Newman, D.J. & Schaffner, G. "Computational dynamic analysis of extravehicular activity (EVA): Spartan payload manipulation," submitted to *AIAA Journal of Spacecraft and Rockets*, July, 1996.
- 96.20 Sinha, P. & Young, L.R. "The SLS-2 mission: Effects of spaceflight on the gain and symmetry of ocular counterrolling," 1996. (See 97.3.)
- 96.21 Markmiller, M. & Young, L.R. "Effects of body axis on estimation of horizontal linear translation." (See 97.7.)
- 96.22 Oman, Charles M. "Sensory Conflict Theory and Space Sickness: Our Changing Perspective," *Journal of Vestibular Research: Special issue on Vestibular Autonomic Regulation*, Vol.8, Number 1, 51-56, January, 1998.
- 96.23 Sheridan, T.B. & Young, L.R. "Human Factors in Aerospace Medicine," in *Fundamentals of Aerospace Medicine*, 2nd ed., R.L. DeHart, ed., Baltimore: Williams & Wilkins, 1996: 897-921.

- 96.24 Young, L. R. and M. Markmiller. Abstract of "Estimating linear translation: saccular versus utricular influences." Supplement to *Journal of Vestibular Research*, vol. 6, No. 4S (July/August 1996): S13.
- 96.25 Merfeld D. M., F. O. Black, W. Teiwes, A. H. Clarke, H. Scherer and L. R. Young. Abstract of "Contributions of graviceptors to dynamic ocular torsion in humans." Supplement to *Journal of Vestibular Research*, vol. 6, No. 4S (July/August 1996): OTO 11.
- 96.26 Young, L. R., Mendoza, J. C., Groleau, N. & Wojcik, P. W. "Tactile influences on astronaut visual spatial orientation: Human neurovestibular experiments on Spacelab Life Sciences 2," *Journal of Applied Physiology*, Vol. 81, Number 1, 44-49, July, 1996.
- 96.27 Merfeld, D. M. "Effect of spaceflight on ability to sense and control roll tilt: human neurovestibular experiments on SLS-2," *Journal of Applied Physiology*, Vol. 81, Number 1, 50-57, July, 1996.
- 96.28 Merfeld, D. M., Polutchko, K. A. & Schultz, K. "Perceptual responses to linear acceleration following spaceflight: human neurovestibular experiments on SLS-2," *Journal of Applied Physiology*, Vol. 81, Number 1, 58-68, July, 1996.
- 96.29 Oman, C., Poulriot, C. F., and Alan Natapoff. "Horizontal angular VOR changes in orbital and parabolic flight: human neurovestibular studies on SLS-2," *Journal of Applied Physiology*, Vol. 81, Number 1, 58-68, July, 1996.
- 96.30 Jackson, D.K., Newman, D.J., Bloomberg, J.J., Peters, B. and S. Smith, "Astronaut Lower-Limb and Mass Center Kinematics in Downward Jumping Following Spaceflight," *AIAA Life Sciences and Space Medicine Conference*, Houston, TX, April 1996.
- 96.31 Newman, D.J. and C.E. Lathan, "Telemedicine Workstation Evaluation and Technology Assessment," Final Report to NASA Headquarters, Aerospace Medicine and Occupational Health Division, June 1996.
- 96.32 Newman, D.J., "Modeling Reduced Gravity Human Locomotion," *Advances in Mathematical Modeling of Biological Processes*, D. Kirschner, ed., International Journal of Applied Sciences and Computation, 3(1):91-101, June, 1996
- 96.33 Newman, D.J. and K.U. Schultz, "Estimator Based Model of Human Posture Following Reduced Gravity Exposure," Engineering Foundation Conference on Neural Control of Human Movement, Mt. Sterling, OH, June 1996
- 96.34 Newman, D.J., March 1996, "Engineering Analysis of Astronaut Adaptation in Altered Gravity," Department of Aero/Mechanical Eng., University of California, Davis, CA; also Department of Mechanical Eng., Catholic University of America, Washington, DC; and Department of Aerospace Eng., University of Colorado, Boulder, CO
- 96.35 Newman, D.J., March 1996, "Adaptive Control of Astronauts' Dynamic Tasks in Space Flight," Department of Electrical Engineering, University of California, Berkeley, CA.

1995

- 95.1 Mendoza, J. & Merfeld, D. M. "The interaction of constant-velocity optokinetic nystagmus and the linear vestibulo-ocular reflex in humans," paper, Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.
- 95.2 Merfeld, D. M. "How Might Consciousness Relate to Sensory Processing?," Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.
- 95.3 Merfeld, D. M. "The nervous system resolves measurements of force into estimates of gravity and acceleration," submitted to Science, January, 1995.

- 95.4 Oman, C. M., Huntley, M. S. & Rasmussen, S. A. "Pilot performance and workload using simulated GPS track angle error displays," International Federation of Automatic Control, 6th Symposium on Analysis, Design and Evaluation of Man Machine Systems, January, 1995., p. 303-310
- 95.5 Young, L.R. "Looking around: Thirty-five years of oculomotor modeling," (replaces 94.29 "Oculomotor control: Less than meets the eye,") Annals of Biomedical Engineering, 23:456-466.
- 95.6 Young, L.R. "Space and the vestibular system, status and open issues," viewgraphs presented at Opportunities for National and International Cooperation in Brain Research, Washington, D.C., June, 1995.
- 95.7 Young, L.R. "Effects of orbital space flight on vestibular reflexes and perception," Chapter 45, Multisensory Control of Posture, Mergner and Hlavacka, eds., Plenum Press, New York, 1995. (See also 95.10.)
- 95.8 Young, L.R. "Human neurovestibular adaptation to weightlessness (experiments performed on the Spacelab SLS-2 mission)," abstract presented at Life Sciences and Space Medicine Conference and Exhibition, Houston, April 3-5, 1995. **(Identical to 94.12.)**
- 95.9 Young, L.R. "The coding of velocity and direction of self-rotation in response to visual and vestibular clues," abstract presented at Neurology of Human Spatial Orientation workshop, Ibiza, Spain, May 15-19, 1995.
- 95.10 Young, L.R. "Effects of orbital space flight on vestibular reflexes and perception," Acta Astronautica, 36(8-12), 409-413, 1995. (See also 95.7.)
- 95.11 McGrath, B.J., Guedry, F.E., Oman, C.M. & Rupert, A.H. "Vestibulo-ocular response of human subjects seated in a pivoting support system during 3 G_z centrifuge stimulation," Journal of Vestibular Research, 5(5), 331-347, 1995.
- 95.12 Oman, C.M., "The effect of prolonged weightlessness on the vestibulo-ocular reflex of astronauts," Annals of Biomedical Engineering, 23, Suppl. 1, p. S-89, abstract 427, 1995.
- 95.13 (See 96.28.)
- 95.14 (See 96.27.)
- 95.15 Merfeld, D.M., Teiwes, W., Clarke, A.H., Scherer, H. & Young, L.R. "The dynamic contributions of the otolith organs to human ocular torsion," in press, EBR, 1995.
- 95.16 Oman, C.M., Huntley, Jr., M.S., Rasmussen, S.A. & Robinson, S.K. "The use of analog track angle error display for improving simulated GPS approach performance," Final report, U.S., Department of Transportation, Federal Aviation Administration, DOT/FAA/AR-95/104, August, 1995.
- 95.17 Newman, D.J. "Moving through fluids," Biomechanics, 2(5):37-39, May, 1995.
- 95.18 Newman, D.J. "Modeling reduced gravity human locomotion," J. of Applied Sciences and Computations, 2(2):111-122, 1995.
- 95.19 Newman, D.J., Schultz, K.U. & Rochlis, J.L. "Closed loop, estimator-based model of human posture following reduced gravity exposure," accepted by the AIAA Journal of Guidance, Control, and Dynamics, 19(5):1102-1108, 1996.
- 95.20 Easter, B, "The Man Vehicle Laboratory," Update, Newsletter of the Department of Aeronautics and Astronautics, MIT, Winter, 1995
- 95.21 Young, L.R. "Humans in space - the next steps," Apollo Program Chair in Astronautics Inaugural Lecture, November 20, 1995.

95.22 Lathan, C.E. and D.J. Newman, "Memory Processes and Motor Control for Teleoperation Applications," AIAA Life Sciences and Space Medicine Conference, Houston, TX, April 1995.

95.23 Jackson, D.K., Newman, D.J. and J.J. Bloomberg, "Changes in Astronaut Lower Limb and Body Mass-Center Kinematics in Downward Jumping Following Space Flight," 66th Aerospace Medical Association Meeting, Anaheim, CA, May 1995.

95.24 Newman, D.J., "Human Posture Modeling: An Assessment of Altered Gravity Adaptation," Biomedical Engineering Society Annual Fall Meeting, Boston, MA, October 1995.

95.25 Newman, D.J., "Human Posture Modeling: An Assessment of Altered Gravity Adaptation," abstract, *Annals of Biomedical Engineering*, Vol. 23, Supp. 1, S-89:426, 1995.

95.26 Lathan, C.E. and D.J. Newman, "Telemedicine Workstation, Evaluation and Technology Assessment," Report to NASA Headquarters, Aerospace Medicine and Occupational Health Division, August 1995.

95.27 Newman, D.J. and G. Schaffner, "Dynamic Analysis of Astronaut Motions in Microgravity: Applications for Extravehicular Activity (EVA)," Annual Status Report under NASA Grant NAGW-4336, October 1995.

95.29 Newman, D.J. February 1995, "Aerospace Biomedical Engineering: Modeling, Dynamic Analysis, and Flight Experiments," Department of Biomedical Engineering, Boston University, Boston, MA

95.30 Newman, D.J., November 1995, "Astronaut Adaptation of Performance in Altered Gravity," New Jersey's University of the Health Sciences School of Osteopathic Medicine, UMDNJ, Space Grant Symposium, NJ

1994

- 94.1 Watt, D.G.D. & Oman, C.M. "Motion sickness susceptibility testing using torso rotation", proceedings of Spacebound '94 Conference, Canadian Space Agency, Montreal, May, 1994.
- 94.2 Shelhamer, M. & Young, L.R., "The interaction of otolith organ stimulation and smooth pursuit tracking," *Journal of Vestibular Research* 4:1-15, 1994.
- 94.3 Shelhamer, M., Merfeld, D.M. & Mendoza, J.C., "Effect of vergence on the gain of the linear vestibulo-ocular reflex," *Acta Otolaryngol* 1995; Suppl 520:72-76.
- 94.4 Shelhamer, M., Merfeld, D.M. & Mendoza, J.C., "Vergence can be controlled by audio feedback, and induces downward ocular deviation," *Experimental Brain Research* 101:169-172.
- 94.5 Young, L.R., "PI-in-a-box," *Journal of the Society of Instrument and Control Engineers*, 33:2:119-122, Feb. 1994
- 94.6 Lathan, C.E., Merfeld, D.M. & Wall, C., "Changes in optokinetic nystagmus due to linear acceleration are frequency and axis-dependent," abstract, Society for Neuroscience, 24th Annual Meeting, Miami Beach, FL, November 13-18, 1994.
- 94.7 Merfeld, D.M., "Modeling human vestibular responses during complex three-dimensional vestibular stimulation," abstract, Society for Neuroscience, 24th Annual Meeting, Miami Beach, FL, November 13-18, 1994.
- 94.8 Merfeld, D.M., "The nervous system may use internal models to help resolve complex nonlinear sensory interactions," abstract, Dynamical Neuroscience Workshop, Boca Raton, FL, November 11-12, 1994.
- 94.9 Merfeld, D.M., "Modeling human vestibular responses during eccentric rotation and off-vertical axis rotation," *Acta Otolaryngol* 1995; Suppl 520:354-359.
- 94.10 Merfeld, D.M., "Modeling the vestibulo-ocular reflex of the squirrel monkey during eccentric rotation and roll tilt," *Experimental Brain Research* (1995)106:123-134.
- 94.11 Merfeld, D.M. & Young, L.R., "The vestibulo-ocular reflex of the squirrel monkey during eccentric rotation and roll tilt," *Experimental Brain Research* (1995)106:111-122.
- 94.12 Young, L.R. & Merfeld, D.M., "Human neurovestibular adaptation to weightlessness: (experiments performed on the Spacelab SLS-2 mission)," abstract, AIAA and SLS-2 Symposium, San Francisco, CA, October 23, 1994. **(Identical to 95.8.)**
- 94.13 Curthoys, I.S., Guedry, F.E., Merfeld, D.M., Tomko, D.L. & Watt, D.G.D., "The influence of gravito-inertial force on sensorimotor integration and reflexive responses," abstract, Neural Control of Movement meeting, Maui, Hawaii, April 13-17, 1994.
- 94.14 Merfeld, D.M., "Modeling human vestibular responses during complex three dimensional vestibular stimulation," abstract of a poster presented at Neural Control of Movement Vestibular Satellite Meeting, Maui, Hawaii, April 18-22, 1994.
- 94.15 Young, L. R., "Making the most of a space life science experiment: Some practical hints from Spacelab experiences," AIAA, 94-4649
- 94.16 Young, L. R. & Seddon, R. "Spacelab contributions to space life sciences," AIAA 94-4649 Part 2.
- 94.17 Newman, D. J., Alexander, H.L. & Webbon, B.W. "Energetics and mechanics for partial gravity locomotion," *Aviat. Space Environ. Med.*, September, 1994; 65:815-823
- 94.18 Oman, C. M. "Centrifuge experiments on vestibular coriolis and Iz nystagmus," final report, ONR Grant N00014-9000-J-1998, MIT OSP 73683, Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.

- 94.19 Oman, C. M. & Poulriot, C. F. & Natapoff, A. "Horizontal angular vestibulo-ocular reflex changes in orbital and parabolic flight," *Journal of Applied Physiology*, Vol. 81, Number 1, 69-81, July, 1996
- 94.20 See 95.14.
- 94.21 Roy, S. H., DeLuca, C. J., Emley, M. S., Rodrigues, A., Kupa, E. J., Young, L. R. & Merfeld, D. M., "Effects of spaceflight on static strength, endurance and EMG indices of fatigue: Human neurovestibular experiments on Spacelab Life Sciences 1 and 2" (abbreviated title: "Strength, endurance, and fatigue following spaceflight"), paper, Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.
- 94.22 Collins, J. J., DeLuca, C. J., Pavlik, A. E., Roy, S.H. & Emley, M. S., "The effects of spaceflight on and closed-loop postural control mechanisms: human neurovestibular experiments on SLS-2," *Experimental Brain Research* 107:145-150, 1995.
- 94.23 See 95.13.
- 94.24 See 96.26.
- 94.25 Robinson, S., Modestino, S. & Zavada, M. "Effects of spaceflight on the perception of vertical: Human neurovestibular experiments on Spacelab Life Sciences 2," paper, Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.
- 94.26 Groleau, N., Compton, M. M., Colombano, S. P., Frainier, R. J., Hazelton, L. R., Statter, I. C., Szolovits, P. & Young, L. R. "Advanced computerized tools for space physiology experiments: The human neurovestibular experience on SLS-2" (abbreviated title: "Computerized tools for space physiology experiments"), paper, Artificial Intelligence Research Branch, MS 269-2, NASA-Ames Research Center, Moffett Field, CA.
- 94.27 Lathan, C. E., Merfeld, D. M., Wall, C., and Young, L. R., "Eye movement responses to linear acceleration and optokinetic stimulation following spaceflight: Human neurovestibular experiments on Spacelab Life Sciences 2" (abbreviated title: "Responses to linear acceleration and optokinetic stimulation"), paper, Man-Vehicle Laboratory, Center for Space Research, MIT, Cambridge, MA.
- 94.28 Merfeld, D. M., Christie, J. R. I. & Young, L. R., "Perceptual and eye movement responses elicited by linear acceleration following spaceflight," *Aviat. Space Environ. Med.* 1994, 65:1015-1024.
- 94.29 Young, L.R. & Merfeld, D.M., "SLS-2 final report human neurovestibular experiments," *Viewgraphs*, American Society of Gravitational & Space Biology, San Francisco, October 23, 1994.
- 94.30 Newman, D.J. & Fox, S.C. "Posture control across the continuum of gravity," 65th Aerospace Medical Association Meeting, San Antonio, Texas, May, 1994.
- 94.31 McGrath, B.J., Oman, C.M., Guedry, F.E. & Rupert, A.H. Human vestibulo-ocular response during 3 G_z centrifuge stimulation," *NAMRL Report* 1338, 1994.
- 94.32 Frainier, R., Groleau, N., Hazelton, L. and Colombano, Silvano. "Automated advisors for remote science experimentation." *NASA Ames Research Center, Artificial Intelligence Research Branch, Technical Report FIA-94-11*, July 1994.
- 94.33 Frainier, R. and Groleau, N. "Real-time remote scientific model validation." *NASA Ames Research Center*, 1994/95 (?)
- 94.34 Newman, D.J., "Biodynamics Modeling of Human Movement," *World Congress on Computational Medicine, Public Health, and Biotechnology*, *Women in Mathematical Modeling: A Showcase*, Austin, TX, April 1994.
- 94.35 Newman, D.J., "Tuning Muscle Stiffness to Accomplish Neuromuscular Control in Hypogravity," *2nd World Congress of Biomechanics*, Amsterdam, the Netherlands, July 1994.

94.36 London, A., Smith, R. and D. Newman (faculty advisor), "MISSION: Method of Improving Space Simulation in a 0-g Natatorium," in EMOTE: Electronic Multimedia Online Textbook in Engineering for Aeronautics and Astronautics, Barrett, E., ed., March 1994, <<http://web.mit.edu/emote/HTML/Aplondon/proposal.html>>

94.37 Newman, D.J., July 1994, "Assessing Human Performance in Space," University of Maryland, Department of Aerospace Engineering, College Park, MD.

94.39 Newman, D.J. September 1994, "Astronaut Force Measurements: Using the Dynamic Load Sensors (DLS) on STS-62," Canadian Space Agency, Montreal, Quebec, Canada

94.40 Young, L.R. and Merfeld, D.M., "180 Day report for E072", Spacelab Life Sciences-2 Vestibular Experiments, June 1994.

1993

93.1 Oman, C.M. & Balkwill, M.D. "Horizontal angular VOR nystagmus dumping and sensation duration in Spacelab SLS-1 crewmembers," section 2, "Final report for E072 vestibular experiments in Spacelab Life Sciences 1," submitted to NASA January, 1993.

93.2 Void

93.3 Young, L.R., Oman, C.M., Merfeld, D.M., Watt, D.G.D., Roy, S.H., DeLuca, C.J., Rodrigues, A., Balkwill, M.D., Christie, J.R.I., Groleau, N., Jackson, D.K., Law, G.W., Modestino, S.A. & Mayer, W.F. "Final report for E072 vestibular experiments in Spacelab Life Sciences 1," submitted to NASA January, 1993.

93.4 Merfeld, D.M., Young, L.R., Oman, C.M. & Shelhamer, M.J. "A multidimensional model of the effect of gravity on the spatial orientation of the monkey," *Journal of Vestibular Research*, 3(2):141-161, 1993.

93.5 Merfeld, D.M., Young, L.R., Paige, G.D. & Tomko, D.L. "Three dimensional eye movements of squirrel monkeys following postrotatory tilt," *Journal of Vestibular Research*, 3(2):123-139, 1993.

93.6 Merfeld, D.M. "Spatial orientation in the squirrel monkey: an experimental and theoretical investigation," Dissertation Abstracts, *Annals of Biomedical Engineering* 21:183-187, 1993.

93.7 Young, L.R., Oman, C.M., Merfeld, D.M., Watt, D.G.D., Roy, S.H., DeLuca, C.J., Balkwill, M.D., Christie, J.R.I., Groleau, N., Jackson, D.K., Law, G.W., Modestino, S.A. & Mayer, W.F. "Spatial orientation and posture during and following weightlessness: human experiments on Spacelab Life Sciences 1," *Proceedings of the Symposium: Space and the Vestibular System*, (Bárány Society meeting of 1992), *Journal of Vestibular Research* 3(3):231-239, 1993.

93.8 Young, L.R. "Space and the vestibular system: what has been learned," guest editorial in *Proceedings of the Symposium: Space and the Vestibular System*, (Barany Society meeting of 1992), *Journal of Vestibular Research*, 3(3):203-206, 1993.

93.9 see 94.11

93.10 see 94.3 and 94.4.

93.11 Roy, S.H., DeLuca, C.J., Rodrigues, A., Young, L.R. & Merfeld, D.M. "Changes in the surface electromyographic signal following spaceflight," MVL paper, 1993.

93.12 Wearne, S.L., Curthoys, I.S., Merfeld, D.M. & Halmagyi, G.M. "Human linear and angular vestibulo-ocular reflexes during centrifugation. I. Responses in the tangential orientation," MVL paper, 1993.

93.13 Wearne, S.L., Curthoys, I.S., Merfeld, D.M. & Halmagyi, G.M. "Human linear and angular vestibulo-ocular reflexes during centrifugation. II. Responses in the radial orientation," MVL paper, 1993.

- 93.14 Mendoza, J.C. & Merfeld, D.M. "Visual vestibular interaction (VVI) during linear stimulation," abstract presented at the Society for Neuroscience, 1993.
- 93.15 Carpenter-Smith, T., Katz, E., Merfeld, D.M., Oman, C.M. & Polutchko, K.A. "Perceived velocity in linear translation is affected by temporal frequency," abstract presented at the Society for Neuroscience, 1993.
- 93.16 Young, L.R. "Statement of Laurence Young, Professor, MIT, Payload Specialist for SLS-2 Life Sciences Shuttle Mission," Hearing before the Subcommittee on Space of the Committee on Science, Space and Technology, U.S. House of Representatives, One Hundred Third Congress, First Session, March 9, 1993, No. 5:49-51.
- 93.17 Replaced by 94.13
- 93.18 Merfeld, D.M., Christie, J.R.I. & Young, L.R. "Perceptual and eye movement responses elicited by linear acceleration following spaceflight," abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada.
- 93.19 Oman, C.M. & Balkwill, D. "Horizontal VOR, nystagmus dumping, and sensation duration in Spacelab SLS-1 crewmembers," abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada.
- 93.20 Teiwes, W., Clarke, A.H., Merfeld, D.M., Oman, C.M., Scherer, H. & Young, L.R. "Comparison of the 3 dimensional video-based eye movement measurement technique video-oculography (VOG) with the scleral search coil technique (SSC)," abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada. (See 97.2 for published version.)
- 93.21 Teiwes, W., Clarke, A.H., Merfeld, D.M., Oman, C.M., Scherer, H. & Young, L.R. "Otolithic contribution to torsional eye movements during dynamic linear acceleration, abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada.
- 93.22 Polutchko, K.A. & Merfeld, D.M. "Using voluntary eye movements to quantify the estimation of linear translation," abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada.
- 93.23 Mendoza, J.C., Merfeld, D.M. & Young, L.R. "Interaction of optokinetic nystagmus (OKN) and linear vestibulo-ocular reflex (LVOR)," abstract, 1993 meeting of the Aerospace Medical Association, Toronto, Canada.
- 93.24 Lathan, C.E., Wall, C., III & Harris, L.R. "The effect of linear acceleration on the range of optokinetic performance in humans," abstract presented at the Aerospace Medical Association, for the 1993 meeting, Toronto, Canada.
- 93.25 Oman, C.M. & Balkwill, M.D. "Horizontal angular VOR, nystagmus dumping, and sensation duration in Spacelab SLS-1 crewmembers," *Journal of Vestibular Research* 3:315-30, 1993.
- 93.26 Raj, A.K., Oman, C.M. & Reschke, M.F. "Application of ordered-statistic filtering to analysis of vertical nystagmus," abstract, submitted to the Aerospace Medical Association for the 1994 annual meeting.
- 93.27 Teiwes, W., Clarke, A.H., Merfeld, D.M., Oman, C.M., Scherer, H. & Young, L.R. "Otolithic contribution to torsional eye movements during dynamic linear acceleration," abstract presented at the Tribute Conference for David A. Robinson, Eibsee, Germany, September 26-29, 1993. CURRENTLY UNAVAILABLE
- 93.28 Teiwes, W., Clarke, A.H., Merfeld, D.M., Oman, C.M., Scherer, H. & Young, L.R. "Otolithic contribution to torsional eye movements during dynamic linear acceleration," submitted to Proceedings of the Tribute Conference for David A. Robinson, Eibsee, Germany, September 26-29, 1993.
- 93.29 Watt, D.G.D., Landolt, J.P. & Young, L.R. "Effects of long-term weightlessness on roll circularvection," *Canadian Aeronautics and Space Journal* 39(1):52-55, 1993. Selected as the 'Best Paper' presented at the 7th CASI Astronautics Conference, Ottawa, Canada, November 4-6, 1992.
- 93.30 Oman, C.M. & Calkins, D.S., "Effect of orbital flight on the human horizontal angular vestibulo-ocular reflex response to 120 dec/sec step stimuli," *Microgravity Vestibular Investigations (MVI) Final Report*, NASA/ Johnson Space Center, April, 1993. Reschke, M.F. Editor

93.31 Newman, D.J. & Alexander, H.L. "Human locomotion and workload for simulated lunar and martian environments," IAF/IAA-91-561, *Acta Astronautica*, 29(8):613-20, 1993.

93.32 Young, L.R., "Balance in Skiing and Space", Intl. Society for Skiing safety, Kaprun/Zell am See, Austria, May 20, 1993.

93.33 Logsdon, John, Moderator – panel – Stone, Edward, McDivitt James, A., Lichtenberg, Byron, Young, Laurence "Evolution of Technologies for Space Exploration" *Aeronautics and Space Technology, Past, Present, and Future*, proceedings of the 25th Anniversary Symposium of the Aeronautics and Space Engineering Board, May 7, 1993 NRC(National Research Council)

1992

92.1 Balkwill, M.D. & Liefeld, J.T. "NysA V2.0 Nystagmus Analysis System User's Manual," Internal Report, 1992.

92.2 Oman, C.M. & Balkwill, M.D. "Postflight angular VOR and rotation sensation changes in Spacelab SLS-1 crewmembers," abstract, 193-4, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.3 Merfeld, D.M., Wearne, S.L., Curthoys, I.S. & Halmagyi, G.M. "Perceptual tilt responses in humans during eccentric rotation: a comparison to eye movement responses," abstract, 73-4, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.4 Christie, J.R.I., Merfeld, D.M. & Young, L.R. "Horizontal and vertical eye movements in humans during lateral interaural linear acceleration," abstract, 19-20, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.5 Wall, C. III, Harris, L.R. & Lathan, C.E. "Otolith-visual Z-axis sensory interactions," Abstract 240, ISSN- 0742-3152, Fifteenth Midwinter Research Meeting, Association for Research in Otolaryngology, St. Petersburg Beach, FL, February 2-6, 1992.

92.6 Lathan, C.E., Harris, L.R. & Wall, C.W. III, "Characterization of eye movement response to z-axis linear acceleration,," abstract, 147-8, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.7 Wall, C.W. III, Lathan, C.E., & Harris, L.R. "Visual-vestibular responses to z-axis linear acceleration in humans," abstract, 120-1, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.8 Young, L.R. & Standish, G. "Influence of tactile cues on visually induced postural reactions," chapter 89, *The Head-Neck Sensory-Motor System*, 555-559, Berthoz, A., Graf, W. and Vidal, P.P., eds., Oxford University Press, New York, 1992. Originally presented at the International Symposium on the Head Neck System, Fountainebleau, France.

92.9 Oman, C.M. & Shubentsov, I. "Space sickness symptom severity correlates with average head acceleration," in *Mechanisms and Control of Emesis*, eds., Bianchi, A.L., Grelot, L., Miller, A.D., & King, G.L., Colloque INSERM/John Libbey Eurotext Ltd. 233:185-194, 1992. Presented at the conference: New vistas on mechanisms and control of emesis, Marseille, France, September 4-7, 1992.

92.10 see 93.5

92.11 see 93.4

92.12 Wearne, S.L., Curthoys, I.S., Merfeld, D.M. & Halmagyi, G.M. "Human 3-D oculomotor responses to yaw-axis centrifugation," abstract, p. 125, XVII Barany Society Meeting, Prague, Czechoslovakia, June 1992.

92.13 Aisen, M., Katz, E., Oman, C. & Gizzi, M. "Perceived passive body velocity and active motor hand velocity interact with temporal frequency," abstract, Society for Neuroscience, 1992.

92.14 Petropoulos, A.E., Wall, C. III, & Oman, C.M. "Yaw sensory rearrangement alters pitch VOR responses," submitted to *Acta Otolaryngol.* See 97.11

92.15 Oman, C.M. & Balkwill, M.D. "Yaw angular VOR, nystagmus dumping, and sensation duration in Spacelab SLS-1 crewmembers," paper copies of viewgraph presentation, XVII Barany Society Meeting, Prague, Czechoslovakia, June, 1992.

92.16 Young, L.R. "Visual-vestibular-tactile interaction in weightlessness: individual perceptual style," abstract, p. 130, XVII Barany Society Meeting, Prague, Czechoslovakia, June, 1992.

92.17 Merfeld, D.M. & Young, L.R. "Three-dimensional eye velocity measurement following postrotational tilt in the monkey," in *Sensing and Controlling Motion, Annals of the New York Academy of Sciences 656:783-794*, May 1992. Originally presented at the NYAS conference, *Sensing and Controlling Motion: Vestibular and Sensorimotor Function*, Palo Alto, CA, July, 7-11, 1991.

92.18 Merfeld, D.M., Christie, J.R.I. & Young, L.R. "Horizontal and vertical eye movements in humans during inter-aural linear acceleration," *Proceedings of the XVII Barany Society Meeting:156-60*, meeting was held in Prague, Czechoslovakia, June, 1992.

92.19 Young, L.R., Jackson, D.K., Groleau, N. & Modestino, S.A. "Multisensory integration in microgravity," in *Sensing And Controlling Motion: Vestibular and Sensorimotor Function*, Cohen, B., Tomko, D.L. & Guedry F. eds., *Annals of the New York Academy of Sciences 656:340-353*. Originally presented at the NYAS conference, *Sensing and Controlling Motion*, Palo Alto, CA, July 7-11, 1991.

92.20 VOID

92.21 Sriram, D., Logcher, R.D., Groleau, N. & Cherneff, J. "DICE: An object-oriented programming environment for cooperative engineering design," chapter 12, *Artificial Intelligence in Engineering Design, Volume III*, 303-365, Tong, C. and Sriram, D., eds., Academic Press, Inc, San Diego, 1992.

92.22 Watt, D.G.D., Landolt, J.P. & Young, L.R. "Effects of long-term weightlessness on roll circularvection," *Proceedings of the Seventh CASI Conference on Astronautics*, Ottawa, November, 1992.

92.23 Refer to 93.18

92.24 Refer to 93.19

92.25 Refer to 93.20

92.26 Refer to 93.21

92.27 Refer to 93.22

92.28 Refer to 93.23

92.29 Refer to 93.24

92.30 Refer to 93.10

92.31 Refer to 93.7

92.32 Refer to 93.8

92.33 VOID

92.34 Kaiser, D. "Interface document for Principal Investigator in a Box," May 1992.

- 92.35 Kaiser, D. "Evolution of Principal Investigator in a Box, an expert system for space experiments," 1992.
- 92.36 Guedry, F.E., Rupert, A.H., McGrath, B.J. & Oman, C.M. "The dynamics of spatial orientation during complex and changing linear and angular acceleration," *Journal of Vestibular Research* 2:259-283, 1992.
- 92.37 Wearne, S.L., Curthoys, I.S., Halmagyi, G.M. & Merfeld, D.M. "Deviation of the axis of eye rotation during rotation in yaw following unilateral vestibular deafferentation," *Proceedings of the XVIIIth Barany Society Meeting, held in Prague, Czechoslovakia, June 1992.*
- 92.38 Young, L.R., "Vestibular test equipment," presentation to Neurolab Planning Group, USRA, Houston, Texas, December 14, 1992.
- 92.39 Newman, D.J., "Human Locomotion and Energetics in Simulated Partial Gravity," Massachusetts Institute of Technology, Doctoral thesis, Department of Aeronautics and Astronautics, June 1992.
- 92.40 Newman, D.J. and M. van Schoor, "Dynamic Load Sensor Experiment: Background, Science Requirements, and Preliminary Design," white paper, November 1992
- 92.41 Newman, D.J., August 1992, "Partial Gravity Locomotion: Underwater Treadmills and Parabolic Flight," Gordon Research Conference on Gravitational Effects on Living Systems, Proctor Academy, NH
- 92.42 McRuer, Duane, "Human Dynamic and Pilot-Induced Oscillations", Minta Martin Lecture, MIT, Dept. of Aeronautics and Astronautics, December 2, 1992
- 92.43 Young, L.R., "Space Life Sciences Perspectives for Space Station Freedom", abstract, Space Station Freedom Utilization Conference, Von Braun Civic Center, Huntsville, Alabama, August 3-6, 1992
Conference Proceedings

1991

- 91.1 Groleau, N., Bhatnagar, R., Merfeld, D.M. "Using qualitative knowledge for quantitative simulation of the human spatial orientation system," *Second Annual Conference on AI, Simulation and Planning in High Autonomy Systems, Cocoa Beach, Florida, April 1-2, 1991, Pp. 279-288.*
- 91.2 Young, L.R. "Human performance and the voyage to Mars," abstract, *Proceedings of the International Aerospace Symposium 90 Nagoya, Vol.I, Nagoya, Japan, November 26-27, 1990.*
- 91.3 Young, L.R. "Human exploration and the voyage to Mars," *Proceedings of the International Aerospace Symposium 90 Nagoya, Vol. 2, Nagoya, Japan, November 26-27, 1990.*
- 91.4 Merfeld, D.M., Young, L.R., Tomko, D.L. & Paige, G.D. "Effect of gravity on monkey vestibulo-ocular reflex," abstract, *New York Academy of Sciences conference, Sensing and Controlling Motion: Vestibular and Sensorimotor Function, Palo Alto, CA, July, 1991.*
- 91.5 VOID
- 91.6 Mullen, T.J., Berger, R.D., Cohen, R.J. & Oman, C.M. "Transfer function analysis of autonomic activity during motion sickness," abstract 125, *Aerospace Medical Association Scientific Program, 62nd Annual Meeting, May 5-9, 1991.*
- 91.6A (Optional) paper copy of viewgraph presentation for 91.6
- 91.7 McGrath, B.J., Oman, C.M., Guedry, F.E. & Rupert, A.H. "Human vestibular response during 3 Gz centrifuge stimulation," abstract 172, *Aerospace Medical Association Scientific Program, 62nd Annual Meeting, May 5-9, 1991. Aviation, Space and Environmental Medicine 62(5):473.*

91.7A (Optional) paper copy of viewgraph presentation for 91.7

91.8 Void

91.9 Groleau, N. "NASTASSIA, a video-based image processing system for torsional eye movements analysis," 13th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 0375-0376, Orlando, FL, October, 1991.

91.10 Young, L.R. & Lee, S.M. "Alpine injury patterns at Waterville Valley - 1989 update," Skiing Trauma and Safety: Eighth International Symposium, 125-132, ASTM STP 1104, C.D. Mote and Robert J. Johnson, Eds., American Society for Testing and Materials, Philadelphia, 1991.

91.11 Oman, C.M. "Sensory conflict in motion sickness: an Observer Theory approach," chapter 24, Pictorial Communication in Virtual and Real Environments, 362-367, S.R. Ellis, M.K. Kaiser and A. Grunwald, eds., Taylor & Francis, London, 1991. Also published as NASA Conference Publication 10032, 1990. Proceedings of the Symposium and Workshop on Spatial Displays and Spatial Instruments, Asilomar, CA, September, 1987.

91.12 Refer to 92.17

91.13 Merfeld, D.M., Young, L.R., Tomko, D.L. & Paige, G.D. "Spatial orientation of VOR to vestibular stimuli in squirrel monkeys," *Acta Otolaryngologica Supplement* 481:287-292, 1991.

91.14 Young, L.R., Oman, C.M. & Mayer, W.F. "Spacelab neurovestibular hardware," SAE Technical Paper Series 911566, presented at the 21st International Conference on Environmental Systems, San Francisco, CA, July, 1991.

91.15 Newman, D.J. & Webbon, B. W. Paper copies of viewgraph presentation, "Human locomotion and workload for extravehicular activity (EVA): simulated partial gravity environments," presented at the 9th IAA Man In Space Symposium, Koln, Germany, June, 1991.

91.16 Refer to 93.31

91.17 Young, L.R. "An expert system for astronaut scientists," IAF/IAA-91-569, presented at the 42nd Congress of the International Astronautical Federation, Montreal, Canada, October 5-11, 1991.

91.18 Oman, C.M. "In search of a cure for seasickness," *Cruising World*, December 1991, pages 66-70.

91.19 Sriram, D., Logcher, R., Gossard, D., Groleau, N., Navinchandra, D. and Serrano, D. "Artificial intelligence applications in engineering design," chapter 44, Systems and Signal Processing, 713-732, Madan, R.N., Viswanadham, N. and Kashyap, K.L., eds., Oxford & IBH Publishing Co., New Delhi, 1991.

91.20 Young, L.R., Watt, D., Oman, C.M., Money, K.E., Lichtenberg, B.K., Roy, S., DeLuca, C., Merfeld, D., Balkwill, D., Christie, J., Groleau, N., Jackson, D.K., Law, G., Modestino, S., Mayer, W., Costello, J., Renshaw, R. & Cheung, R. "SLS-1, Experiment E-072- 90 Day Report," September 11, 1991.

91.21 Young, L.R., Watt, D., Oman, C.M., Money, K.E., Lichtenberg, B.K., Roy, S., DeLuca, C., Merfeld, D., Balkwill, D., Christie, J., Groleau, N., Jackson, D.K., Law, G., Modestino, S., Mayer, W., Costello, J., Renshaw, R. & Cheung, R. "SLS-1, Experiment E-072- 180 Day Post Flight," November 22, 1991.

91.22 Refer to 92.19

91.23 Shelhamer, M., & Young, L.R. "Linear acceleration and horizontal eye movements in man," *Acta Otolaryngologica Supplement* 481:277-281, 1991. Originally presented to the Barany Society, Tokyo, Japan, May 1990.

91.24 Newman, D.J. "A submersible partial gravity simulator for lunar and martian locomotion," International Design for Extreme Environments Assembly (IDEEA), Houston, Texas, November, 1991.

1990

- 90.1 Oman, C.M., Lichtenberg, B.K., Fiser, R.L., & D.S. Vordermark. "MIT - NASA/KSC space life science experiments: A telescience testbed," 13th Annual American Astronautical Society Guidance and Control Conference, Keystone, Colorado, February 3-7, 1990.
- 90.2 Newman, D.J., Bussolari, S.J. "Dual-Task Performance on an interactive human/ computer space shuttle flight experiment," *Biomed. Sci. Instru.*, 26:213-25, 1990.
- 90.3 Oman, C.M. "Motion sickness: a synthesis and evaluation of the sensory conflict theory," *Canadian Journal of Physiology and Pharmacology*, 68:294-303, 1990.
- 90.4 Arrott, A.P., Young, L.R. & Merfeld, D.M. "Perception of Linear Acceleration in Weightlessness," *Aviation, Space and Environmental Medicine*, 61:319-26, 1990.
- 90.5 Bhatnagar, R., Miller, D.W., Hajek, B.W. & Chandrasekaran, B. "DPRL: A Language for Representation of Operation and Safety Maintenance Procedures of Nuclear Power Plants," Third International Conference on Industrial and Engineering Applications of AI and Expert Systems, IEA/AIE 1990.
- 90.6 Chandrasekaran, B. & Bhatnagar, R. "A knowledge-based system architecture for real-time disturbance control in process plants," AAAI-90 Workshop on Design Principles for Real-Time Knowledge Based Control Systems, 1990.
- 90.7 Refer to 91.13
- 90.8 Mullen, T.J., Berger, R.D., Oman, C.M. & Cohen, R.J. "Transfer Function Analysis of Autonomic Regulation During Motion Sickness," Harvard University-MIT Division of Health Sciences and Technology, Compendium of Student Research, Volume I, March 1990.
- 90.9 Young, L.R., Shelhamer, M. "Microgravity enhances the relative contribution of visually-induced motion sensation," *Aviation Space Environmental Medicine* 61:525-530, June 1990.
- 90.10 Refer to 91.23
- 90.11 Void
- 90.12 Refer to 92.8
- 90.13 Frainier, R., Groleau, N., Bhatnagar, R., Lam, C., Compton, M., Colombano, S., Lai, S., Szolovits, P., Manahan, M., Statler, I. & Young L. R., "A comparison of CLIPS-and LISP-based approaches to the development of a real-time expert system," *Proceedings of the First CLIPS Conference*, 321-333, Houston, August, 1990.
- 90.14 Young, L.R. "Aerospace Human Factors: A Tutorial," *Guidance and Control 1990*, Volume 72, *Advances in the Astronautical Sciences*, edited by Robert D. Culp and Arlo D. Gravseth, presented to the American Astronautical Society, Keystone, CO, February, 1990.
- 90.15 See 91.6
- 90.16 See 91.7
- 90.17 Garber, M.A. & Young, L.R., "Asymmetrical otolith signals in modified Gz environments," abstract, Aerospace Medical Association Annual Meeting, St. Louis, 1990.
- 90.18 Oman, C.M. "Lessons from vestibular research in altered gravity," presented at the National Institute on Deafness and Other Communicative Disorders Program Planning Workshop: Research Needs in Balance and Vestibular Disorders, October 15-16, 1990.

90.19 Young, L.R., Bhatnagar, R., Groleau, N., Lai, S.H., Szolovits, P., Colombano, S.P., Frainier, R., Compton, M., Statler, I.C., Lam, C.C., Manahan, M., Adolf, J. & Holden, K. "Principal investigator in a box: A detailed documentation," October-November 1990.

90.20 Groleau, N., Young, L.R., Bhatnagar, R., Merfeld, D.M., Colombano, S.P. "Using a quantitative model of the human spatial orientation system to do better science in space," submitted to the Ninth IAA Man in Space Symposium, 1990.

90.21 Merfeld, D.M., Young, L.R. & Tomko, D. "Spatial orientation of VOR to combined vestibular stimuli in squirrel monkeys," abstract, Bárány Society, Tokyo, Japan, May 1990.

90.22 Oman, C.M. & Zacharias, G.L. "Manual control after extended duration orbital flight," Extended Duration Orbiter Medical Project, technical meeting, NASA Johnson Space Center, Houston, TX January, 1990 (paper copies of viewgraph presentation).

90.23 VOID

90.24 Young, L.R. "Before we send people to Mars," chapter 21, Robotics, Control and Society, 221-224, Moray, N., Ferrell, W.R., Rouse, W.B., eds., Taylor & Francis, 1990.

90.25 Oman, C.M. "Analysis of ocular torsion data from Spacelabs D-1 and SL-1," Final Report for NASA Grant NAGW-1377, December, 1990.

90.26 Guedry, F.E. & Oman, C.M. " Vestibular stimulation during a simple centrifuge run," Naval Aerospace Medical Research Library, NAMRL-1353, May 1990.

90.27 Oman, C.M. & Weigl, H. "Preflight/postflight postrotatory VOR changes in Spacelab D-1 crew," abstract, Barany Society Meeting, Tokyo, Japan, May 1990.

90.28 Oman, C.M., Lichtenberg, B.K. & Money, K.E. "Space motion sickness monitoring experiment: Spacelab 1," Chapter 12 in *Motion and Space Sickness*, Crampton, G.H., ed., Boca Raton, Florida: CRC Press, 1990: 217-246.

90.29 Oman, C.M., Shubentsov, I., Space motion sickness intensity correlates with average head acceleration (abstract), *Aviation, Space, and Environmental Medicine*, Vol. 61, 5, p. 483

90.30 Pommellet, P.E., Valavani, L., Young, L., Oman, C., Nonlinear Estimation Techniques for Spatial Disorientation, (not published).

1989

89.1 Young, L.R. & Rudiger, C.E., Jr. "Life sciences use of Space Station Freedom," AIAA-89-0509, 27th Aerospace Sciences Meeting, Reno, Nevada, January 9-12, 1989.

89.1A (Optional) paper copy of viewgraph presentation for 89.1

89.2 Young, L.R., Colombano, S.P., Haymann-Haber, G., Groleau, N., Szolowitz, P. & Rosenthal, D. "An expert system to advise astronauts during experiments," International Astronautical Congress, Malaga, Spain, October 9-13, 1989.

89.3 Young, L.R. "Alterations in brain function during weightlessness," in *The Science of Mind*, Klivington, K.A., ed., MIT Press, Cambridge, 1989.

89.4 Oman, C.M. & Weigl, H.J. "Postflight vestibulo-ocular reflex changes in Space Shuttle/Spacelab D-1 crew," abstract 21, Aerospace Medical Association Scientific Program:A4, 60th Annual Scientific Meeting, Washington, D.C., May 7-11, 1989.

89.4A (Optional) paper copy of viewgraph presentation for 89.4

89.5 An, B. & Oman, C.M. "Joystick indications of the vertical show "E" (not "A") effect at 90 deg. head tilt," abstract 84 for Aerospace Medical Association 60th Annual Scientific Meeting, Washington, D.C., May 7-11, 1989. (Abstract for 89.21)

89.6 Oman, C.M., Lichtenberg, B.K. Modestino, S.M., McGrath, B.J., Fizer, R.L., Vordermark, D.S., Alston, A. and A., Anthony, K., Carlson, C., Deen, F., Delgado, L., George, M., Glas, B.J., Marzig, R., Mullen, T., Newman. D., Renshaw, R.L., Shelhamer, M., Shubentsov, I., Strauss, V., Tse, M. & Weigl, H. "MIT/KSC life sciences telepresence testbed pilot program: a report," MVL Report 89-100, May, 1989.

89.7 Young, L.R. "Elevated racer binding settings and inadvertent releases," Skiing Trauma and Safety: Seventh International Symposium, 222-227, ASTM STP 1022, Johnson, R.J., Mote, C.D., Jr., & Binet, M.-H., eds., Philadelphia, PA, 1989.

89.8 Chandra, D., Bussolari, S.R. & Hansman, R.J. "A comparison of communication modes for delivery of air traffic control clearance amendments in transport category aircraft," Proceedings of the 5th International Symposium on Aviation Psychology, Ohio State University, Columbus, OH, April 17-20, 1989.

89.9 Young, L.R. & Standish, G. "Pseudo-vestibulo-colic reflex," abstract, International Symposium on the Head Neck System, Fountainebleau, France, July 17-20, 1989. (see 92.8)

89.10 Haymann-Haber, G., Colombano, S.P., Groleau, N., Rosenthal, D., Szolovits, P. & Young, L.R., "An expert system to advise astronauts during experiments: the protocol manager subsystem," Space Operations Automation and Robotics Workshop, NASA/Johnson Space Center, Houston, Texas, July 25-27, 1989.

89.11 Bussolari, S.R., Young, L.R. & Lee, A.T., "The use of vestibular models for design and evaluation of flight simulator motion," AGARD Conference Proceedings No. 433:91-1/9-11,

89.12 Mah, R.W., Young, L.R., Steele, C.R. & Schubert E.D., "Threshold perception of whole-body motion to linear sinusoidal stimulation," paper AIAA-89-3273, AIAA Conference on Motion Cues in Flight Simulation and Simulator Induced Sickness, Boston, Massachusetts, August 14-16, 1989.

89.13 Refer to 90.3

89.14 Oman, C.M. & Shubentsov, I., "Space motion sickness intensity correlates with average head angular acceleration," abstract, 1990 Annual Scientific Meeting of the Aerospace Medical Association, New Orleans, Louisiana, May 13-17, 1990.

89.14A (Optional) paper copies of viewgraph presentation for 89.14

89.15 Blanford, C.L. & Oman, C.M, "Diagnostic classification of changes in the human electrogastrogram during motion sickness," abstract, 1990 Annual Scientific Meeting of the Aerospace Medical Association, New Orleans, Louisiana, May 13-17, 1990.

89.16 Young, L. R. "Before we send people to Mars...", presented to IFSUSS, Kanagawa, Japan, October 1989.

89.17 Refer to 91.10

89.18 Refer to 90.12

89.19 Young, L.R., deAsla, M., Carlson, C., Lee, S.M. & McMahon, E. "Upward release versus retention in alpine ski binding," presented to the International Society for Skiing Safety, Riksgården, Sweden, May 15-21, 1989.

89.20 Refer to 91.11

- 89.21 Oman, C.M. & An, B. "Joystick indications of the vertical show "E" (not "A") effect at 90 deg. head tilt," paper copies of viewgraph presentation, Aerospace Medical Association 60th Annual Scientific Meeting, Washington, D.C., May 7-11, 1989. (Abstract is 89.5)
- 89.22 Young, L.R. "Le cerveau en apesanteur," in *Les Enigmes du Cerveau*, Christen, Y. and Klivington, K., eds., Hologramme, Paris, 1989. (For English version see 89.3).
- 89.23 Newman, D.J. "Human Workload and Performance in Space: Engineering Development and Policy Aspects," Massachusetts Institute of Technology, Master's thesis, Departments of Aeronautics and Astronautics and Technology and Policy, February 1989.
- 89.24 Oman, C.M., et al., "MIT/KSC Life Sciences Telescience Testbed Pilot Program: A Report," Massachusetts Institute of Technology, MVL Report 89-100, May 1989.

1988

- 88.1 Refer to 89.7
- 88.2 Refer to 90.4
- 88.3 Oman, C.M. "Prevention and treatment of seasickness in offshore sailing," Proceedings of New England Sailing Yacht Symposium, 135-141, New London, CT, March 4-5, 1988.
- 88.4 Oman, C.M. & Cook, W.J.C. "Skin pallor and blush monitor," U.S. Patent 4,723,554, February, 1988.
- 88.5 Schmedtje, J.F., Oman, C.M., Letz, R. & Baker, E.L. "Effects of scopolamine and dextroamphetamine on human performance," *Aviation, Space, and Environmental Medicine*, 59:407-410, May, 1988.
- 88.6 Refer to 87.15
- 88.7 Nadel, E.R. & Bussolari, S.R. "The Daedalus project: physiological problems and solutions," *American Scientist*, 76:351-360, July-August, 1988.
- 88.8 Refer to 89.11
- 88.9 Colombano, S., Young, L., Wogrin, N. & Rosenthal, D. "PI-in-a-box: intelligent onboard assistance for spaceborne experiments in vestibular physiology," Fourth Conference on Artificial Intelligence for Space Applications, NTIS HC A21/MF A01, NASA, Marshall Space Flight Center, Huntsville, Alabama, November, 1988.
- 88.9a (Optional) paper copies of presentation viewgraphs for paper 88.9
- 88.10 Huang, J.-K. & Young, L.R. "Visual field influence on manual roll and pitch stabilization," *Aviation, Space, and Environmental Medicine* 59:611-619, July, 1988.
- 88.11 Young, L.R. & Rudiger, C.E. "Life science utilization of the Space Station," paper copies of viewgraph presentation at AIAA Space Station Utilization I Conference, March, 1988; International Forum on the Scientific Uses of the Space Station, Versailles, France, May, 1988.
- 88.12 Void
- 88.13 See 90.4

88.14 Borah, J., Young, L.R., & Curry, R.E. "Optimal estimator model for human spatial orientation," in Representation of Three-Dimensional Space in the Vestibular, Oculomotor, and Visual Systems: A Symposium of the Barany Society, Cohen, B. and Henn, V., eds., Annals of the New York Academy of Sciences, 545:51-73, New York, 1988.

88.15 Nijhawan, V, Lichtenberg, B.K., Munsey, W.R., Fiser, R., Oman, C.M. & Young, L.R. "Telescience space life sciences test bed," 39th International Astronautical Federation Congress, Bangalore, India, October, 1988; EASCON '88, Crystal City, Virginia, November, 1988.

88.16 Oman, C.M., Young, L.R., Watt, D.G.D., Money, K.E., Lichtenberg, B.K., Kenyon, R.V. & Arrott, A.P. "MIT/Canadian Spacelab experiments on vestibular adaptation and space motion sickness," in Basic and Applied Aspects of Vestibular Function, 183-192, Hwang, J.C., Daunton, N.G., Wilson, V.J., eds., Hong Kong University Press, Hong Kong, 1988.

88.17 Young, L.R. & Leiner, B.M. "Telescience," AIAA-88-5002, AIAA/NASA First International Symposium on Space Automation and Robotics, Arlington, Virginia, November, 1988; RIACS Technical Report TR-88.2, Research Institute for Advanced Computer Science, NASA Ames Research Center.

88.18 Bussolari, S.R., Langford, J.S. & Youngren, H.H. "Flight research with the MIT Daedalus prototype," SAE 1987 Transactions, Paper 871350, 96:294-300

88.19 Void

88.20 Oman, C.M. & Kulbaski, M.J. "Spaceflight affects the 1-g postrotatory vestibulo-ocular reflex," Adv. Oto-Rhino-Laryngologica 42:5-8, 1988.

88.21 Young, L.R. "Vestibular adaptation to weightlessness," Proceedings of the Symposium on Vestibular Organs and Altered Force Environment, 85-90, NASA Space Biomedical Research Institute, Universities Space Research Association, Division of Space Biomedicine, Houston, Texas, October, 1987.

88.22 Refer to 90.11

88.23 Newman, D.J., "Ground-based results of the mental workload and performance experiment (MWPE)," Proceedings of the Twenty-third Annual Conference on Manual Control, Cambridge, MA, June, 1988.

88.24 Newman, D.J., "Statistical compilation of data from the mental workload and performance experiment," MVL Report 88-1, Massachusetts Institute of Technology, Cambridge, Massachusetts, August 26, 1988 (available in MVL Reading Room only MVL Report 88-1).

88.25 Young, L.R. "Gravitational effects on brain and behavior," Sensory Systems II: Senses Other than Vision, Encyclopedia of Neuroscience, Vol. I and II, 473-474, Adelman, G., ed., Birkhauser Boston, Inc., 1988.

88.26 Young, L.R., Sheena, D. "Eye movement measurement techniques," Article published in Encyclopedia of Medical Devices and Instrumentation, edited by J. Webster, Published by John Wiley & Sons, Inc., 1988.

88.27 Hawley, T.B. & Newman, D.J. "The international lunar initiative: the 1988 design project of the International Space University," Lunar Bases & Space Activities in the 21st Century Symposium, paper LBS 88-152, Houston, Texas, April, 1988.

1987

87.1 Refer to 88.25

87.2 Oman, C.M., Young, L.R., Watt, D.G.D., Money, K., Lichtenberg, B.K., Kenyon, R.V., and Arrott, A.P. " MIT/Canadian spacelab experiments on vestibular adaptation and space motion sickness," abstract, 1987. (abstract for paper 88.16)

87.3 Curthoys, I.A. & Oman, C.M. "Dimensions of the horizontal semicircular duct, ampulla and utricle in the human," *Acta Oto-Laryngologica* 103:254-261, 1987.

87.4 Oman, C.M., Marcus, E.N. & Curthoys, I.A. "The influence of semicircular canal morphology on endolymph flow dynamics, an anatomically descriptive mathematical model," *Acta Oto-Laryngologica* 103:1-13, 1987.

87.5 Oman, C.M. "Spacelab experiments on space motion sickness," *Acta Astronautica* 15(1):55-66, 1987. Presented at 36th Congress of the International Astronautical Federation, Stockholm, Sweden, October 7-12, 1985.

87.6 Huang, J.-K. & Young, L. R. "Influence of visual and motion cues on manual lateral stabilization," *Aviation, Space, and Environmental Medicine*, 58(12):1197-1204, December, 1987.

87.7 Rague, B.W. & Oman, C.M. "Use of a microcomputer system for running spectral analysis of EGGs to predict the onset of motion sickness," *Proceedings of 9th Annual Conference of IEEE Engineering in Medicine & Biology Society, Boston, Vol. 1 (of 4):* 0087-0090, 1987.

87.8 Young, L.R. "My Twenty-five years with the MIT Man-Vehicle Laboratory," History prepared for 25th Anniversary of MVL, May, 1987.

87.9 Ashley, S. "88-pound pedal plane," *Popular Science*, February, 1987.

87.11 Kenyon, R.V., Kerschmann, R. & Silbergleit, R. "Streptomycin in the chick embryo: post-hatching vestibular behavior and morphology," *Experimental Brain Research*, 69:260-271, 1988.

87.12 Shelhamer, M., Marino, L.A., Young, L.R., Arrott, A.P. & Wiseman, J.J. "Normative study of Spacelab preflight/postflight vestibular test battery," *Aviation, Space, and Environmental Medicine* 58(9, Suppl.):A236-A239, September, 1987. (Originally presented to the 7th IAA Man in Space Symposium: Space Adaptation, Houston, February, 1986).

87.13 Refer to 89.11

87.14 Oman, C.M. & Spangenberg, D.B. "Gravity dependent behavior of *Aurelia Aurita* Ephyrae," abstract for NASA Space Life Sciences Symposium: Three Decades of Life Sciences Research In Space, Washington, DC, June 21-26, 1987.

87.15 Oman, C.M. "The role of static visual orientation cues in the etiology of space motion sickness," *Proceedings of the Symposium on Vestibular Organs and Altered Force Environment, NASA Space Biomedical Research Institute, Research Association Division of Space Biomedicine*, 25-37, Houston, Texas, October 15, 1987

87.16 Oman, C.M., B.W. Rague and O. U. Rege. "Standard definitions for scoring acute motion sickness using the Pensacola Diagnostic Index Method." Appendix B , Symptom Scoring Definitions: 120-128 In _____.

1986

86.1 Void

86.2 Refer to 87.12

86.3 Bussolari, S.R., Sullivan, R.B. & Young, L.R. "Vestibular models for design and evaluation of flight simulator motion," presented at the Royal Aeronautical Society: Advances in Flight Simulator Visual and Motion Systems Conference, London, 1986.

86.4 Young, L.R., Oman, C.M., Watt, D.G.D., Money, K.E., Lichtenberg, B.K., Kenyon, R.V. & Arrott, A.P. "MIT/Canadian vestibular experiments on the Spacelab-1 mission. 1. Sensory adaptation to weightlessness and readaptation to one-g: an overview," *Experimental Brain Research* 64:291-298, 1986.

- 86.5 Young, L.R., Shelhamer, M., & Modestino, S. "MIT/Canadian vestibular experiments on the Spacelab-1 mission: 2. Visual vestibular tilt interaction in weightlessness," *Experimental Brain Research* 64:299-307, 1986.
- 86.6 Watt, D.G.D., Money, K.E., & Tomi, L.M. "MIT/Canadian vestibular experiments on the Spacelab-1 mission: 3. Effects of prolonged weightlessness on a human otolith-spinal reflex," *Experimental Brain Research* 64:308-315, 1986.
- 86.7 Oman, C.M., Lichtenberg, B.K., Money, K.E. & McCoy, R.K. "MIT/Canadian vestibular experiments on the Spacelab-1 mission: 4. Space motion sickness: symptoms, stimuli, and predictability," *Experimental Brain Research* 64:316-334, 1986.
- 86.8 Kenyon, R.V. & Young, L.R. "MIT/Canadian vestibular experiments on the Spacelab-1 mission: 5. Postural responses following exposure to weightlessness," *Experimental Brain Research* 64:335-346, 1986.
- 86.9 Arrott, A.P. & Young, L.R. "MIT/Canadian vestibular experiments on the Spacelab-1 mission: 6. Vestibular reactions to lateral acceleration following ten days of weightlessness," *Experimental Brain Research* 64:347-357, 1986.
- 86.10 Curthoys, I.S. & Oman, C.M. "Dimensions of the horizontal semicircular duct, ampulla and utricle in rat and guinea pig," *Acta Oto-laryngologica* 101:1-10, 1986.
- 86.11 Oman, C.M., "Etiologic role of head movements and visual cues in space motion sickness on Spacelabs 1 and D-1," abstract, 7th IAA Man in Space Symposium: Physiologic Adaptation of Man In Space, Houston, TX, February 10-13, 1986.
- 86.12 Young, L.R., Arrott, A.P., Merfeld, D.M., Shelhamer, M.S., Lichtenberg, B.K., Oman, C.M., Watt, D.G.D., Money, K.E., Modestino, S.A. & Renshaw, R.L. "Vestibular responses to linear acceleration in weightlessness," abstract, D-1 Symposium, Norderney, FRG, August 27-29, 1986.
- 86.13 Hermann, H.T., Sonnabend, N.L. & Zeevi, Y.Y. "Interhemispheric coordination is compromised in subjects with developmental dyslexia," *CORTEX* 22:337-358, 1986.
- 86.14 Money, K.E., Oman, C.M., Watt, D. & Cheung, R. "Preflight and postflight motion testing of payload crew of Spacelab-1, 41G and D1," abstract, 7th IAA Man in Space Symposium: Physiologic Adaptation of Man In Space, Houston, TX, February 10-13, 1986.
- 86.15 Oman, C.M. "Symptoms and signs of space motion sickness on Spacelabs 1 and D1," abstract, 7th IAA Man in Space Symposium: Physiologic Adaptation of Man In Space, Houston, TX, February 10-13, 1986.
- 86.16 Oman, C.M., Cook, W.J.C., Rege, O., Sapirstein, J. & Nichols, T. "Time course of skin pallor in motion sickness," abstract, 7th IAA Man in Space Symposium: Physiologic Adaptation of Man In Space, Houston, TX, February 10-13, 1986.
- 86.17 Bussolari, S.R. & Lee, A.T. "The effects of flight simulator motion on pilot performance and simulator acceptability in transport category aircraft," presented to 2nd International Symposium on Aviation Safety, Academie Nationale De L'Air et de L'Espace, Toulouse, France, 1986.
- 86.18 Hermann, H.T., Sonnabend, N.L. & Zeevi, Y.Y. "Bihemifield visual stimulation reveals reduced lateral bias in dyslexia," *Annals of Dyslexia* 36:154-175, December, 1986.
- 86.19 Newman, D.J. and C.M. Flick, "Aerospace Design Laboratory: Detailed Curriculum Development," The University of Notre Dame, Department of Aerospace Engineering, April 1986.
- 86.20 Newman, D.J. et.al., "The Design of a Remotely Piloted Vehicle for Aerial Photography Report," The University of Notre Dame, Department of Mechanical/Aerospace Engineering, May 1986.

1985

- 85.1 Sheridan, T.B. & Young, L.R. "Human factors in aerospace medicine," chapter 28, *Fundamentals of Aerospace Medicine*, 815- 838, Lea and Febiger Publishers, PA, 1985.
- 85.2 Young, L.R. "Adaptation to modified otolith input," chapter 10, *Adaptive Mechanisms in Gaze Control: Facts and Theories*, 155-162, Berthoz, A. & Melvill Jones, G., eds., Elsevier Science Publishers B.V., 1985.
- 85.3 Young, L.R. "Thumbs up: the changing pattern of ski injuries," Special Technical Publication 860, *Skiing Trauma and Safety: 5th International Symposium*, Johnson, R. & Mote, C., eds, ASTM, 382-391, 1985.
- 85.4 Young, L.R. "Life science opportunities in the space station," 25th International Convention REINA, 74-76, Rome, Italy, March, 1985.
- 85.5 Refer to 87.5
- 85.6 "Eye Movement Bibliography," from *Adaptive Mechanisms in Gaze Control: Facts and Theories*, Berthoz, A. & Melvill Jones, G., eds., Elsevier Science Publishers B.V., 1985.
- 85.7 Kenyon, R.V. "A soft contact lens search coil for measuring eye movements," *Vision Research* 25(11):1629-1633, 1985.
- 85.8 Oman, C.M., Lichtenberg, B.K., Money, K.E. & McCoy, R.K. "Space motion sickness on Spacelab Mission One," abstract presented at Barany Society meeting, Ann Arbor, May 21-24, 1985.
- 85.9 Parker, A.J., Kenyon, R.V. & Young, L.R. "Measurement of torsion from multi-temporal images of the eye using digital signal processing techniques," *IEEE Transactions on Biomedical Engineering*, BME-32(1):28-36, January, 1985.

1984

- 84.1 Oman, C.M., Lichtenberg, B.K. & Money, K.E. "Space motion sickness monitoring experiment: Spacelab 1," NATO-AGARD Aerospace Medical Panel Symposium on Motion Sickness: Mechanisms, Prediction, Prevention and Treatment, Conference Proceedings No. 372, Pp 35/1-35/21 Williamsburg, VA, 1984.
- 84.2 duplicate of 84.1
- 84.3 Refer to 85.9
- 84.4 Yasui, S. & Young, L.R. "On the predictive control of foveal eye tracking and slow phases of optokinetic and vestibular nystagmus," *Journal of Physiology*, 347:17-33, 1984
- 84.5 Young, L.R., Oman, C.M., Watt, D.G.D., Money, K.E. & Lichtenberg, B.K. "Spatial orientation in weightlessness and readaptation to earth's gravity," *Science* 225(4658):205-208, AGARD Conference, Istanbul, September, 1984.
- 84.6 Garriott, O.K., Parker, R.A., Lichtenberg, B.K. & Merbold, U. "Pay load crew members' view of Spacelab operations," *Science* 225(4658):165-167, 1984.
- 84.7 Young, L.R. "Avalanche awareness: the education of a heli-skier," *Appalachia*, Bulletin Issue, December, 1984.
- 84.8 Oman, C.M. "Why do astronauts suffer space sickness?," *New Scientist*, 10-13, 23 August 1984.
- 84.9 Lichtenberg, B.K. "A new breed of space traveler," *New Scientist*, 8-9, 23 August 1984.
- 84.10 Young, L.R. "Tilted astronauts reveal the brain's balancing act," *New Scientist*, 23 August 1984.

- 84.11 Kenyon, R.V. & Young, L.R. "Postural re-adaptation following exposure to weightlessness," abstract, Society for Neuroscience, 1984.
- 84.12 Oman, C.M., Lichtenberg, B.K., Money, K.E., & McCoy, R.K. "Space motion sickness on Spacelab Mission One," abstract, Society for Neuroscience, 1984.
- 84.13 Young, L.R., Lichtenberg, B.K., Shelhamer, M. & Renshaw, R. "Visual-vestibular interaction in weightlessness: circularvection during Spacelab-1," abstract, Society for Neuroscience, 1984.
- 84.14 Young, L.R., Oman, C.M., Watt, D.G.D., Money, K.E., Lichtenberg, B.K., Kenyon, R.V., Arrott, A.P. & Modestino, S.A. "Vestibular changes following ten days of weightlessness," in *Sensory-motor Functions Under Weightlessness and Space Motion Sickness*, 85-89, proceedings of the International Symposium on Space Medicine, Nagoya, Japan, 1984.
- 84.15 Kenyon, R.V., Becker, J.T., Butters, N. & Hermann, H. "Oculomotor function in Wernicke-Korsakoff's Syndrome: I. Saccadic eye movements," *International Journal of Neuroscience* 25:53-65, 1984.
- 84.16 Kenyon, R.V., Becker, J.T. & Butters, N. "Oculomotor function in Wernicke-Korsakoff's Syndrome: II. Smooth pursuit eye movements," *International Journal of Neuroscience* 25:67-79, 1984.
- 84.17 Money, K.E., Watt, D.G., Oman, C.M., "Preflight and Postflight Motion Sickness Testing of the Spacelab 1 Crew", AGARD Conference Proceedings No. 372, *Motion Sickness: Mechanisms, Prediction, Prevention and Treatment*, 1984, North Atlantic Treaty Organization, Neuilly Sur Seine, France.

1983

- 83.1 Young, L.R. "Space motion sickness and vestibular adaptation to weightlessness," *Proceedings of the Symposium on Space Physiology*, 119-127, Centre National d'Etudes Spatiales (CNES), Toulouse, France, March, 1983.
- 83.2 Arrott, A.P. & Young, L.R. "Attenuation of the otolith-ocular torsion reflex by changing orientation with respect to gravity," abstract, Society for Neuroscience, Volume 9, 1983.
- 83.3 Refer to 84.15
- 83.4 Oman, C.M. "Dealing with motion sickness," *Sail Magazine*, June, 1983.
- 83.5 Tole, J.R., Stephens, A.T., Vivaudou, M., Ephrath, A. & Young, L.R. "Visual scanning behavior and pilot workload," NASA Contractor Report 3717, Cooperative Agreement NCC1-23, August, 1983.
- 83.6 Oman, C.M. & Cook, W. "Dynamics of skin pallor in motion sickness as measured using an infrared reflectance technique," abstract for 54th Annual Aerospace Medical Association Meeting, Houston, May 23-26, 1983.
- 83.7 Parker, A.J., Kenyon, R.V. & Troxel, D.E. "Comparison of interpolating methods for image resampling," *IEEE Transactions on Medical Imaging* MI-2(1):31-39, 1983.
- 83.8 Young, L.R. "Perception of the body in space: mechanisms," Chapter 22, *Handbook of Physiology - The Nervous System III*, American Physiological Society, Smith, Ian Darian, ed., 1984.
- 83.9 Oman, C.M. "Prevention and treatment of seasickness while ocean racing," *Race Circular of the Marion-Bermuda Cruising Yacht Race*, June, 1983.
- 83.10 Kenyon, R. & Marcus, E., "Summary report: visual vestibular interaction on Spacelab-1 crew," MVL Report 83-100.

83.11 Young, L.R., Crites, T.A. & Oman, C.M. "Brief weightlessness and tactile cues influence visually induced roll," *Advances in Oto-Rhino-Laryngology* 30:230-234, 1983. Originally presented at the 8th Extraordinary Meeting of the Barany Society, Basel, June, 1982.

83.12 Kenyon, R.V. & Stark, L. "Unequal saccades generated by velocity interacting in the peripheral oculomotor system," *Mathematical Biosciences* 63:187-197, 1983.

83.13 Oman, C.M. & Money, K.E. "Medical monitoring and therapy of space motion sickness," *Space 2000*, Naplolitano, L.G. ed., pp. 311-326, 1983. Originally presented as IAF Paper 82-169 at the 33rd International Astronautical Federation, Paris, France, September 27 - October 2, 1982.

83.14 Zeevi, Y.Y., Wetzel, P.A. and L.R. Young, "Temporal Aspects of Eye Movement When Viewing Multiple Targets", Air Force Human Resources Laboratory, AFHRL-TP-83-6, Operations Training Division, Williams Air Force Base, Arizona, 85224, Nov. 1983. Interim Paper for Period October 1981-September 1982.

83.15 Borah, J., Young, L.R., "Spatial Orientation and Motion Cue Environment Study in the Total In-Flight Simulator" Final Technical Paper, AFHRL, June 1983

1982

82.1 Young, L.R. "Human orientation in space," AIAA #82-0422, AIAA 20th Aerospace Sciences Meeting, Orlando, FL, January 11-14, 1982.

82.2 Oman, C.M. "Vestibular experiments in Spacelab," abstract for 12th Intersociety Conference on Environmental Systems, San Diego, July 19, 1982.

82.3 Bock, O.L. & Oman, C.M. "Dynamics of subjective discomfort in motion sickness as measured with a magnitude estimation method," *Aviation, Space, and Environmental Medicine* 53(8):773-777, 1982.

82.4 Young, L.R. "Field testing of ski shop binding test machines," Internal Report, 1982.

82.5 Tole, J.R., Stephens, A.T., Harris, R.L., Sr., & Ephrath, A.R. "Visual scanning behavior and mental workload in aircraft pilots," *Aviation, Space, and Environmental Medicine* 53(1):54-61, 1982.

82.6 Oman, C.M. "Space motion sickness and vestibular experiments in Spacelab," SAE Paper 820833, SAE-AIAA Twelfth Intersociety Conference on Environmental Systems, San Diego, CA, July 19, 1982.

82.7 Manuel, G., Lafferty, J. & Young, L.R., "Ski Injury Statistics Waterville Valley, 1981-82," Internal Report, June, 1982.

82.8 Wicke, R.W. & Oman, C.M. "Visual and graviception influences on lower leg EMG activity in humans during brief falls," *Experimental Brain Research* 46:324-330, 1982.

82.9 Zeevi, Y.Y. & Medina, A. "Acceleration perceived with dynamic visual noise," Internal Report, 1982.

82.10 Refer to 83.13

82.11 Lichtenberg, B.K., Young, L.R., & Arrott, A.P. "Human ocular counterrolling induced by varying linear accelerations," *Experimental Brain Research* 48:127-136, 1982.

82.12 Terzuolo, C., Fohlmeister, J.F., Maffei, L., Poppele, R.E., Soechting, J.F. & Young, L.R. "On the application of systems analysis to neurophysiological problems," *Archives Italiennes de Biologie* 120:18-71, 1982.

82.13 Crane, H.D., Young, L.R. & Cushing, W. "The influence of equipment and ski factors on ski injuries with an update - 13 year study," *Proceedings of 3rd Conference of International Society for Skiing Safety*, Johnson, Lamont, Hauser & Karlsson, eds., 134-138, TUV Publication Series of TUV-Edition, 1982. (Conference was held in New Zealand in 1979.)

82.14 Refer to 83.11

82.15 Sivan, R., Ish-Shalom, J. & Huang, J.K. "An optimal control approach to the design of moving flight simulators," IEEE Transactions on Systems, Man, and Cybernetics SMC-12(6): 818-827, 1982.

82.16 Oman, C.M. "A heuristic mathematical model for the dynamics of sensory conflict and motion sickness" ,Acta Otolaryngologica Suppl. 392, 1982.

82.17 Refer to 83.12

82.18 Young, L.R. "A new look at astronaut 'motion sickness'," Inc. Science Writers Seminar, Research to Prevent Blindness, 55-56, May, 1982.

82.19 Young, L.R., Crane, H.D., Altrichter, D., Loo, D., Melsky, G. & Ralston, J. "Ski binding release torques: Relationship among recommended release levels and the influence of environmental variables," Chapter 9 in Sports Medicine, Sports Science: Bridging the Gap, 101-118, Collamore Press, 1982. (Originally presented to the NE Chapter of the American College of Sports Medicine, November, 1981.)

82.20 Young, L.R., "Skier fall modes and injury patterns," Proceedings of the 4th International Conference on Ski Trauma and Skiing Safety, 217-226, Hauser, W., Karlsson, & Magi, M., eds., publication series of TUEV-Edition, Munich, West Germany, 1982. (Conference was held in Bormio, Italy, June, 1981.)

1981

81.1 Buettner, U.W., Henn, V. & Young, L.R. "Frequency response of the vestibulo-ocular reflex (VOR) in the monkey," Aviation, Space, and Environmental Medicine 52(2):73-77, 1981.

81.2 Tole, J.R. & Young, L.R. "Digital filters for saccade and fixation detection," Proceedings of Last Whole Earth Eye Movement Conference, 247-256, 1981. (Conference held in St. Petersburg, FL, February, 1980.)

81.3 Oman, C.M., Daunton, N.G., Money, K.E. & Watt, D.G.D. "Some practical suggestions for prevention and treatment of motion sickness," presented at 14th Annual Winter Conference on Brain Research, Panel XI: Sensory Conflict in Motion Sickness: Fact or Convenient Fiction?, January 26, 1981.

81.4 Huang, J.D. & Young, L.R. "Sensation of rotation about a vertical axis with a fixed visual field in different illuminations and in the dark," Experimental Brain Research 41:172-183, 1981.

81.5 Zacharias, G.L. & Young, L.R., "Influence of combined visual and vestibular cues on human perception and control of horizontal rotation," Experimental Brain Research 41:159-171, 1981.

81.6 Kenyon, R.V., Ciuffreda, K.J. & Stark, L., "Dynamic vergence eye movements in strabismus and amblyopia: asymmetric vergence," British Journal of Ophthalmology 65(3): 167-176, 1981.

81.7 Arrott, A.P. & Young, L.R. "Torsional eye movements in man during linear acceleration upon emerging from weightlessness," abstract, Society for Neuroscience, 1981.

81.8 Oman, C.M. & Bock, O.L. "Visually induced self-motion sensation adapts rapidly to left-right reversal of vision," The 1981 Image Generation/Display Conference II, 295-306, Air Force Human Resources Laboratory, June 10-12, 1981.

81.9 Zeevi, Y.Y. & Daugman, J.G. "Some psychophysical aspects of visual processing of displayed information," The 1981 Image Generation/Display Conference II, 260-277, Air Force Human Resources Laboratory, June 10-12, 1981.

- 81.10 Sivan, R. & Huang, J.K. "The effect of a moving foveal target on the subjective sensation of motion," *Biological Cybernetics* 40:93-99, 1981.
- 81.11 Edelman, E.R., Oman, C.M., Cavallerano, A.A. & Schluter, P.S. "Video measurement of torsional eye movement using a soft contact lens technique," abstract, OMS-81, Conference on the Oculomotor System, Caltech, January, 1981.
- 81.12 Refer to 81.28
- 81.13 Refer to 82.19
- 81.14 Young, L.R. "The sampled data model and foveal dead zone for saccades," Chapter 3 in *Models of Oculomotor Behavior and Control*, 43-74, Zuber, B.L., ed., CRC Press, Boca Raton, 1981.
- 81.15 Void
- 81.16 Young, L.R. "Visual and vestibular influences in human self-motion perception," in *The Vestibular System: Function and Morphology*, 393-424, Gualtierotti, T., ed., Springer Verlag, 1981.
- 81.17 Bruckstein, A.M., Morf, M. & Zeevi, Y.Y. "Probabilistic models for neural communication processes," submitted to *Journal of Mathematical Biology*, 1981.
- 81.18 Zeevi, Y.Y. & Ish-Shalom, J. "Measurement of eye movement with a ferromagnetic contact ring," *IEEE Transactions on Biomedical Engineering*, BME-29(7):511-522, July, 1982.
- 81.19 Bruckstein, A.M. & Zeevi, Y.Y. "Stochastic pulse frequency modulation models of neural coding processes," ISSN 0360-8913, *Proceedings of International Conference on Cybernetics and Society*, 102-105, sponsored by the IEEE Systems, Man and Cybernetics Society, October 26-28, Atlanta, GA, 1981.
- 81.20 Zeevi, Y.Y. & Shefer, M. "Automatic gain control of signal processing in vision," abstract, Annual Meeting of Optical Society of America, 1981.
- 81.21 Zeevi, Y.Y., Longridge, T.M. & DeMaio, J.C. "Masking effects on visual target detection and tracking," abstract, Annual Meeting of Optical Society of America, 1981.
- 81.22 Oman, C.M. & Bock, O.L. "Visually induced self-motion sensation adapts rapidly to left-right reversal of vision," *Annals of New York Academy of Sciences* 374:352-360, 1981.
- 81.23 Zeevi, Y.Y., Wetzel, P.A. & Peli, E. "The eye movement signal - an accessible probe into some brain function," *Proceedings of International Conference on Cybernetics and Society*, 265-268, sponsored by the IEEE Systems, Man and Cybernetics Society, October 26-28, Atlanta, GA, 1981.
- 81.24 Young, L.R., Lichtenberg, B.K., Arrott, A.P., Crites, T.A., Oman, C.M. & Edelman, E.R. "Ocular torsion on earth and in weightlessness," *Annals of New York Academy of Sciences* 374:80-92, 1981.
- 81.25 Refer to 82.20
- 81.26 Wetzel, P.A. & Zeevi, Y.Y. "Response direction to bifurcating targets is subject specific," abstract, Annual Meeting of Optical Society of America, 1981.
- 81.27 Void
- 81.28 Kenyon, R.V. & Lichtenberg, B.K. "Measurement of ocular counterrolling (OCR) by polarized light," *Proceedings of SPIE (International Society for Optical Engineering)*, Trapani, G.B., ed., San Diego, August, 1981.

81.29 Young, L.R. "Vestibular experiments," Spacelab Mission-1 Experiment Descriptions, 2nd ed., Craven, Paul D., ed., V6-V9, NASA Space Sciences Laboratory, November, 1981.

81.30 Void

81.31 Tole, J.R., Yorker, J.G., Morrison, W.A. & Renshaw, R.L. "A microprocessor-controlled vestibular examination chair," IEEE Transactions on Biomedical Engineering, BME-28(5), 390-396, 1981.

81.32 Oman, C.M. "The influence of duct and utricular morphology on semicircular canal response," Chapter 14 in Vestibular Function and Morphology, 251-274, Springer Verlag, 1981. (Originally presented to the Satellite Symposium, Vestibular Function and Morphology, Pittsburgh, PA, October 30 - November 1, 1978.)

81.33 Ephrath, A.R. & Young, L.R. "Monitoring versus man-in-the-loop detection," in Human Detection and Diagnosis of System Failures," Rasmussen, J. and Rouse, W.B., eds, Plenum Press, 1981. (Conference was held in Roskilde, Denmark, 1980.)

1980

80.1 Oman, C.M., Bock, O.L. & Huang, J-K. "Visually induced self-motion sensation adapts rapidly to left-right visual reversal," Science 209:706-708, 1980.

80.2 Wicke, R.W. & Oman, C.M. "Visual and graviceptive influences on lower leg EMG activity during brief falls," Neuroscience Abstracts 6:225, 1980.

80.3 Oman, C.M. & Marcus, E.N. "Influence of semicircular canal ampulla, duct, and utricular shape on endolymph flow dynamics," Neuroscience Abstracts 6:558, 1980.

80.4 Refer to 81.4

80.5 Void

80.6 Refer to 82.16

80.7 Refer to 81.24

80.8 Void

80.9 Kenyon, R.V., Ciuffreda, K.J. & Stark, L. "Unequal saccades during vergence," American Journal of Optometry and Physiological Optics 57(9):586-594, 1980.

80.10 Kenyon, R.V., Ciuffreda, K.J. & Stark, L. "An unexpected role for normal accommodative vergence in strabismus and amblyopia," American Journal of Optometry and Physiological Optics 57(9):566-577, 1980.

80.11 Ephrath, A.R., Tole, J.R., Stephens, A.T. & Young, L.R. "Instrument scan - is it an indicator of the pilot's workload?," Human Factors 24th Annual Meeting in Los Angeles, CA., October 13-14, 1980.

80.12 Young et al. "Fidelity of simulation for pilot training," AGARD Advisory Report No. 159, 1980.

80.13 Refer to 81.33

80.14 Henn, V., Cohen, B. & Young, L.R. "Visual-vestibular interaction in motion perception and the generation of nystagmus," Neurosciences Research Program Bulletin (NRP) 18(4), September, 1980.

1979

79.1 Borah, J., Young, L.R. & Curry, R.E. "Optimal estimator model for human spatial orientation," IEEE Transactions on Systems, Man and Cybernetics, 800-805, 1979. (presented to the JACC, Denver, June, 1979.)

79.1A Borah, J., Young, L.R. & Curry, R.E. "Optimal estimator model for human spatial orientation," abstract, Federation Proceedings 38(3), March 1979.

79.2 Borah, J., Young, L.R., Curry, R.E. & Albery, W.B. "Multisensory perception model for application to aircraft simulation," Proceedings for NAVTRAEQUICEN IH-306:85-92, 11th NTEC/Industry Conference, November 14-16, 1978.

79.3 Refer to 81.32

79.4 Tole, J.R. "A protocol for the air caloric test and a comparison with a standard water caloric test," Archives of Otolaryngology 105:314-319, 1979.

79.5 Refer to 81.10

79.6 Oman, C.M. & Young, L.R. "Spacelab-1 experiments on motion sickness," Space Shuttle: Dawn of an Era," Paper 79.222, 1979. (Presented at Annual Meeting of the American Astronautical Society, Los Angeles, October 29-November 1, 1979.)

79.7 Refer to 81.4

79.8 and 79.9 Void

79.10 Green, L.O. & Young, L.R. "Absence of cross-axis plasticity in the vestibulo-ocular reflex," abstract 1243, Society for Neurosciences Annual Meeting, 1979.

79.11 Refer to 81.16

79.12 Oman, C.M. "Theoretical model for semicircular cupula motion," MIT Research Laboratory of Electronics Progress Report No. 121:143-144, January, 1979.

79.13 Greene, L. & Young, L.R. "Prism modification of the vestibulo-ocular reflex does not transfer across axes," presented to the Society for Neurosciences Annual Meeting, 1979.

79.14 Young, L.R. "Visual vestibular interaction," in Posture and Movement, Talbott, R.E. and Humphrey, D.R. eds., 177- 188, Raven Press, New York, 1979. (Also presented at Sixth International Symposium on Biocybernetics, "Control mechanisms in bio- and ecosystems," IFAC Leipzig, E. Germany, Sept. 12-16, 1977; "Posture & Movement: Perspective for Integrating Sensory and Motor Research on the Mammalian Nervous System" in honor of Prof. John Brookhart, 1977.)

79.15 Yasui, S., Tole, J.R. & Young, L.R. "A fast-reacting and versatile optokinetic stimulus pattern by computer graphics with application examples," IEEE Transactions on Biomedical Engineering BME-26(3):164-166, 1979.

1978

78.1 Tole, J.R., Young, L.R., Oman, C.M. & Weiss, A.D. "An instrumentation system for clinical vestibular testing," presented to the 13th Annual AAMI Meeting, March, 1978.

78.2 Young, L.R. "Visually induced motion in flight simulation," Conference Proceedings 249:16-1-16-8, AGARD Flight Mechanics Panel Specialists Meeting on Piloted Aircraft Environment Simulation Techniques, Brussels, Belgium, April, 1978.

78.3 Peterson, S.K., Frishkopf, L.S., Lechene, C., Oman, C.M., & Weiss, T.F. "Element composition of inner ear lymphs in cats, lizards, and skates determined by electron probe microanalysis of liquid samples," Journal of Comparative Physiology 126:1-14, 1978.

- 78.4 Gai, E.G. & Curry, R.E. "Perseveration effects in detection tasks with correlated decision intervals," IEEE Transactions on Systems, Man and Cybernetics SMC-8(2):93-100, February, 1978.
- 78.5 Tole, J.R., Yorker, J.G. & Renshaw, R.L. "A microprocessor controlled multi degree of freedom chair for vestibular testing," abstract, 31st ACEMB, Atlanta, October 21-25, 1978.
- 78.6 Refer to 79.15
- 78.7 Young, L.R. "Man's internal navigation system," Technology Review 80(6):40-45, 1978.
- 78.8 Oman, C.M. "When you have to fight seasickness," Sail, 49-55, November, 1978.
- 78.9 Oman, C.M., Frishkopf, L.S. & Goldstein, M.H. Jr. "Cupula motion in the semicircular canal of the skate, Raja Erinacea: an experimental investigation," Acta Otolaryngologica 87: 528-538, 1979.
- 78.10 Void
- 78.11 Borah, J., Young, L.R., Curry, R.E., Albery, W.B. & Fiore, M.D., "Motion and orientation sensory mechanism modeling," Proceedings of National Electronics Conference, Chicago, October, 1978.
- 78.12 Borah, J., Young, L.R. & Curry, R.E. "Sensory mechanism modeling," AFHRL-TR-78-83, Final Report July 20, 1977-October 30, 1978.
- 78.13 Young, L.R., Tole, J.R., Oman, C.M. & Weiss, A.D. "A microprocessor based vestibular test battery," Chapter 2 in Vestibular Mechanisms in Health and Disease: VI Extraordinary Meeting of the Barany Society, 135-143, Hood, J. D. ed., Academic Press, London, 1978.
- 78.14 Tole, J.R., Oman, C.M., Michaels, D.L., Weiss, A.D. & Young, L.R. "Nystagmus analysis using a microprocessor based instrument," Chapter 3 in Vestibular Mechanisms in Health and Disease: VI Extraordinary Meeting of the Barany Society, 144-149, Hood, J.D., ed., Academic Press, London, 1978.
- 78.15 Melvill Jones, G. & Young L.R. "Subjective detection of vertical acceleration: a velocity dependent response?," Acta Otolaryngologica 85:45-53, 1978.
- 78.16 Young, L.R. & Loo, D. "Skier falls and injuries: video tape and survey study of mechanisms," Skiing Safety II, J. Figueras, ed. (International Series on Sports Sciences), University Park Press, Baltimore, 1978. (Originally presented at the 2nd International Conference on Ski Trauma and Skiing Safety, Sierra Nevada, Spain, April, 1977.)

1977

- 77.1 Refer to 78.13
- 77.2 Refer to 78.14
- 77.3 Gai, E.G. & Curry, R.E. "Failure detection by pilots during automatic landings: models and experiments," Journal of Aircraft 14(2):135-141, 1977. (Originally presented at the 11th Annual Conference on Manual Control, NASA TM X-62464:78-93, 1975.)
- 77.4 Michaels, D.L. & Tole, J.R. "A microprocessor-based instrument for nystagmus analysis," Proceedings of the IEEE 65(5):730-735, 1977.
- 77.5 Curry, R.E., Hoffman, W.C. & Young, L.R. "Pilot modelling for manned simulation," AFFDL-TR-76-124, 1976.
- 77.6 Refer to 78.15

77.7 Refer to 78.16

77.8 Curry, R.E., Nagel, D.C. & Gai, E.G. "Decision behavior with changing signal strength," *Journal of Mathematical Psychology* 15(1):46-69, 1977.

77.9 Young, L.R. "Pursuit eye movement - what is being pursued?," in *Control of Gaze by Brain Stem Neurons, Developments in Neuroscience, Volume 1*, 29-36, Baker and Berthoz, eds., Elsevier/North Holland Biomedical Press, 1977.

77.10 Zacharias, G.L. & Young, L.R. "Manual control of yaw motion with combined visual and vestibular cues," presented at the 13th Annual Conference on Manual Control, MIT, 1977, 389-402.

77.11 Harkness, L. "Chameleons use accommodation cues to judge distance," *Nature*, 267(5609):346-349, 1977.

77.12 Refer to 79.14

77.13 Young, L.R., Crane, H., Heide, R., Hobbs, P. & Nye, J. "The influence of equipment and skier factors on ski injuries: a nine year study," *Journal of Sports Medicine*, 1977.

77.14 Ormsby, C.C. & Young, L.R. "Integration of semicircular canal and otolith information for multisensory orientation stimuli," *Mathematical Biosciences* 34:1-21, 1977.

77.15 Kron, G., Young, L.R. & Albery, W. "High *g* simulation - The tactical aircraft simulator problem," 10th Annual NTEC Simulation Meeting, July 19, 1977.

77.16 Zacharias, G.L. & Young, L.R. "A conflict model for visual and vestibular influences on perception of rotation about the vertical," *Neuroscience Abstracts* III:547, 1977.

77.17 Void

77.18 Berthoz, A., Young, L.R. & Oliveras, F. "Action of alcohol on vestibular compensation and habituation in the cat," *Acta Otolaryngologica* 84:317-327, 1977.

77.19 Borah, J., Young, L.R. & Curry, R.E. "Sensory mechanism modeling, Interim Report," Air Force Human Resources Laboratory, AFHRL-TR-77-70, 1977.

77.20 Ephrath, A.R. & Curry, R.E. "Detection by pilots of system failures during instrument landings," *IEEE Transactions on Systems, Man and Cybernetics* SMC-7(12):841-848, 1977.

1976

76.1 Young, L.R., Oman, C.M., Crane, H., Emerton, A. & Heide, R. "The etiology of ski injuries: an eight-year study of the skier and his equipment," *Orthopedics Clinics of North America*, 7(1):13-19, 1976.

76.2 Ormsby, C.C. & Young, L.R. "Perception of static orientation in a constant gravito-inertial environment," *Aviation, Space, and Environmental Medicine* 47(2):159-164, 1976.

76.3 Gai, E.G. & Curry, R.E. "A model of the human observer in failure detection tasks," *IEEE Transactions on Systems, Man, and Cybernetics* SMC-6(2):85-94, 1976.

76.4 Allum, J.H.J. & Young, L.R. "The relaxed oscillation technique for the determination of the moment of inertia of limb segments," *Journal of Biomechanics* 9:21-25, 1976.

- 76.5 Vidic, T.R., Barlow, J.S., Oman, C. M., Tole, J.R., Weiss, A.D. & Young, L.R. "Human eye tracking during vertical and horizontal motion," Neuroscience Abstracts II, 1062, Society for Neuroscience 6th Annual Meeting, Toronto, November, 1976.
- 76.6 Young, L.R. & Henn, V.S. "Selective habituation of vestibular nystagmus by visual stimulation in the monkey," Acta Otolaryngologica 82:165-171, 1976.
- 76.7 Curry, R.E. "Sufficient conditions for the uniqueness of parameter estimates from binary-response data," Journal of Mathematical Psychology, 14(1):72-90, 1976.
- 76.8 Young, L.R., Curry, R.E., & Albery, W.B. "A motion sensing model of the human for simulation planning," Proceedings of 9th NTEC/Industry Conference, NAVTRAEQUIPCEN IH-276, 149-152, Orlando, FL, 1976.
- 76.9 Curry, R.E. & Ephrath, A.R. "Monitoring and control of unreliable systems," in Monitoring behavior and supervisory control, 193-203, Sheridan, T.B. & Johannsen, G., eds, Plenum Press, New York, 1976
- 76.10 Curry, R.E. & Gai, E.G. "Detection of random process failures by human monitors," in Monitoring Behavior and Supervisory Control, 205-220, Sheridan, T.B. & Johannsen, G., eds, Plenum Press, New York, 1976.
- 76.11 Curry, R.E., Young, L.R., Hoffman, W.C., & Kugel, D.L. "A pilot model with visual and motion cues," presented at the AIAA Visual Motion and Simulation Conference at Wright Patterson AFB, Ohio, 1976 and the 12th Annual Conference on Manual Control, NASA TM X-73170:25-27, Urbana, Illinois, May, 1976.
- 76.12 Curry, R.E. & Govindaraj, T. "The psychophysics of random processes," Proceedings of 12th Annual Conference on Manual Control, NASA TM X-73170:50-59, Urbana, Illinois, May, 1976.
- 76.13 Ephrath, A.R. "A novel approach to the cross-adaptive auxiliary task," Proceedings of 12th Annual Conference on Manual Control, NASA TM X-73170:63-71, Urbana, Illinois, May, 1976.
- 76.14 Oman, C.M., Frishkopf, L.S. & Goldstein, M.H. "An upper limit on the physiological range of cupula motion in the semicircular canal of the skate," Neuroscience Abstracts II:1053, 1976.
- 76.15 Tole, J.R., & Michaels, D.L. "A nystagmus analysis system implemented with a microprocessor," presented to the 29th Annual Conference on Engineering in Medicine & Biology, Boston, November 6-10, 1976.
- 76.16 Hoffman, W.C., Kleinman, D.L. & Young, L.R. "Display/control requirements for automated VTOL aircraft," Aerospace Systems Inc., ASI-TR-76-39, 1976.

1975

- 75.1 Allum, J.H.J. "Responses to load disturbances in human shoulder muscles: the hypothesis that one component is a pulse test information signal," Experimental Brain Research 22:307-326, 1975.
- 75.2 Allum, J.H.J., Tole, J.R. & Weiss, A.D. "MITNYS-II - a digital program for on-line analysis of nystagmus," IEEE Transactions on Biomedical Engineering, BME-22(3):196-202, 1975.
- 75.3 Allum, J.H.J. "A least mean squares CUBIC algorithm for on-line differential of sampled analog signals," IEEE Transactions on Computers C-24(6):585-590, 1975.
- 75.4 Brubaker, R.F., Ezekiel, S., Chin, L., Young, L.R., Johnson, S.A. & Beeler, G.W. "The stress-strain behavior of the corneoscleral envelope of the eye. I. Development of a system for making in vivo measurements using optical interferometry," Experiments in Eye Research, 21:37-46, 1975.
- 75.5 Curry, R.E. "A multinomial maximum likelihood program (MUNOML)," Behavior Research Methods and Instrumentation 7(3):305-307, 1975.

- 75.6 Lauber, J.K., Curry, R.E. & Billings, C.E. "Pilot decision-making behavior during simulated low visibility approaches," Proceedings of 11th Annual Conference on Manual Control, NASA TM X-62464:19-32, 1975.
- 75.7 Curry, R.E., Mirchandani, P. & Price, C.F. "State estimation with coarsely quantized high-data-rate measurements," IEEE Transactions on Aerospace and Electronics Systems AES-11(4):613-621, 1975.
- 75.8 Ephrath, A.R. "Detection of system failures in multi-axes tasks," Proceedings of 11th Annual Conference on Manual Control, NASA TM X-62464:151-169, 1975.
- 75.9 Refer to 77.3
- 75.10 Henn, V.S. & Young, L.R. "Ernst Mach on the vestibular organ 100 years ago," Annals of Oto-Rhino-Laryngol 37:138-148, 1975.
- 75.11 Curry, R.E. "Computer technology: a random search algorithm for laboratory computers," Behavior Methods and Instrumentation, 7(4):369-376, 1975.
- 75.12 Henn, V.S., Young, L.R. & Finley, C. "Vestibular nucleus units in alert monkeys are also influenced by moving visual fields," Fortschritte der Zoologie 23(1): 247-250, 1975.
- 75.13 Laing, R.A., Danisch, L.A. & Young, L.R. "The choroidal eye oximeter: an instrument for measuring oxygen saturation of choroidal blood in vivo," IEEE Transactions on Biomedical Engineering BME-22(3):183-195, 1975.
- 75.14 Ormsby, C.C. & Young, L.R. "Nonlinear model for the perception of static orientation," Fortschritte der Zoologie 23(1):288-294, 1975.
- 75.15 Yasui, S. & Young, L.R. "Eye movements during after-image tracking under sinusoidal and random vestibular stimulation," in Basic Mechanisms of Ocular Motility and their Clinical Implications, 509-513, Lennerstrand, G. & Bach-y-Rita, P., eds., Pergamon Press, Oxford, 1975.
- 75.16 Yasui, S. & Young L.R. "Perceived visual motion as effective stimulus to pursuit eye movement system," Science 190:906-908, 28 November 1975.
- 75.17 Young, L.R. & Sheena, D. "Methods & designs: survey of eye movement recording methods," Behavior Research Methods and Instrumentation 7(5):397-429, 1975.
- 75.18 Young, L.R. & Henn, V.S. "Nystagmus produced by pitch and yaw rotation of monkeys about non-vertical axes," Fortschritte der Zoologie, 23(1):235-246, 1975.
- 75.19 Young, L.R. & Sheena, D. "Eye movement measurement techniques," American Psychologist 30(3):315-330, 1975. (See 88.26)
- 75.20 Young, L.R., Oman, C.M. & Dichgans, J.M. "Influence of head orientation on visually induced pitch and roll sensation," Aviation, Space, and Environmental Medicine 46(3):264-268. March, 1975.
- 75.21 Berthoz, A., Pavard, B. & Young, L.R. "Perception of linear horizontal self-motion induced by peripheral vision (linearvection): Basic characteristics and visual-vestibular interactions," Experimental Brain Research 23:471-489, 1975.
- 75.22 Young, L.R. & Chu, W. "Pursuit eye movements generated during apparent motion," Neuroscience Abstracts 1:232, 1975.
- 75.23 Henn, V.S. & Young, L.R. "Influence of moving visual stimuli on vestibular nucleus neurons," presented at the 9th Symposium on Center for Visual Science, "Eye movements and motion perception," Rochester, NY, 1975.

75.24 Tole, J. & Weiss, A. "A new air caloric stimulator for vestibular testing," Presented at the 3rd New England Bioengineering Conference, Tufts University, Boston, 1975.

1974

74.1 Berthoz, A., Pavard, B. & Young, L.R. "Role de la vision peripherique et interactions visuovestibulaires dans la perception exocentrique du mouvement lineaire chez l'homme," *Comptes Rendus des Sceances de l'Academie de Sciences, Paris*, t.278 (Series D): 1605-1608, 18 March 1974.

74.2 Chouet, B.A. & Young, L.R. "Tracking with head position using an electrooptical monitor," *IEEE Transactions on Systems, Man and Cybernetics SMC-4(2)*:192-204, 1974; also *Proceedings of 10th Annual Conference on Manual Control*, 227-254, Wright Patterson AFB, Ohio, 1974.

74.3 Henn, V.S., Young, L.R. & Finley, C. "Vestibular nucleus units in alert monkeys are also influenced by moving visual fields," *Brain Research* 71: 144-149, 1974.

74.4 Young, L.R. & Oman, C.M. "Influence of head position and field on visually induced motion effects in three axes of rotation," *Proceedings of 10th Annual Conference on Manual Control*, 319-340, Wright Patterson AFB, Ohio, 1974.

74.5 Young, L.R. "Role of the vestibular system in posture and movement," Chapter 27 in *Medical Physiology*, 13th Edition, Vol.1, 704-721, Mountcastle, V.V., ed., C.V. Mosby Co., St. Louis, 1974.

74.6 Young, L.R. & Henn, V.S. "Selective habituation of vestibular nystagmus by visual stimulation," *Acta Otolaryngologica* 77:159-166, 1974.

74.7 Young, L.R. "Physical characteristics of the eye which are used in eye movement measurements," in *Eye Movements and Psychological Processes*, 157-160, Monty, R.A. & Senders, J.W., eds., Lawrence Erlbaum Associates, Hillsdale, NY, 1974. (Originally presented at the Conference on Eye Movement Research and Technology, Princeton, NJ, 1974.)

74.8 Tang, J.T., Held, R. & Young, L.R. "Interaction of visually induced and labyrinthine-sensed postural tilt," abstract, *Psychonomic Society Inc. 15th Annual Meeting*, Boston, November 21-23, 1974.

74.9 Henn, V.S., Young, L.R. & Finley, C. "Unit recording from the vestibular nucleus in the alert monkey," abstract, *Proceedings of the Workshop Meeting of the European Brain and Behavior Society: Vestibular Functions and Behavior* 14-15, Kuypers, H.G.J.M., ed., Elsevier Scientific Publishing Co., 1974. Conference was held in Pavia, Italy, April 25-26, 1974.

1973

73.1 Drinker, P.A., Noonan, D.C., Ramanaiah, N. & Tole, J.R. "Use of a sodium chloride-phosphate buffer for pH standardization in a new blood-gas analyzer with an isotonic sodium chloride bridge," *Clinical Chemistry* 19:1243-1247, 1973.

73.2 Void

73.3 Gai, E. & Curry, R.E. "Signal detection with time varying signal to noise ratio," *Proceedings of 9th Annual Conference on Manual Control*:401, Cambridge, MA, May 23-25, 1973.

73.4 Garg, D.P. & Geisler, E.G. "Limit cycle analysis for control systems of high order," *International Journal of Control* 17(6):1225-1232, 1973.

73.5 Void

73.6 Refer to 73.16

- 73.7 Preyss, A.E., Meiry, J.L., Potter, J.E. & Curry, R.E. "Flight-test experience with a snap-shoot display," abstract, Proceedings of 9th Annual Conference on Manual Control:195, Cambridge, MA, May 23-25, 1973.
- 73.8 Oman, C.M. & Frishkopf, L.S. "Neural responses of lateral line organs in necturus maculosus to direct mechanical stimulation," MIT Research Laboratory of Electronics Quarterly Progress Report #108:321-338, January 15, 1973.
- 73.9 Oman, C.M., & Frishkopf, L.S. "Dynamic response of freestanding lateral line organs," Journal of the Acoustical Society of America, 54(1):293, 1973.
- 73.10 Oman, C.M., Allum, J.H., Tole, J.R. & Young, L.R. "Automated nystagmus analysis," AGARD-CP-128, AGARD Conference Proceedings No. 128, A22/1-A22/9, AGARD NATO Conference:Use of Nystagmography in Aviation Medicine, Pensacola, FL, May 14-15, 1973.
- 73.11 Weiss, A.D. & Tole, J.R. "Effect of galvanic vestibular stimulation on rotation testing," Advanced Oto-Rhino-Laryngologica 19:311-317, 1973.
- 73.12 Young, L.R., Oman, C.M. & Dichgans, J.M. "Visually induced sensations of motion," Proceedings of 9th Annual Conference on Manual Control, 193-195, Cambridge, MA, May 23-25, 1973.
- 73.13 Young, L.R., Oman, C.M., Curry, R.E. & Dichgans, J.M. "A descriptive model of multi-sensor human spatial orientation with applications to visually induced sensations of motion," AIAA Paper No. 73-915, AIAA Visual and Motion Simulation Conference, Palo Alto, CA, September 10-12, 1973.
- 73.14 Young, L.R., Dichgans, J., Murphy, R. & Brandt, T. "Interaction of optokinetic and vestibular stimuli in motion perception," Acta Otolaryngologica 76:24-31, 1973.
- 73.15 Young, L.R. "Human control capabilities," Chapter 16 in Bioastronautics Data Book, 2nd Edition, Parker & West, eds., also, NASA SP-3006:751-806, AIAA Visual and Motion Simulation Conference, Palo Alto, CA, September 10-12, 1973.
- 73.16 Melanson, D., Curry, R.E., Howell, J.D. & Connelly, M.E. "The effect of communications and traffic situation displays on pilots' awareness of traffic in the terminal area," Proceedings of the Conference on Systems, Man and Cybernetics, 1973.
- 73.17 Young, L.R. "Men in complex systems: models and experiments," Lecture given at Conservatoire National des Arts et Metiers, Paris, March, 1973.
- 73.18 Hollister, W.M., LaPointe, A., Oman, C.M. & Tole, J.R. "Identifying and determining skill degradations of private and commercial pilots," REPORT FAA-RD-73-91, Department of Transportation, September 1973.

1972

- 72.1 Basil, P. & Curry, R.E. "A design procedure utilizing crossfeeds for coupled multiloop systems," AGARD Conference Preprint #137 on Advances in Control Systems, 7/1-7/10, 1972.
- 72.2 Curry, R.E., Dumeurger, J., Day, E.H. & Senders, J.W. "A simulation to evaluate PWI system parameters in visual search," presented at the NICE Conference, 1971.
- 72.3 Frishkopf, L.E., Liff, H.J., & Oman, C.M. "Structure and motion of cupula of lateral line organs in Necturus maculosus," MIT Research Laboratory of Electronics Quarterly Progress Report #104:326-343, January 15, 1972.
- 72.4 Dichgans, J., Held, R., Young, L.R. & Brandt, Th. "Moving visual scenes influence the apparent direction of gravity," Science 178:1217-1219, 1972.

- 72.5 Oman, C.M. & Young, L.R. "Physiological range of pressure difference and cupula deflections in the human semicircular canal: theoretical considerations," *Acta Otolaryngologica* 74:324-331, 1972.
- 72.6 Oman, C.M. & Young, L.R. "Physiological range of pressure difference and cupula deflections in the human semicircular canal," *Progress in Brain Research*, Vol. 37, 538-539, *Basic Aspects of Central Vestibular Mechanisms*, Brodal, A. & Pompeiano, O., eds., Elsevier, Amsterdam, 1972.
- 72.7 Young, L.R. "Cross coupling between effects of linear and angular acceleration on vestibular nystagmus," *Bibliotheca Ophthalmologica* 82:116-121, Streiff, E.B., ed., Karger, Basel, 1972.
- 72.8 Mirchandani, P. "An auditory display in a dual-axis tracking task," *IEEE Transactions on Systems, Man, and Cybernetics* SMC-2(3):375-380, 1972.
- 72.9 Koenig, E., Dichgans, J. & Brandt, Th. Murphy, " Subjective velocities in egocentric and exocentric motion perception," abstract 155, *Zeichenerkennung durch biologische und technische Systeme (Pattern Recognition in Biological and Technical Systems)*, Springer-Verlag, Berlin, 1972.
- 72.10 Void
- 72.11 Von Renner, L.C. "University role in astronaut life support systems: extravehicular guidance and stabilization in space," NASA CR-1919, 1972.
- 72.12 Curry, R.E. "A Bayesian model for visual space perception," *Proceedings of 7th Annual Conference on Manual Control*, 187-196, NASA SP-281, 1972. (Conference in Los Angeles, CA, June 2-4, 1971.)

1971

- 71.1 Anderson, R.E., Curry, R.E., Weiss, H.G., Simpson, R.W., Connelly, M.E. & Imrich, T. "Consideration for the design of an onboard air traffic situation display," *7th Annual Conference on Manual Control*, NASA SP-281, Los Angeles, CA, June 2-4, 1971.
- 71.2 Refer to 72.12
- 71.3 Nashner, L.M. "Model describing vestibular detection of body sway motion," *Acta Otolaryngologica* 72:429-436, 1971.
- 71.4 Tole, J.R. & Young, L.R. "MITNYS: A hybrid program for on-line analysis of nystagmus," *Aerospace Medicine* 42(5):508-511, 1971.
- 71.5 Refer to 73.11
- 71.6 Young, L.R. "Developments in modelling visual-vestibular interactions," AMRL TR 71-14, 1971.
- 71.7 Young, L.R. "Integrated display principles and some applications to V/STOL aircraft," AGARD Conference Preprint #96 on *Guidance and Control Displays*, 1971.
- 71.8 Young, L.R. "Modelling disorientation problems in a rotating spacecraft," *Proceedings of 7th Annual Conference on Manual Control*, NASA SP-281, 1971.
- 71.9 Young, L.R. "Modelling human disorientation in a rotating spacecraft," AIAA Paper 71-870, *AIAA/ASMA Weightlessness & Artificial Gravity Meeting*, Williamsburg, VA, August 9-11, 1971.
- 71.10 Young, L.R. "Pursuit eye tracking movements," in *The Control of Eye Movements*, 429-443, Collins, C. & Bach-y-Rita, P., eds., Academic Press, New York, 1971.

71.11 Galiana, H.L. "University role in astronaut life support systems: monitoring atmospheric contaminants," NASA CR-1826, 1971.

1970

70.1 Curry, R.E., Vander Velde, W.E. & Potter, J.E. "Nonlinear estimation with quantized measurements - PCM, predictive quantization, and data compression," IEEE Transactions on Informational Theory IT-16(2):152-161, 1970.

70.2 Curry, R.E., & Vander Velde, W.E. "Extended criterion for statistical linearization," IEEE Transactions on Automatic Control, AC-15(1):106-108, 1970.

70.3 Void

70.4 Curry, R.E. "Estimation and control with quantized measurements," presented at the Measurements Systems Lab-NASA Symposium, Cambridge, MA, 1970. CURRENTLY UNAVAILABLE

70.5 Refer to 71.11

70.6 Nashner, L.M. & Meiry, J.L. "Sensory feedback in human posture control," Proceedings of 6th Annual Conference on Manual Control, 249-268, Wright Patterson AFB, Ohio, April 7-9, 1970.

70.7 Natapoff, A. "How symmetry restricts symmetric choice," Journal of Mathematical Psychology 7(3):444-465, 1970.

70.8 Reid, R.C. "University role in astronaut life support systems: atmospheres," NASA CR-1552, 1970.

70.9 Tole, J.R. "University role in astronaut life support systems: water recovery systems," NASA CR-1629, 1970.

70.10 Refer to 72.11

70.11 Van Houtte, N.A.J. "A perspective glideslope indicating system," Proceedings of 6th Annual Conference on Manual Control, 117-131, Wright Patterson AFB, Ohio, April 7-9, 1970.

70.12 Van Houtte, N.A.J. & Oman, C.M. "The MIT Man Vehicle Laboratory PDP-8 programming system," DECUS Spring Symposium, 165-167, 1970.

70.13 Van Houtte, N.A.J. & Oman, C.M. "Hybrid computer display techniques involving a PDP-8," DECUS Spring Symposium, 235-239, 1970.

70.14 Young, L.R. "Dynamic control models of the semicircular canals," in Dynamic Response of Biomechanical Systems, 133-145, The American Society of Mechanical Engineers, New York, NY, 1970.

70.15 Young, L.R. "Functions of the vestibular system in human guidance and control," Chapter 5-3 in Principles and Practices of Bionics, AGARD Conference Proceedings #44, 390-407, von Gierke, H.E., Keidel, W.D. & Ostreicher, H.L., eds., Technivision, Slough England, 1970.

70.16 Young, L.R. "Recording eye position," in Biomedical Engineering Systems, 1-20, Clines and Milsum, eds., McGraw Hill, 1970.

70.17 Young, L.R. & Oman, C.M. "Modeling adaptation in human semicircular canal response to rotation," New York Academy of Sciences Series II 32(4):489-494, 1970.

70.18 Young, L.R. "On visual-vestibular interactions," Proceedings of 5th Symposium on the Role of the Vestibular Organs in Space Exploration, NASA SP-314:205-210, 1970.

70.19 Young, L.R. & Dinsdale, P.B. "Contributions of roll and yaw motion cues in manual control," Proceedings of 5th Annual NASA-University Conference on Manual Control, NASA SP-215:609-613, 1970. (Conference held March 27-29, 1969.)

70.20 Meiry, J.L., Young, L.R., Biophysical Evaluation of the Human Vestibular System, MV-70-5, Status Report on NASA Grant NGR 22-009-156 for the period July 1969 to September 1970

1969

69.1 Curry, R.E. "A new algorithm for suboptimal stochastic control," IEEE Transactions on Automatic Control, AC-14(5):533-536, 1969.

69.2 Curry, R.E. "A separation for non-linear measurements," IEEE Transactions on Automatic Control, AC-14, 1969.

69.3 Li, Y.T. "Digital controller for feedback and adaptive control systems," Electronic Design, 1969. (CURRENTLY UNAVAILABLE)

69.4 Void

69.5 Young, L.R. "On adaptive manual controls," IEEE Transactions, Man Machine Systems MMS-10(4 Part II):292-331, 1969.

69.6 Young, L.R. "The current status of vestibular system models," Automatica 5:369-383, December, 1969.

69.7 Young, L.R., Oman, C.M., Vircks, R.M., Van Houtte, N.A.J. & Kemp, G.G. "Three display techniques at the Man-Vehicle Lab," Proceedings of 5th Annual Conference on Manual Control, NASA SP-215:271-284, 1969.

69.8 Young, L.R. & Oman, C.M. "Model for vestibular adaptation to horizontal rotation," Aerospace Medicine 40(10):1076-1080, 1969.

69.9 Young, L.R. "Vestibular models," presented at the 10th Joint Automatic Control Conference of the American Automatic Control Council, Boulder, Colorado, August 5-7, 1969.

69.10 Young, L.R. "Biocybernetics of the vestibular systems," in The Proceedings of an International Symposium on Biocybernetics of the Central Nervous System, 79-125, Procter, L. ed., Little Brown and Company, Boston, 1969. (Conference was held in Washington, D.C., February, 1968.)

69.11 Refer to 70.19

69.12 Laing, R., Danisch, L.A., & Young, L.R. "Final Report: Non-Invasive, Multichromatic Eye Oximeter." Prepared under contract No. NAS 12-2018. Cambridge, MA: NASA Electronics Research Center, August 1969. (See also 75.13.)

69.13 Meiry, J.L., Young, L.R., Biophysical Evaluation of the Human Vestibular System, MV-69-3, Status Report on NASA Grant NGR 22-009-156 for the period January 1968 to June 1969

1968

68.1 Li, Y.T., Meiry, J.L. & Roeseler, W.G. "An active role mode suspension system for ground vehicles," Journal of Basic Engineering, 167-174, June, 1968. (Originally presented at Joint Automatic Control Conference, Seattle, August 17-19, 1966.)

68.2 Meiry, J.L. "Space and deep submergence vehicles, mission and guidance, navigation and control synthesis," *Journal of Hydronautics* 3:88, 1968.

68.3 Meiry, J.L. "The control system of the deep submergence rescue vehicle," presented at the 4th Symposium on Marine Instrumentation.

68.4 See 68.5

68.5 Preyss, A.E. & Meiry, J.L. "Stochastic modeling of human learning behavior," *IEEE Transactions on Man-Machine Systems*, MMS-9(2):36-46, 1968.

68.6 Shirley, R.S. & Young, L.R. "Motion cues in man-vehicle control," *IEEE Transactions on Man-Machine Systems*, MMS-9(4):121-128, 1968.

68.7 Young, L.R. "A control model of the vestibular system," presented at the International Federation of Automatic Control Symposium on Technical and Biological Problems in Cybernetics, Yerevan, Armenia, USSR, 1968. (Article is in Russian)

68.8 Young, L.R. "Functions of the vestibular system in human guidance and control," *AGARD Conference Proceedings #44*, Brussels, Belgium, 1968.

68.9 Young, L.R. "Motion cues and vestibular models," *NEREM Record*, 192-193, 1968.

68.10 Young, L.R., Forster, J.D. & Van Houtte, N.A.J. "A revised stochastic sampled data model for eye tracking movements," 4th Annual Conference on Manual Control, NASA SP-192:489-509, 1968.

68.11 Young, L.R. & Meiry, J.L. "A revised dynamic otolith model," *Aerospace Medicine* 39(6):606-608, 1968.

68.12 Meiry, J.L., Young, L.R., Biophysical Evaluation of the Human Vestibular System, MV-68-1, Fourth Semi-Annual Status Report on NASA Grant NGR 22-009-156

1967

67.1 Natapoff, A. "The consideration of evolutionary conservatism towards a theory of the human brain," *Perspectives in Biology and Medicine*, 10(3):445-461, 1967.

67.2 Preyss, A.E. & Meiry, J.L. "Stochastic modelling of human learning behavior," *IEEE Transactions on Man-Machine Systems* 9(2):36-46, 1967. (Presented at the USC NASA Conference on Manual Control, NASA SP-144:327-349, 1967.)

67.3 Steer, R.W., Li, Y.T., Young, L.R. & Meiry, J.L. "Physical properties of the labyrinthine fluids and quantification of the phenomenon of caloric stimulation," *Proceedings of 3rd Symposium on the Role of the Vestibular Organs in Space Exploration*, NASA SP-152:409-420, Pensacola, FL, January 24-26, 1967.

67.4 Yasui, S. & Young, L.R. "Manual time-optimal control for high-order plants," *USC-NASA Conference on Manual Control*, NASA SP-144:351-370, 1967.

67.5 Young, L.R. & Meiry, J.L. "A revised dynamic otolith model," *Proceedings of 3rd Symposium on the Role of the Vestibular Organs in Space Exploration*, NASA SP-152:363-368, 1967; *Aerospace Medicine* 39(6):606-608, 1968.

67.7 Young, L.R. "Effects of linear acceleration on vestibular nystagmus," *Proceedings of 3rd Symposium on the Role of the Vestibular Organs in Space Exploration*, NASA SP-152:383-391, Pensacola, FL, January 24-26, 1967.

67.8 Young, L.R. & Brubaker, R.F. "Noninvasive venous pressure monitoring by the pressure chamber occlusion method," presented at the 20th Annual Conference on Engineering in Medicine and Biology, Boston, November 13-16, 1967.

- 67.9 Young, L.R. "Some effects of motion cues on manual tracking," *Journal of Spacecraft and Rockets* 4(10):1300-1303, 1967.
- 67.10 Brubaker, R.F., Young, L.R., Worthen, D.M., Pines, J., Attinger, E.O., Molner, S.F. "Feasability Study of Noninvasive Venous Pressure Measurement", Biosystems, Inc., Cambridge, MA, April 1967.
- 67.11 Biosystem, Inc, Cambridge, MA, Technical Proposal for The Continuation of Research on a Functional Model of The Human Non-Auditory Labyrinths., August 1967.
- 67.12 Meiry, J.L., Young, L.R., Biophysical Evaluation on the Human Vestibular System, MV-67-2, Second Semi-Annual Status Report on NASA Grant NGR 22-009-156
- 67.13 Meiry, J.L., Young, L.R., Biophysical Evaluation on the Human Vestibular System, MV-67-3 , Third Semi-Annual Status Report on NASA Grant NGR 22-009-156

1966

- 66.1 Li, Y.T., Young, L.R., & Meiry, J.L. "Adaptive functions of man in vehicle control systems," in *Theory of Self Adaptive Control Systems*, 43-56, Proceedings of 2nd IFAC Symposium 1965, Plenum Press, NY, 1966.
- 66.2 Young, L.R. "Some effects of motion cues on manual tracking," presented at The Human Operator in Aircraft and Spacecraft Controls Symposium, NATO Headquarters, Paris, September 5-6, 1966; MIT-NASA Conference on Manual Control NASA-SP-128, 1966.
- 66.3 Young, L.R., Meiry, J.L. & Li, Y.T. "Control engineering approaches to human dynamic spatial orientation," 2nd Symposium on the Role of the Vestibular Organs in Space Exploration, NASA SP-115:217-227, Ames Research Center, CA, January 25-27, 1966.
- 66.4 Young, L.R. & Winblade, R. "MIT-NASA working conference on manual control," *IEEE Spectrum*, 88-93, November, 1966.
- 66.7 Meiry, J.L., Young, L.R., Biophysical Evaluation of the Human Vestibular System, MV – 66-2, First Semi-Annual Status Report on NASA Grant NGR 22-009-156

1965

- 65.1 Kilpatrick, P. & Young, L.R. "A study of the effect of a no-protein diet and control stick variations on manual tracking performance for a system with adaptive unstable dynamics," Internal Report, 1965.
- 65.2 Li, Y.T., Lee, S.Y., & Young, L.R. "Methodology in instrumentation," Internal Report, 1965.
- 65.4 Meiry, J.L. "A mathematical model for the neck receptors-ocular reflex," 18th Annual Conference on Engineering in Medicine & Biology, Philadelphia, 1965.
- 65.5 Young, L.R. & Kupfer, C. "A systems analysis view of intraocular pressure regulation," Digest of the 6th International Conference on Medical Electronics and Biological Engineering, 420-421, Tokyo, 1965.

- 65.6 Young, L.R. & Meiry, J.L. "Bang bang aspects of manual control in high order systems," IEEE Transactions on Automatic Control AC-10(3):336-341, July, 1965.
- 65.7 Young, L.R. & Stark, L. Biological control systems – a creitical review and evaluation: Developments in manual control. NASA CR-190. 1965
- 65.8 Young, L.R., "Thresholds to Linear Acceleration", MVL Manuscript, December 31, 1965, Prof. Young, tape #1: Notes on the MIT –Navy vestibular Experiment.

1964

- 64.1 Young, L.R. "The dead zone to saccadic eye movement," Symposium of Biomedical Engineering, XVI Physiological Control Systems (Two) pp. 360-362, Marquette University, 1964.
- 64.2 Draper, C.S., Whitaker, H.P. & Young, L.R. "The roles of men and instruments in control and guidance systems for spacecraft," presented at XVth International Astronautical Congress, Warsaw, Poland, September 7-12, 1964.

1963

- 63.1 Li, Y.T., Meiry, J.L., & Curry, R.E. "On the ideal sampler approximation," International Federation of Automatic Control, Basel, Switzerland, 1963.
- 63.2 Young, L.R. "A sampled data model for eye tracking movements," International Federation of Automatic Control, Basel, Switzerland, September, 1963; Automatic and Remote Control (Butterworths), pp. 454-463, 1963.
- 63.2a Abstract for paper 63.2
- 63.3 Young, L.R. "Measuring eye movements," American Journal of Medical Electronics 300-306, 1963.
- 63.4 Young, L.R., Green, D.M., Elkind, J.I. & Kelly, J.A. "Adaptive dynamic response characteristics of the human operator in simple manual control," IEEE Transactions on Human Factors in Electronics, 6-13, 1963; NASA TN D-2255, 1964.
- 63.5 Young, L.R. & Stark, L. "A discrete model for eye tracking movements," IEEE Transactions on Military Electronics MIL-7:113-115, 1963.
- 63.6 Young, L.R. & Stark, L. "Ein Abtastmodel fur Augenfolgebewegungen," Regelungstechnik, 11(4):148-151, 1963.
- 63.7 Young, L.R. & Stark, L. "Variable feedback experiments testing a sampled data model for eye tracking movements," IEEE Transactions on Human Factors in Electronics HFE-4:38-51, 1963.

1962

- 62.1 Stark, L., Vossius, G. & Young, L.R. "Predictive control of eye tracking movements," IRE Transactions on Human Factors in Electronics, HFE-3:52-57, 1962.
- 62.2 Young, L.R. "Discontinuous biological control: the eye movement system," 15th Annual Conference on Engineering in Medicine & Biology, Chicago, November 5-7, 1962.
- 62.3 Stark, L. & Young, L.R. "Defining the human equation," presented to the American Rocket Society, Los Angeles, CA, November 13, 1962.

