

MAN-VEHICLE LABORATORY

THESES

June 2017

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

37-219

Cambridge, Massachusetts 02139

1962

Howland, H.R., **An Angular Head-Position Indicator**, S.B. in Electrical Engineering, June 1962.

Young, L.R., **A Sampled Data Model for Eye Tracking Movements**, Sc.D. in Aeronautics and Astronautics, June 1962.

1963

Oster, R.J., **An Analysis and Comparison of Two Principles Used in Wrist Watches**, S.M. in Aeronautics and Astronautics, November 1963.

1964

Duke, C.M. Jr. and Jones, M.S., **Human Performance During a Simulated Apollo Mid-Course Navigation Sighting**, S.M. in Aeronautics and Astronautics, June 1964.

Kilpatrick, P.S., **Comparison of Relay and Manual Controllers for Systems with High Order Dynamics**, S.B. in Aeronautics and Astronautics, May 1964.

Schulte, R.J. and Vreeland, R.E., **The Design and Construction of an Acceleration Cart**, S.M. in Aeronautics and Astronautics, June 1964.

1965

Johnson, I.S.C., Jr., **Human Optical Tracking of Stroboscopic Beacon for Orbital Rendezvous**, S.M. in Aeronautics and Astronautics, September 1965.

Kilpatrick, P.S., **Bending Mode Acceleration Influence on Pilot Control of Flexible Booster Dynamics**, S.M. in Aeronautics and Astronautics, September 1965.

Maimon, S.R., **Mathematical Modelling of the Aortic Presso-Receptor System for Gross Outputs**, S.M. in Aeronautics and Astronautics, June 1965.

Meiry, J.L., **The Vestibular System and Human Dynamic Space Orientation**, Sc.D. in Aeronautics and Astronautics, June 1965.

Vuorikari, V.O., **Human Role in the Control Loop of the Automatic Landing Aircraft**, S.M. in Aeronautics and Astronautics, June 1965.

1966

Benjamin, P., **Visual and Motion Cues in Helicopter Flight**, S.M. in Aeronautics and Astronautics, January 1966.

1967

Chien, T-T., **Human Learning Behavior in Manual Control Tasks**, S.M. in Aeronautics and Astronautics, September 1967.

Friedman, G.R., **Helicopter Control: A Multi-Loop Manual Control System**, S.B. and S.M. in Aeronautics and Astronautics, June 1967.

Katz, G.R., **Perception of Rotation Nystagmus and Subjective Response at Low Frequency Stimulation**, S.M. in Aeronautics and Astronautics, September 1967.

Nashner, L.M., **A Rate Gyro Autopilot for a Motorbike**, S.M. in Aeronautics and Astronautics, January 1967.

Nozawa, Y., **Optimal Pre-Launch Test Duration for a Space System**, Sc.D. in Aeronautics and Astronautics, October 1967.

Preyss, A.E., **A Theory and Model of Human Learning Behavior in a Manual Control Task**, Sc.D. in Aeronautics and Astronautics, February 1967.

Steer, R.W., **The Influence of Angular and Linear Acceleration and Thermal Stimulation on the Human Semicircular Canal**, Sc.D. in Aeronautics and Astronautics, August 1967.

Yasui, S., **The Use of the Chatter Mode in Self-Adaptive Systems**, S.M. in Aeronautics and Astronautics, September 1967.

1968

Allum, J.H.J., **Neural Pre-Processing in the Visual System - An Hypothesis**, S.M. in Mechanical Engineering, May 1968.

Curry, R.E., **Estimation and Control with Quantized Measurements**, Ph.D. in Aeronautics and Astronautics, May 1968.

Dinsdale, P.B., **Relative Effects of Roll and Yaw Motion Cues in Manual Control**, S.M. in Aeronautics and Astronautics, September 1968.

Forster, J.D., **A Stochastic Revised Sampled Data Model for Eye Tracking Movements**, S.M. in Aeronautics and Astronautics, June 1968.

Oman, C.M., **Influence of Adaptation on the Human Semicircular Canals and the Role of the Subjective Angular Velocity Cues in Spatial Orientation**, S.M. in Aeronautics and Astronautics, September 1968.

Shirley, R.S., **Motion Cues in Man Vehicle Control**, Sc.D. in Aeronautics and Astronautics, January 1968.

Vircks, R.M., **Investigation of Head Movements and Intensity as Depth Cues in a Perspective Contact Analog Display**, S.M. in Aeronautics and Astronautics, September 1968.

1969

Kemp, G.G., **A VTOL Prediction Display**, S.M. in Aeronautics and Astronautics, September 1969

Noggle, P.L., **Manual Control of Unstable Vehicles Using Kinesthetic Cues**, S.M. in Aeronautics and Astronautics, March 1969.

Sheena, D., **A System for Instantaneous Wide Angle Eye Position Measurement**, Ph.D. in Electrical Engineering, June 1969.

1970

Nashner, L.M., **Sensory Feedback in Human Posture Control**, Sc.D. in Aeronautics and Astronautics, June 1970.

Smith, T.B. III, **Determination of the Optimum Resolution Element for a Pilot Warning Indicator**, S.M. in Aeronautics and Astronautics, June 1970.

Tole, J.R., **Galvanic Stimulation and the Perception of Rotation**, S.M. in Aeronautics and Astronautics, June 1970.

Van Houtte, N.A.J., **Display Instrumentation for V/STOL Aircraft in Landing**, Sc.D. in Aeronautics and Astronautics, June 1970.

Von Renner, L.C., **Extravehicular Attitude Control by Use of Head Motions**, S.M. in Aeronautics and Astronautics, June 1970.

1971

Anderson, R.E., **Format Evaluation for an Airborne Air Traffic Situation Display**, S.M. in Aeronautics and Astronautics, June 1971.

Beard, R.V., **Failure Accommodation in Linear Systems through Self-Reorganization**, Ph.D. in Aeronautics and Astronautics, February 1971.

Mirchandani, P.B., **Evaluation of a Supplementary Auditory Display in a Dual Axis Compensatory Task**, S.M. in Aeronautics and Astronautics, September 1971.

1972

Basile, P.S., **A Design Procedure Utilizing Crossfeeds for Coupled Multiloop Systems**, S.M. in Aeronautics and Astronautics, May 1972.

Chouet, B.A., **An Electro-Optical Attitude Control System for Astronaut Space Activities**, S.M. in Aeronautics and Astronautics, June 1972.

Ephrath, A.R., **Automatic Temperature Regulation in Portable Life Support Systems**, S.M. in Aeronautics and Astronautics, January 1972.

Murphy, R.E., **A Display System to Induce Self Rotation**, S.M. in Aeronautics and Astronautics, June 1972.

Oman, C.M., **Dynamic Response of the Semicircular Canal and Lateral Line Organs**, Ph.D. in Aeronautics and Astronautics, June 1972.

1973

Burr, C.R., **The Effects of Galvanic Vestibular Stimulation and Neck Rotation on the Ankle Stretch Reflex**, S.M. in Aeronautics and Astronautics, February 1973.

1974

Allum, J.H.J., **The Dynamic Response of the Human Neuromuscular System for Internal-External Rotation of the Humerus**, Sc.D. in Aeronautics and Astronautics, August 1974.

Ormsby, C.C., **Model of Human Dynamic Orientation**, Ph.D. in Aeronautics and Astronautics, January 1974

Perkell, J.S., **A Physiologically-Oriented Model of Tongue Activity in Speech Production**, Ph.D. in Electrical Engineering, September 1974.

Tang, J.T.Y., **Interaction between Visually Induced and Real Lateral Tilts**, S.M. in Aeronautics and Astronautics, February 1974.

Yasui, S. **Nystagmus Generation, Oculomotor Tracking and Visual Motion Perception**, Ph.D. in Aeronautics and Astronautics, February 1974.

1975

Ephrath, A.R., **Pilot Performance in Zero-Visibility Precision Approach**, Ph.D. in Aeronautics and Astronautics, June 1975.

Gai, E.G., **Psychophysical Models for Signal Detection with Time-Varying Uncertainty**, Ph.D. in Aeronautics and Astronautics, January 1975.

Jernigan, M.E., **Eye Movement Analysis in Plotting the Visual Field**, Ph.D. in Electrical Engineering, June 1975.

1976

Borah, J.D., **Human Dynamic Orientation Model Applied to Motion Simulation**, S.M. in Aeronautics and Astronautics, May 1976.

Chao, A., **Quantitative Clinical Measurement of Spasticity**, S.M. in Aeronautics and Astronautics, February 1976.

Chu, W.H.N., **Dynamic Response of Human Linearvection**, S.M. in Aeronautics and Astronautics, February 1976.

Lipson, M.A., **Determination of Null Point in the Response of the Vestibular System to Air Caloric Stimulation**, S.B. in Mechanical Engineering, June 1976.

Tole, J.R., **A Quantitative Study of Diagnostic Techniques for Peripheral Vestibular Disorders**, Sc.D. in Aeronautics and Astronautics, January 1976.

Vidic, T.R., **Clinical Test for Abnormal Human Response to Vertical Acceleration**, S.B. in Electrical Engineering, May 1976.

1977

Barak, E., **A Device for Objective Measurement of Spasticity**, S.M. in Aeronautics and Astronautics, September 1977.

Burch, C.A., **Microprocessor-Controlled Eye Movement Monitor for Clinical Applications**, S.B. in Electrical Engineering and Computer Science, May 1977.

Govindaraj, T., **Detection by Human Observers**, S.M. in Aeronautics and Astronautics, January 1977.

Michaels, D.L., **Microprocessor Analysis of Eye Movements**, S.M. in Electrical Engineering and Computer Science, January 1977.

Riedel, S.A., **A Comparison of Washout Filters Using A Human Dynamic Orientation Model**, S.M. in Aeronautics and Astronautics, September 1977.

Zacharias, G.L., **Motion Sensation Dependence on Visual and Vestibular Cues**, Ph.D. in Instrumentation, September 1977.

1978

Acree, C.W., **Pilot Estimates of Glide Path and Aim Point During Simulated Landing Approaches**, S.M. in Aeronautics and Astronautics, September 1978.

Edelman, E.R., **Detection and Tracking of Eye Movements Using a Video Scanner**, S.B. in Electrical Engineering and Computer Science, May 1978.

Gould, J.M., **Posture Platform to Microprocessor Interface for Acquisition of Vestibular Stability Data**, S.B. in Electrical Engineering and Computer Science, September 1978.

1979

Edelman, E.R., **Video Based Monitoring of Torsional Eye Movements**, S.M. in Electrical Engineering and Computer Science, June 1979.

Huang, J.K., **Visual Field Influence on Motion Sensation in Yaw and on Manual Roll Stabilization**, S.M. in Aeronautics and Astronautics, June 1979.

Lichtenberg, B.K., **Ocular Counterrolling Induced in Humans by Horizontal Accelerations**, Sc.D. in Biomedical Engineering, June 1979.

Melsky, G.S., **The Design of a Device to Test the Dynamic Performance of Ski Bindings**, S.B. in Mechanical Engineering, May 1979.

Mena, D., **A Kinematic Model of the Human Swing Leg for Clinical Applications**, S.M. in Aeronautics and Astronautics, September 1979.

1980

Crites, T.A., **Circularvection and Ocular Counterrolling in Visually Induced Roll Supine and in Weightlessness**, S.M. in Aeronautics and Astronautics, May 1980.

Loo, D.K., **A Hybrid Controller for a Rail Mounted Sled**, S.M. in Aeronautics and Astronautics, May 1980.

Wicke, R.W., **Human Visual-Vestibular Interactions During Postural Responses to Brief Falls**, Ph.D. in Electrical Engineering, July 1980.

1982

Arrott, A.P., **Torsional Eye Movements in Man During Linear Accelerations**, S.M. in Aeronautics and Astronautics, May 1982.

Ish-Shalom, J.I.H., **Design of Optimal Motion for Flight Simulators**, Ph.D. in Biomedical Engineering, December 1982.

Israel, David Alan, **Posture Control in Adolescent Idiopathic Scoliosis**, SM, AeroAstro, February 1982

McQuain, M.T., **Visually Induced Self-Motion: Experiments in Space**, S.B. in Electrical Engineering and Computer Science, May 1982.

Medina-Puerta, A., **Visual Information Processing in Various Degrees of Alertness**, S.M. in Electrical Engineering and Computer Science, October 1982.

1983

Hiltner, D.W., **A Closed-Loop Otolith Assessment Procedure**, S.M. in Aeronautics and Astronautics, January 1983.

Huang, J.K., **Visual and Motion Cues in Lateral and Pitch Simulator Stabilization**, Ph.D. in Aeronautics and Astronautics, February 1983.

Kitchen, B.J., **Horizontal and Vertical Eye Deviations in Response to Linear Accelerations**, S.B. in Electrical Engineering and Computer Science, May 1983.

Massoumnia, M-A., **Detection of Fast Phase of Nystagmus Using Digital Filtering**, S.M. in Aeronautics and Astronautics, May 1983.

Parker, J.A., **Measurement of Torsion from Multi-Temporal Images of the Eye Using Digital Signal Processing Techniques**, Ph. D. in Biomedical Engineering, May 1983.

Wilson, F.R., **Development of a New Test Method for Nordic and Combined Nordic/Alpine Ski Bindings**, S.B. in Mechanical Engineering, May 1983.

1984

Palmer, D.E., **Linear Motion Perception**, S.B. in Biology and Physics, June 1984

1985

Arrott, A.P., **Ocular Torsion and Gravitoinertial Force**, Ph.D. in Biomedical Engineering, May 1985.

Haas, B.N., **Angular Motion Perception in Roll**, S.B. in Mechanical Engineering, June 1985.

Malan, A.R., **Characteristics of Optokinetic Torsion in Upright and Supine Orientations**, S.M. in Aeronautics and Astronautics, June 1985.

McCoy, R.K., **The Study of Human Head Movement on Spacelab-1**, S.M. in Mechanical Engineering, February 1985.

Nagashima, Y., **Digital Signal Processing Techniques for the Measurement of Ocular Counterrolling**, S.M. in Aeronautics and Astronautics, May 1985.

Sullivan, R.B., **The Use of Vestibular Models in Flight Simulator Motion Washout Systems: An Experimental Evaluation**, S.M. in Aeronautics and Astronautics, May 1985.

1986

Adkins, S.P., **Performance Effects of Display and Control Augmentation on a Simulated Manual Orbital Docking Task**, S.M. in Aeronautics and Astronautics, June 1986.

Fordyce, J.E., **An Experimental Protocol for the Evaluation of Graphic Input Devices in Microgravity**, S.M. in Aeronautics and Astronautics, June 1986.

Kneller, E.W., **The Effect of Field of View on the Manual Control of Visually-Simulated Aircraft Roll**, S.M. in Aeronautics and Astronautics, June 1986.

Madhavan, A., **An Investigation of Human Linear Motion Perception**, S.B. in Electrical Engineering, September 1986.

Misovec, K.M., **The Effect of Flight Simulator Motion on Modelled Vestibular Response**, S.M. in Aeronautics and Astronautics, August 1986.

Kulbaski, J.K., **Effects of Weightlessness on the Vestibulo-Ocular Reflex in the Crew of Spacelab1**, S.B. in Mechanical Engineering, June 1986.

1987

Rague, B.W., **Analysis of Abdominal Slow Potentials During Motion Sickness**, S.M. in Aeronautics and Astronautics, May 1987.

1988

Diamandis, P.H., **The Artificial Gravity Sleeper: A Deconditioning Countermeasure for Long Duration Space Habitation**, S.M. in Aeronautics and Astronautics, February, 1988.

Eagon, J.C., **Quantitative Frequency Analysis of the Electrogastragram During Prolonged Motion Sickness**, M.D., April 1988.

An, B., **Human Perception and Indication of the Vertical: Experiments and Models**, S.M. in Aeronautics and Astronautics, August 1988.

1989

Newman, D.J., **Human Mental Workload & Performance in Space: Engineering Development and Policy Aspects**, S.M in Aeronautics and Astronautics and S.M. in Technology and Policy, February 1989.

McDade, T.P., **An Investigation of Adjustable Microgravity Workstation Anthropometrics Through Analyses of Neutral Body Posture and Lower Leg Muscular Fatigue Characteristics**, S.M in Aeronautics and Astronautics, February, 1989.

Alston, A.E., **An Integrated System for Tracking of Landmarks on Video Data: TOMAS The Torsional Ocular Movement Analysis System**, S.M. in Operations Research, June 1989.

Chandra, D., **An Evaluation of Automation for Flight Path Management in Transport Category Aircraft**, S.M. in Aeronautics and Astronautics, August 1989.

Shubentsov, I., **Relationship between Astronaut Head Motion and Space Motion Sickness on Spacelabs 1 and D1**, S.M. in Aeronautics and Astronautics, August 1989.

1990

Merfeld, D.M., **Spatial Orientation in the Squirrel Monkey: An Experimental and Theoretical Investigation**, Ph.D. in Biomedical Engineering, January, 1990.

Shelhamer, M., **Linear Acceleration and Horizontal Eye Movements in Man**, Sc.D. in Biomedical Engineering, January, 1990.

Blanford, C.L., **Frequency Analysis and Diagnostic Classification of Changes in the Human Electrogastragram During Motion Sickness**, S.M. in Electrical Engineering and Computer Science, June 1990.

Mullen, T.J., **Transfer Function Analysis of Autonomic Activity During Motion Sickness**, S.M. in Electrical Engineering, June 1990.

Standish, G.J., **Influence of Generalized Tactile Cues on Motion Sensation and Postural Control**, S.M. in Aeronautics and Astronautics, June 1990.

Tse, M.I., **Ocular Torsion During Linear Acceleration in Space**, S.B. in Mechanical Engineering, June 1990.

McGrath, B.J., **Human Vestibular Response During 3 Gz Centrifuge Stimulation**, S.M. in Aeronautics and Astronautics, September 1990.

1991

Lai, S-H., **CLIPSBASE: A Real-Time Relational Database For The "Principal Investigator-In-A-Box [PI] Expert System**, S.M. in Aeronautics and Astronautics, February, 1991.

Law, G. W., **Measurements of Ocular Counterrolling During Linear Accelerations Using an Electromagnetic Scleral Search Coil System**, S.M. in Aeronautics and Astronautics, August, 1991.

1992

Christie, J.R.I., **Modulation of Optokinetic Nystagmus in Humans by Linear Acceleration, and the Effects of Spaceflight**, S.M. in Aeronautics and Astronautics, February 1992

Jackson, D.K., **Characterization of the Torsional Optokinetic Response to Rolling Visual Fields in Humans**, S.M. in Aeronautics and Astronautics, February 1992

Balkwill, M.D., **Changes in Human Horizontal Angular VOR After the Spacelab SLS-1 Mission**, S.M. in Aeronautics and Astronautics, February 1992

Newman, D.J., **Human Locomotion and Energetics in Simulated Partial Gravity**, Ph.D. in Aerospace Biomedical Engineering, June 1992

Groleau, N., **Model-Based Scientific Discovery: A Study in Space Bioengineering**, Ph.D. in Intelligent Engineering Systems, September 1992

1993

Bilien, V., **Modeling Human Spatial Orientation Perception in a Centrifuge Using Estimation Theory**, S.M. in Aeronautics and Astronautics, February 1993

Davis, G.H., **A Study of the Human Linear Vestibular Ocular Reflex During Nasooccipital Acceleration**, B.S. in Electrical Engineering and Computer Science, May 1993.

Liefeld, J.T., **Changes in Human Horizontal Angular VOR After the Spacelab SL-1 Mission**, S. M. in Aeronautics and Astronautics, May, 1993.

Mendoza, J.C., **Investigation of Optokinetic Nystagmus and the Linear Vestibular-Ocular Reflex**, S. M. in Aeronautics and Astronautics, June, 1993.

Polutchko, K.A., **Using Eye Movements to Quantify Human Sensation of Linear Translation: A Potential Test of Changes Induced by Adaptation to Spaceflight**, S. M. in Aeronautics and Astronautics, June, 1993.

Schivone, Tara, **"The Effect of Center of Mass Displacement on Energy Expenditure in Partial Gravity Environments,"** December 1993. SB

Stephenson, S.B., **Influence of the Visual Field on Manual Roll and Lateral Stabilization**, S. M. in Aeronautics and Astronautics, September, 1993.

Weigel, Annalisa, **"The Effect of Center of Mass Displacement on Energy Expenditure in Partial Gravity Environments,"** December 1993. SB

1994

Lathan, C., **Human Eye Movements in Response to Linear Optokinetic Stimulation and Whole-body Acceleration, and the Effects of Spaceflight**, Ph.D. in Neuroscience, September, 1994.

London, Adam, **"Microgravity Space Simulation in a 0-G Natatorium (MISSION),"** December 1994, SB.

Smith, Robin, **"Microgravity Space Simulation in a 0-G Natatorium (MISSION),"** December 1994

1995

de Souza, J., **A Virtual Environment System for Spatial Orientation Research**, M.S. in Electrical Engineering and Computer Science, May, 1995.

Jensen, Andrea, **"Mechanical Design of a Suspension Simulator,"** MIT Department of Mechanical Engineering, June 1995.

Pouliot, C., **Changes in the Horizontal Angular Vestibulo-ocular Reflex of SLS-2 Space Shuttle Astronauts due to Weightlessness**, M.S. in Aeronautics and Astronautics, February, 1995.

Schaffner, G., **Dynamic Analysis of Astronaut Motions During Extravehicular Activity**, M.S. in Aeronautics and Astronautics, June, 1995

Schultz, K., **Etiology of Perceived Strength Changes in the Muscles of the Legs Following Locomotion under Simulated Low Gravity**, M.S. in Aeronautics and Astronautics, June, 1995.

Lathan, C., **Sensorimotor Adaptation of Human Control Strategies: Ramifications for Future Human-Machine Interface Design**, M.S. in Aeronautics and Astronautics, September 1995.

1996

Sinha, Prashant, **The SLS-2 Mission: Effects of Spaceflight on Static Ocular Counterrolling**, M.E. in Electrical Engineering and Computer Science, June, 1996.

Markmiller, Michael, **Sensory Interactions in Human Perception of Motion**, M.S. in Mechanical Engineering, September, 1996.

Skwersky, Adam, **Effect of Scene Polarity and Head Orientation on Roll Illusions in a Virtual Environment**, M.S. in Mechanical Engineering, September, 1996.

Pabmanabhan, Srikrishna. **Preventive Stepping in Quiet Standing: Effect of Vestibulopathy**, Ph.D., Mechanical Engineering, June 1997.

1997

Neimark, Matthew A. **Microgravity Induced Changes in Horizontal Vestibulo-Ocular Reflexes of SLS-1 & SLS-2 Astronauts**, M.E. in Electrical Engineering, February 1997.

Smith, Robin Lee. **Fault Tree Analysis and Diagnostics Development for PI-in-a-Box with the Neurolab Sleep and Respiration Experiment**, M.S. in Aeronautics and Astronautics, June 1997.

Jackson, Dana Kessler "Keoki." **Development of Full-Body Models for Human Jump Landing Dynamic and Control**, S.D. in Aeronautics and Astronautics, June 1997.

Rasmussen, S.A.M. "Track angle error (TAE) displays and their effect on pilot performance during instrument approaches", S.M. in Aeronautics and Astronautics, June 1997.

1998

Schmidt, Patricia B. **The Effect of G-Seat Tactile Cueing on Linear Motion Perception** S.M. in Aeronautics and Astronautics, February 1998

Nghiem, David, "**A Smart Suit for Muscle Countermeasures in Microgravity**," **Boston University Dept. of Biomedical Engineering**, May 1998. SB

Callini, Gianluca. **Assessment of an Expert System for Space Life Sciences: a Preliminary GroundBased Evaluation of PI-in-a-Box for the Neurolab Sleep and Respiration Experiment**, S.M. in Aeronautics and Astronautics, September 1998.

Amir, Amir R., "**Design and Development of Advanced Load Sensors for the International Space Station**," September 1998

Rochlis, Jennifer L. **A vibrotactile display for aiding extravehicular activity (EVA) navigation in space**, SM in Aeronautics and Astronautics.

Apori, Akwasi, "**Design of a Mechanical Pressure Spacesuit for use on Mars**," June 1998. SB

Thibault, Karen, "**Astronaut Adaptive Arm Motions on the MIR Space Station: Kinematic Analysis**," June 1998, SB

Allibhai, Taslim, "**Mechanical Pressure Suit Leg**," December 1998.

Carreno, M. Eric, "**Performance Testing of Racing Vehicles for Paraplegic Athletes**," December 1998

Carrillo, Jason, "**Performance Testing of Racing Vehicles for Paraplegic Athletes**," December 1998.
SB

Oudonesom, Viengvilay, "**Mechanical Pressure Suit Leg**," December 1998, SB

1999

Tovee, Christine A. **Adaptation to a Linear Vection Stimulus in a Virtual Reality Environment**, S.M. in Aeronautics and Astronautics

Tryfonidis, Michail, "**Robust Adaptive Control Modeling of Human Arm Movements Subject to Altered Gravity and Mechanical Loads**," , PhD, June 1999.

Schaffner, Grant, "**Assessment of Hip Fracture Risk in Astronauts Exposed to Long-term Weightlessness**," Harvard-MIT HST, September 1999.

2000

Cheung, Carol C. **Regulator Control of a Short-Radius Centrifuge and Subjective Responses to Head Turns in a Rotating Environment**, S.M. in Aeronautics and Astronautics, June 2000.

Hutchison, Jr., William, E. **The Development of a Hybrid Virtual Reality/Video View-Morphing Display System for Teleoperation and Teleconferencing**, S.M. Program in System Design and Management, June 2000

Lyne, Lisette E. **Artificial Gravity: Evaluation of Adaptation to Head Using Subjective Measures**, S.M. Aeronautics and Astronautics, June 2000.

Sienko, Kathleen H. **Artificial Gravity: Adaptation of the Vestibulo-Ocular Response to Head Movements during Short-Radius Centrifugation**, S.M. Aeronautics and Astronautics, June 2000.

Richards, Jason T. **Three-Dimensional Spatial Learning in a Virtual Space Station Node**, S.M. Aeronautics and Astronautics, September 2000.

2001

Atamer, Allen, **Reliability Evaluation of an Expert System Diagnostic Aid for a Sleep and Respiration Experiment**, S.M., Aeronautics and Astronautics, February 2001.

Delaney, Melinda Gallo **Ground-Based Study of an Expert System for Human Assistance on the STS-95 Sleep and Respiration Experiment**. S.M., Aeronautics and Astronautics, February 2001.

Diez, Shana, "**Human-Powered Artificial Gravity**," June 2001, SB.

Forti, Dana, "**Human-Powered Artificial Gravity**," June 2001, SB

Jo, Sungho, **Application of a Model of Cerebellar Function to the Maintenance of Human Upright Posture**, S.M., Mechanical Engineering, June 2001.

Nolet, Simon, **Development of a Design Environment for Integrated Concurrent Engineering in Academia**," Master of Engineering, June 2001

Schmidt, Patricia, **An Investigation of Space Suit Mobility with Applications to EVA Operations**," ScD , September 2001

2002

Marquez, Jessica J. **"Spacecraft in Miniature": A Tool for the Acquisition of Mental Representations of Large, Complex 3-D Virtual Environments**, SM, Aeronautics and Astronautics, February 2002.

Saleh, Joseph, **Weaving Time into System Architecture: New Perspectives on Flexibility, Spacecraft Design Lifetime, and On-Orbit Servicing**," February 2002.

Erika Brown, **Artificial Gravity: The Role of Visual Inputs in Adaptation to Short-Radius Centrifugation**, SM, Aeronautics and Astronautics, June 2002.

Nathaniel J. Newby, **Artificial Gravity: The Role of Graviceptive Information during Cross-Coupled Rotation in Context-Specific Adaptation**, SM Aeronautics and Astronautics, June 2002.

Berengere Houdou, **Three-Dimensional Spatial Memory Training Using Virtual Reality: Effects of Reference Frame and Point-of-View**," SM, Aeronautics and Astronautics, June 2002.

2003

Joaquin A. Blaya, **Force-Controllable Ankle Foot Orthosis (AFO) to Assist Drip Foot Gait**", SM, Mechanical Engineering, February 2003.

Ann L. Frazer, **Modeling Human-Spacesuit Interactions**", SM, AeroAstro, June 2003.

Bradley, Pitts, **Spacesuits-Space Craft**", Ph.D., AeroAstro, August 2003

2004

Sophie Adenot, **Artificial Gravity: Changing the Intensity of Coriolis Cross-Coupled Stimulus with Head-Angle**", SM, AeroAstro, August 2004

Garrick-Bethel, Ian **Cross plane transfer of vestibular adaptation to human centrifugation**", SM, AeroAstro, June 2004

Sylvain Bruni, **Artificial Gravity: Neurovestibular Adaptation to Incremental Exposure to Centrifugation**", SM AeroAstro, August 2004

David Benveniste, **Cognitive Conflict in Learning Three-Dimensional Space Station Structures**", SM, AeroAstro, August 2004

Kevin Duda, "**Virtual Equivalence: Matching Visual Scene and Treadmill Walking Speeds in Virtual Reality**", SM, AeroAstro, 2004

Miwa Hayashi, "**Hidden Markov Models for Analysis of Pilot Instrument Scanning and Attention Switching**", Ph.D., AeroAstro, August 2004

2005

Kristen Bethke, "**Measurement of Human Body Surface Strain for Advanced Spacesuit Design**", SM, June 2005

Christopher E. Carr, "**The Bioenergetics of Walking and Running in Space Suits**", ScD, June, 2005

Jessica L. Edmonds, "**Exercise in Artificial Gravity**", SM AeroAstro, June 2005

2006

Anton Aboukhalil, "**Systems Approach to the Design of Locomotive Fatigue Management Technologies**", SM, AeroAstro, February 2006

Julie Arnold, "**Towards a Framework for Architecting Heterogeneous teams of Humans and Robots for Space Exploration**", SM, AeroAstro, June 2006

Daniel Aaron Buckland, "**A Training Methodology for Spatial Orientation in Spacecraft**" SM, AeroAstro, September 2006

Paul Z. Elias, "**Incremental Adaptation to Yaw head Movements During 30RPM Centrifugation**", SM, AeroAstro, June 2006

Philip A. Ferguson, "**Quantifying and Modelling Adaptive Astronaut Movement: Motion Strategies for Long-Duration Spaceflight Missions**", PhD, AeroAstro, June 2006

Nicole Jordan, "**Multidisciplinary Spacesuit Modeling and Optimization: Requirement Changes and recommendations for the Next-Generation Spacesuit Design**", SM AeroAstro, June 2006

Jeremie Pouly, "**A Parametric Study of Vestibular Stimulation During Centrifugation**", SM AeroAstro, February 2006

Webster, Bruce, "**Low Magnitude High Frequency Vibrations Applied to the Foot through the Pedal of a Human Powered Artificial Gravity (HPAG) Cycle**", SM, AeroAstro, February 2006

Zhe Liang Sim, "**Development of a Mechanical Counter Pressure Bio-Suit System for Planetary Exploration**", SM AeroAstro, February 2006

2007

Cizaire, Claire, **Effect of Two-module-docked Spacecraft Configurations on Spatial Orientation**, SM, AeroAstro, February 2007

Duda, Kevin, R., **SQUAT EXERCISE BIOMECHANICS DURING SHORT-RADIUS CENTRIFUGATION**, PhD, AeroAstro, February 2007

Judnick, Daniel C., **Modeling and Testing of a Mechanical Counterpressure BioSuit System**, SM, AeroAstro, June 2007

Menchaca Brandan, M. Alejandra, **Influence of Spatial Orientation and Spatial Visualization on Space Teleoperation Performance**, SM, AeroAstro, June 2007

Marquez, Jessica J., **HUMAN-AUTOMATION COLLABORATION: DECISION SUPPORT FOR LUNAR AND PLANETARY EXPLORATION**, PhD, Aero Astro, February 2007

Sienko, Kathleen, **"Perturbation-based detection and prosthetic correction of vestibulopathic gait"**, PhD, HST, February 2007

Sheehan, Scott, **"The Effect of Head Turn Velocity on Cross-Coupled Stimulation During Centrifugation"**, SM AeroAstro, February 2007

Wagner, Erika, **"Musculoskeletal Adaptation to Partial Weight Suspension: Studies of Lunar And Mars Loading"**, Ph.D., Aero Astro, September 2007

2008

Edmonds, Jessica **"Exercise protocols during short-radius centrifugation for artificial gravity"**, Ph.D., AeroAstro, June 2008

Fulford-Jones, Thaddeus R.F., **"The Mars Gravity Biosatellite as an Innovative Partial Gravity Research Platform"**, Ph.D., AeroAstro September 2008

Mateus, Jaime, **"The Effect of Sleep on the Adaptation to the Cross-Coupled Stimulus During Artificial Gravity"**, SM, AeroAstro, June 2008

Stirling, Leia A., **"Development of Astronaut Reorientation Methods: A Computational and Experimental Study"**, Ph.D., AeroAstro, June 2008

2009

Oravetz, Christopher, **"Human Estimation of Slope, Distance, and Height of Terrain I Simulated Lunar Conditions"**, SM AeroAstro, February 2009

Tomlinson, Zakiya, **"Influence of Spatial Abilities on Primary and Secondary Space Telerobotics Operator Performance"**, SM AeroAstro, February 2009

Newman, Michael, **"A Multisensory Observer Model for Human Spatial Orientation Perception"**, SM AeroAstro, June 2009

Tan, Junjay, **"Advancing Clinical Gait Analysis Through Technology and Policy"**, SM, TPP and ME, June 2009

Rader, Andrew Alan, "**Motion Perception with Conflicting or Congruent Visual and Vestibular Cues**", Ph.D. in Aerospace Biomedical Engineering, August 2009

2010

Christou, George Alexander, "**Development of Helmet Liner for Protection Against Blast Induced Trauma**", SM, AeroAstro, February 2010

Clark, Torin K. , "**Human Spatial Orientation Perceptions during Simulated Lunar Landing**", SM, AeroAstro, June 2010

Holschuh, Bradley Thomas, "**Space Exploration Challenges: Characterization and Enhancement of Space Suit Mobility and Planetary Protection Policy Analysis**", SM AeroAstro & Technology and Policy Program, June 2010

Johnson, Aaron W., "**An Integrated Traverse Planner and Analysis Tool for Future Lunar Surface Exploration**", SM, AeroAstro, June 2010

Kaderka, Justin D., "**A Critical Benefit Analysis of Artificial Gravity as a Microgravity Countermeasure**", SM AeroAstro, June 2010

Pontillo, Teresa M., "**Spatial Ability and Handedness as Potential Predictors of Space Teleoperation Performance**", SM, AeroAstro, June 2010

Venkatesan, Raghav Harini, "**Multisensory Models for Human Spatial Orientation Including Threshold Effects**", SM, AeroAstro, June 2010

Opperman, Roedolph A., "**Astronaut Extravehicular Activity – Safety, Injury & Countermeasures & Orbital Collisions & Space Debris – Incidence, Impact & International Policy**", SM in AeroAstro and SM in TPP, September 2010

2011

Anderson, Allison P., "**Addressing Design Challenges in Mechanical Counterpressure Spacesuit Design and Space-Inspired Informal Education Policy**", SM, AeroAstro, February 2011

Goel, Rahul, "**Study of an Advanced helmet Liner Concept to Reduce TBI: Experiments & Simulation using Sandwich Structures**", SM, AeroAstro, February 2011

Hainley, Christopher, "**Lunar Landing: Dynamic Operator Interaction with Multi-Modal Automation Systems**", SM, AeroAstro, February 2011

Stimpson, Alexander J., "**Design and Evaluation of an Achievability Contour Display for Piloted Lunar Landing**", SM in AeroAstro, February 2011

Vechart, Andrew, "**Design of a Composite Combat helmet Liner for Prevention of BlastInduced Traumatic Brain Injury**", SM, School of Engineering, Computation for Design and Optimization, February 2011

Arai, Tatsuya, "**Estimation of Cardiovascular Indices by Analysis of the Arterial Blood Pressure Signal**", PhD, AeroAstro, June 2011

Buckland, Daniel, "**Ultrasound Imaging of Cervical Spine Motion for Extreme Acceleration Environments**", PhD, AeroAstro, September 2011

Forman, Rachel Emily, "**Objective Performance Metrics for Improved Space Telerobotics Training**", SM, AA, September 2011

Wen, Hui Ying, "**Human-Automation Task Allocation in Lunar Landing: Simulation and Experiments**", SM, AA, September 2011

2012

Galvan, Raquel, "**Effects of Fatigue on Simulated Space Telerobotic Performance: A Preliminary Study Analysis**", SM, AA, September 2012

Gilkey, Andrea, "**Spacesuit simulator for extravehicular activity experimentation and training**", SM, AA, June 2012

Lowenthal, Caroline, "**Evaluation of Sleepiness in Space Robotics task Performance and Discussing Sleep with High School Students in a Museum**", SM AA & TPP, February 2012

Wang, Victor, "**Bimanual Cross-Coupling in Space Telerobotics**", SM ME, February 2012

Yost, Allison, "**Fluid-Filled Helmet Liner Concept for Protection Against Blast-Induced Traumatic Brain Injury**", SM ME, June 2012

2013

Trigg, Chris, "**Design and Validation of a Compact Radius Centrifuge Artificial Gravity Test Platform**", SM AA, June 2013

Tritchler, Stephanie, E., "**The Effect of Dust Blowback on Spatial Orientation Estimation During Lunar Landing**", SM AA, June 2013

Aboukhalil, Anton, "**Computationally-Guided Inference of Cis-Regulatory Codes in Metazoans**", Ph.D., AA, September 2013

Clark, Torin, K., "**Human Perception and Control of Vehicle Roll Tilt in Hyper-Gravity**", Ph.D., AA, September 2013

2014

Anderson, Allison, Understanding Human–Space Suit to Prevent Injury During Extravehicular Activity, Ph.D., AA, June 2014

Dopart, Celena H., Astronaut-Centric Analysis of a Jetpack with Integrated Control-Moment Gyroscopes for Enhanced Extravehicular Activity Performance, SM, AA, June 2014

Holschuh, Bradley T., MECHANICAL COUNTER-PRESSURE SPACE SUIT DESIGN USING ACTIVE MATERIALS, Ph.D., AA, June 2014

Kaderka, Justin, Experiments and a Model of Pilot System Failure Detection during Simulated Lunar Landing, Ph.D., AA, June 2014

Lasota, Przemyslaw A., “Developing Safe and Efficient Robotic Assistants for Close Proximity Human-Robot Collaboration”, SM, AA, June 2014

Rize, Jared, Simulation Development and Analysis of Attitude-Control System Architectures for an Astronaut Mobility Unit, SM, AA, June 2014

Vasques, Rebecca, The Variable Vector Countermeasure Suit for Space Habitation and Exploration, SM, ME, June 2014

Ellman, Rachel, Skeletal Adaptation to Reduced Mechanical Loading, PhD, HST, Biomedical Engineering, September 2014

2015

Diaz, Ana, Exercise under Artificial Gravity – Experimental and Computational Approaches, PhD, AA, June 2015

Hilbert, Alexandra, Human-Spacesuit Interaction: Understanding Astronaut Shoulder Injury, SM, AA, June 2015

Johnson, Aaron, “Analyzing the Effects of Dynamic task Allocation on Human-Automation System Performance”, PhD, AA, February 2015

Obropta Jr., Edward William, On the Deformation of Human Skin for Mechanical Counter Pressure Space Suit Development, SM, AA, June 2015

2016

Bertrand, Pierre, **Enhancing Astronaut Mobility Through Spacesuit Kinematics And Interactive Space Outreach**, SM, June 2016

Broll, Anthony, **Trust in Adaptive Automation in a Tactical Search and Navigation Task**, SM, AA
June 2016

Kendrick, Dustin, **The Gravity Loading Countermeasure Skinsuit: A Passive Countermeasure Garment for Preventing Musculoskeletal Deconditioning During Long-duration Spaceflight**, PhD,
AA & HST (Bioastronautics Program), June 2016

Galvan – Garza, Raquel, **Enhancement of Perception with the Application of Stochastic Vestibular Stimulation**, PhD, AA, June 2016

Geiger, Lynn M., **Investigation of Customized Refresher Training for Telerobotic Operations in Long-duration Spaceflight**, SM, AA, June 2016

Groshong, Hannah, **Task Modeling and Assessment for Human--System Interaction in Freight Rail Operations**, SM TPP, June 2016

Vanega, Morris, **Characterization of Inertial Measurement Unit Placement on the Human Body Upon Repeated Donnings**, SM, AA, June 2016

2017

Yang, Yongkai Eugene. **Using object process methodology to develop interfaces and smart electronic procedures for simulated telerobotic operations**, SM, AA, February 2017

Eke, Chika U., **Agility Quantification using Body Worn Inertial Sensors**, SM, ME, June 2017

Gibson, Alison E., **The Design, Development, and Analysis of a Wearable, Multi-modal Information Presentation Device to Aid Astronauts in Obstacle Avoidance During Surface Exploration**, SM, AA,
June 2017

Hall, Sherrie A. **Effect of Control Interface Implementation on Operation of a Multi Degree of Freedom Telerobotic Arm**, PhD, AA, June 2017

McGrath, Timothy M., **Influence of Motion Profile on Estimating Anatomical Elbow Joint Axes using Inertial Measurement Units**, SM, AA, June 2017

Meyen, Forrest E., **System Modeling, Design, and Control of the Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE) and Implications for Atmospheric ISRU Processing Plants**, PhD,
AA, June 2017

