66th International Astronautical Congress

Jerusalem, Israel
October 12 – 16, 2015
Student Researcher

Daniil Abramov
University of Michigan
abramov@umich.edu

Presentation:
Date: October 13, 2015
Time: 09:45
Room: Oranim 4

Research Title:
"Effect of Space Launch Delays and Failures on Stock Market Returns of Commercial Payload Operators"

Biographical Sketch

Daniil Abramov is a currently a graduate student studying Space Systems Engineering at the University of Michigan in Ann Arbor. He has recently completed his degree in Physics and Astronomy at Northwestern University in Evanston, where he also worked at the Dearborn Observatory, and founded the NUSTARS student engineering organization. He has participated in several internships, including institutions such as the Space Telescope Science Institute, the Adler Planetarium, and the Space Exploration Technologies Corporation (SpaceX). At the moment, Dan is working in the Michigan Exploration Laboratory, building CubeSats, and investigating life support systems for crewed space exploration.

Research and Education Activities

- 2015 to present: Space Systems Engineer, Michigan Exploration Laboratory
- 2015 to present: Student Research, Bioregenerative Life Support Systems
- 2013 to 2014: Avionics Intern, Space Exploration Technologies Corporation (SpaceX)
- 2013: High Altitude Balloon Project Intern, Adler Planetarium
- 2012 to 2013: Director, Northwestern Univ. Space Technology & Rocketry Society (NUSTARS)
- 2012: Space Astronomy Summer Program Intern, Space Telescope Science Institute
- 2011 to 2013: Telescope Operator and Tour Guide, Northwestern University Dearborn Observatory

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Student Researcher

Bradley David Butler
University of Kentucky
Bradley.Butler@uky.edu

Presentation:
Date: October 14, 2015
Time: 09:45
Room: Oranim 1

Research Title:
"University of Kentucky Plasma Diagnostic Facilities for the Investigation of Gas-Surface Interactions"

Biographical Sketch

Bradley Butler is a fourth year graduate student at the University of Kentucky. He completed his masters of science in mechanical engineering with a focus on stall inception mechanisms for axial compressors. He is currently pursuing a doctorate of philosophy degree while working on plasma diagnostics with a focus on ablation.

Research and Education Activities

- 2015; Thermal Protection Materials and Systems Branch Intern, NASA Ames Research Center
- 2015; NASA KY EPSCoR Space Grant Recipient
- 2014; Masters of Science in Mechanical Engineering, University of Kentucky
- 2013; NASA KY EPSCoR Space Grant Recipient

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Student Researcher

Armando Delgado
The University of Texas at El Paso
adelgado12@miners.utep.edu

Presentation:
Date: October 13, 2015
Time: 14:45
Room: Schwartz Hall

Research Title:
Combustion Synthesis of Construction Materials from Lunar and Martian Regolith Mixed with Magnesium

Biographical Sketch

Armando Delgado is in the third year of a PhD program in environmental science and engineering with an energy track at the University of Texas at El Paso, where he received his BS and MS in Mechanical Engineering in 2010 and 2012. His graduate research is focused in the combustion synthesis of magnesium at the Center for Space Exploration Technology Research, for space applications in In-Situ Resource Utilization (ISRU) participating in three NASA's Microgravity University programs. Additionally, Armando received the GAANN fellowship from the Department of Education allowing him to teach solid mechanics laboratory courses.

Research and Education Activities

- Combustion of lunar and Martian regolith simulants with magnesium. Production of structural materials from in-situ resources using combustion synthesis techniques. Participation in NASA's Microgravity University program enabled studies in reduced gravity environment.
- Mechanically activated self-propagating high-temperature synthesis of magnesium silicide for high-temperature thermoelectric applications.
- Feasibility and reliability of construction techniques in a microgravity environment. Conducted experiments in parabolic flights to explore the feasibility of performing exothermic welding in reduced gravity.
- Solid Mechanics Lab Instructor. Taught undergraduate laboratory course for mechanical engineering undergraduate students.

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Student Researcher

Joshua Fogel
University of Southern California
joshuafo@usc.edu

Presentation 1:
Date: October 12, 2015
Time: 15:15
Room: Teddy B

Research Title:
Survey of Low-Thrust Gravity Assist Trajectory Optimization Methods, with Comparisons to a Novel, Multi-Impulse Discretization Approach

Presentation 2:
Date: October 15, 2015
Time: 09:45
Room: Ballroom A

Research Title:
A Proposed Photoelasticity-Based Enhanced Visual Inspection Tool for Astronaut EVA

Biographical Sketch

Joshua Fogel is a second-year Ph.D. student at the University of Southern California. His research is focused on low-thrust gravity assist trajectory optimization, and astronaut EVA visual inspection tool development. Joshua received his B.S. in aerospace engineering from the University of Maryland, and his M.S. in astronautical engineering from the University of Southern California. He has held internships at Millennium Space Systems and Applied Defense Solutions, and was a participant in NASA's RASC-AL 2012 Planetary Rover Competition, in which his team from the University of Maryland placed third.

Research and Education Activities

- (2014-2015) "SEP Multi-Attribute Tradespace Exploration (Millennium Space Systems)": Developed a systems engineering tool using stakeholder utility theory to model a solar electric propulsion spacecraft and assess thousands of potential vehicle designs
- (2013-2014) "Interstellar Precursor Mission Design Study (M.S. Thesis)": Constructed an orbit simulator to investigate how various nuclear electric propulsion system designs impact an interstellar probe's solar system escape trajectory.
- (2012-2014) "The USC Information Sciences Institute Space Engineering Research Center": Graduate Research Assistant, CubeSatellite Development, Integration, Operations Research.
- (2008-2012) "The UMD Space Systems Laboratory": Undergraduate Research Assistant, Space Robotics & Neutral Buoyancy Tank Research.

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Sherrie Hall
Massachusetts Institute of Technology
Shall6@mit.edu

Presentation:
Date: October 15, 2015
Time: 14:45
Room: Ballroom A

Research Title:
Intuitive Gesture Control for the ISS Space Station Remote Manipulator Arm

Biographical Sketch

Sherrie Hall is a PhD Candidate in Aeronautics and Astronautics at Massachusetts Institute of Technology. She earned her Bachelor's and Master's in Aerospace Engineering at Georgia Institute of Technology. She spent time as an intern with Boeing Satellite Systems testing commercial spacecraft. Though her past graduate research has included work in space propulsion and space systems engineering, she now focuses on space human factors. Her current research centers on human-computer interaction and interfaces for space applications.

Research and Education Activities

- Research at Politecnico di Torino and Thales Alenia Space (Turin, Italy) through MIT International Science & Technology Initiatives, 2014
- Research in collaboration with Brown University and Skoltech, 2012-2014
- Caltech Space Challenge, 2013
- NSF Graduate Research Fellow, 2011-2015

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Student Researcher

Matthew Lund
University of Utah
matthewl.lund@gmail.com

Presentation:
Date: October 14, 2015
Time: 09:45
Room: Oranim 2

Research Title:
Enhanced Monte Carlo Simulations of the Space Radiation Environment Using GEANT4 in a High Performance Computing Environment for the International Space Station and Apollo Missions

Biographical Sketch

Matthew Lund attended Brigham Young University earning a Bachelors of Science in Physics and a Bachelors of Music in 2007. He taught high school physics and astronomy classes along with mentoring student research. Matthew is a National Board Certified Teacher and Utah Science Teacher of the Year. Matthew is a doctoral candidate at the University of Utah in Nuclear Engineering researching radiation shielding with full size spacecraft simulations. Last summer, Matthew completed an internship with NASA in the Space Radiation Analysis Group at Johnson Space Center studying active shielding for spacecraft.

Research and Education Activities

- President Alpha Nu Sigma Honor Society
- US Nuclear Regulatory Commission Fellow
- NASA Intern at Johnson Space Center in Space Radiation Analysis Group
- American Association of Physics Teachers
- American Nuclear Society
- American Institute of Chemical Engineers
- General Advisory Board for Science Praxis
- National Board Certified Teacher
- National Science Teachers Association
- National Advisory Committee for Physics Praxis
- Utah Association of Career and Technical Education
- Utah Science Teachers Association

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Jendai Robinson
University of Cincinnati
Robin2jo@mail.uc.edu

Presentation:
Date: October 16, 2015
Time: 9:45
Room: Oranim 1

Research Title:
Fabrication and Characterization of Patterned Carbon Nanofiber Arrays Using Hole-Mask Colloidal Lithography Towards Biosensing Applications

Biographical Sketch

Jendai Robinson holds a Bachelor of Science degree in chemistry from Virginia State University and is currently a third year PhD student and NASA Harriet G. Jenkins Fellow at the University of Cincinnati (UC). She has completed several internships, many of which with NASA.

Jendai is currently working on the fabrication and characterization of plasmonic and electrochemical biosensors with Drs. Laura Sagle and Jessica Koehne in the Department of Chemistry at UC and Center for Nanotechnology at the NASA Ames Research Center. Her work can be applied to medical diagnostics as well as astronaut health and environmental monitoring.

Research and Education Activities

- August 2013-Present: NASA Harriet G. Jenkins Fellowship
- June 2013-August 2013: Intern: NASA Goddard Space Flight Center
- January 2013- April 2013: Intern: NASA Ames Research Center
- June 2012- August 2012: Intern: NASA/EPA Academy Intern
- September 2011-December 2011: Intern: NASA Ames Research Center
- December 2012-Present: NASA Student Ambassador

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Eric Ward
Massachusetts Institute of Technology
eric.ward@mit.edu

Presentation:
Date: October 13, 2015
Time: 14:45
Room: Eshkol 3

Research Title:
A Method to Evaluate Returned Value across Architectural Choices for Exploring Space Destinations such as Mars

Biographical Sketch

Eric Ward is a Systems Design and Management Fellow at the Massachusetts Institute of Technology, where his primary research focus is the campaign architecting of space missions. He has completed an internship at the NASA Jet Propulsion Laboratory performing systems analysis on the spacecraft design process, and has previously worked for over seven years as a mechanical engineer designing medical devices as well as a product and process development consultant for small businesses. He also holds a Bachelor's of Science in Mechanical Engineering.

Research and Education Activities

- 2015-Present: Mars 2040 Campaign Study, Massachusetts Institute of Technology
- 2015: Graduate Intern, Office of the Chief Engineer, NASA Jet Propulsion Laboratory
- 2011-2014: Mechanical Advisor, Portland State Aerospace Society, Portland State University