

Name: Alpern, Heather

Education Institution: Alfred University, Alfred, NY

Major/Degree/Grad Year: Mechanical

Engineering/Bachelor of Science December 2011

NASA MSFC Mentor: Howard, Richard T.

Org Code/Division or Branch: ES32/GN&C Hardware Team



Research and Experience

- **Valley Mill Camp. Senior Group Counselor – Summer 2003-2009 – Managed and lead and a group of children, while instructing them on camp activities.**
- **Valley Mill Camp. CDL Driver – Summer 2009-2010 – Provided safe transportation for children and staff and handled crisis situations on and off the school bus.**
- **Valley Mill Camp. Administrative Assistant and Maintenance – Summer 2010 – Repaired machines and aided staff so the camp could operate efficiently.**

Membership and Activities

- **Yachad Home Repair Program, a non-profit, Fall 2007**
- **AU Robot Club Liaison to Student Senate, Fall 2009**
- **Independent study building and competing VEX Robots, Spring 2010**
- **Treasurer of AU Diversity Club, Fall 2010 – Fall 2011**

Honors and Awards

- **Nominated by Head of High School to represent the State of Maryland at the 2006 National Student Leadership Conference**
- **Participated in McLean School basketball team – Leadership Award**
- **Scholar-Athlete, Fall 2005 - Spring 2007**
- **2007 Senior Project – Constructed, painted, and comprehended the inner workings of a wooden pendulum clock - High Honors**
- **Top Student of graduating class in Art and in Science**
- **Awarded Dean's Scholarship from Alfred University**
- **National Dean's List, Fall 2007 – Spring 2011**

Title of Poster: Automated Simulator for Docking Operations

Abstract

The Flight Robotics Laboratory (FRL) at NASA's MSFC operates many robotic systems to assist in the development and testing of new technologies for avionics and dynamic control of spacecraft. Some of these systems include air-bearing vehicles, a 6-degree of freedom robotic arm, a dynamic solar simulator, and a tilt table. The Small Mobility Base (SMB) is one of the air-bearing vehicles in the FRL, and it is the one upon which we are working. The SMB was designed to investigate video-guidance systems, algorithms for calculating a space vehicle's relative position, automated docking operations, and control algorithms. Our project consists of re-programming and performance improvement for autonomous and manual operations. Some improvements we have accomplished include upgrading the control system to utilize more robust and efficient algorithms, increasing the efficiency of multi-sensor data acquisition, modular programming adaptation, enhancing system data logging capabilities, and implementing tele-operation and tele-presence capabilities. In addition, due to our re-organization and documentation, future upgrades will be easier and more cost effective.

Name: Betancourt-Roque, Jesus
Education Institution: University of Texas at El Paso, El Paso, TX

Major(s)/Degree(s)/Grad Year: Mechanical Engineering/Master of Science December 2011
Instituto Tecnológico y de Estudios Superiores de Monterrey, Juarez, Mexico
Mechatronics Engineering/Bachelor of Science May 2008

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Research and Experience

- **Center for Space Exploration Technology Research, UTEP. Graduate Research Assistant – December 2009-Present – Research on LOX/Methane and LOX/Hydrogen ignition physics and combustion, design, implementation, experimentation and results analysis**
- **Cummins-ScaniaXPI, Fuel Systems manufacturing. Test-Engineering Associated – April 2008-December 2009 – Technical support, problem solving, design updates and efficiency improvement for test and manufacturing equipment**
- **DELPHI Automotive Systems CO-OP, Independent Test and Verification (IT&V) – August 2005-April 2008 – Functional requirements analysis, testing development and execution and results reporting for crash and occupant sensing systems**

Membership and Activities

- **American Institute of Aeronautics and Astronautics (AIAA)**
- **American Society of Mechanical Engineers (ASME)**
- **College Physics Science study group**

Honors and Awards

- **Spring 2011 University of Texas at El Paso tuition support stipend**
- **2003-2008 ITESM scholarship award**

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Name: Biswas, Pronoy
Education Institution: Carnegie Mellon University, Pittsburgh, PA
Major/Degree/Grad Year: Electrical and Computer Engineering/Bachelor of Science 2014
NASA MSFC Mentor: Howard, Richard T.
Org Code/Division or Branch: ES32/GN&C Hardware Team



Research and Experience

- **Formula SAE – 2010-2011 – Design and fabrication of Racecar Dashboard, tube-frame chassis, and fuel tank.**
- **Columbia Lab for Unconventional Electronics, Columbia University – Summer 2009-Summer 2010 – Building Instructional Circuits and design of Source Measurement Unit for organic semiconductors.**
- **FIRST Tech Robotics Challenge – 2009-2010 – Built a robot to collect, store and shoot wiffle balls.**
- **High School Senior Design Project – 2009-2010 - Built a digital personal trainer for the pull-up exercise that provided feedback on exercise form, repetitions, calories, and long term progress.**

Membership and Activities

- **Peer Tutor for Calculus, Physics, Electrical Engineering at Carnegie Mellon Academic Development**
- **Member, Carnegie Mellon Racing Formula SAE Team**
- **Member, volunteer, referee FIRST FTC Robotics Team**

Honors and Awards

- **Carnegie Scholarship**
- **Middlesex County Academy Foundation Silver Scholarship**
- **Liberty Science Center Partners in Science Research Internship at Columbia University**
- **1st place New Jersey Physics League, 2nd Place New Jersey Chemistry League**
- **President's Education Award and recognition for outstanding Academic Achievement**

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Name: Mittelman, David B.

Education Institution: University of Connecticut, Storrs, CT

Major/Degree/Grad Year: Computer Science and Engineering/Bachelor of Science 2012

Cognitive Science/Bachelor of Arts 2012

NASA MSFC Mentor: Howard, Richard T.

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Research and Experience

- **Idea Development Empowering, Founder – May 2009-Present – Oversaw incorporation of IDEAS, a potential environment for peer-supported innovation.**
- **REU Experimental Research in Wireless Networking Intern – Summer 2009 – Viability of embedded Distributed Computing Cluster, energy cost and heat dissipation comparison**
- **United States Navy, Submarine Sonar Technician, Petty Officer Second Class – September 2005-May 2008 – Equipment calibration induction for the Naval Support Facility, development, improvements and workshop trainings on database operations**

Membership and Activities

- **Association for the Advancement of Artificial Intelligence**
- **Institute of Electrical and Electronics Engineers**
- **Undergraduate Student Government Funding Board**
- **FIRST Robotics Competition**
- **Old Lyme Volunteer Fire Department**

Honors and Awards

- **Honor Societies: Tau Beta Pi, Upsilon Pi Epsilon, Golden Key International Honor Society, Phi Kappa Phi, National Society of Collegiate Scholars**
- **Dean's List of Academic Honor: University of Connecticut college of Engineering**

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