Henna Jethani

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Clearance

DOD Secret Clearance

Education

CU Boulder M.S. Candidate Aerospace Engineering Sciences [GPA: 3.8/4.0]   December 2015
MIT B.S. Aerospace Engineering with Information Technology [GPA: 4.4/5.0]   June 2014

Relevant Coursework

Machine Learning, Scalable Machine Learning, Network Systems, MicroProcessor Project Laboratory, Autonomy & Decision Making, Data Structures & Programming Methodology, Automatic Control, Orbital Dynamics, Propulsion, Fluids, Signals & Systems, Aerospace Biomedical & Life Support Engineering, Space Habitat Design, Spacecraft Life Support Systems, Space Life Sciences, Gordon Engineering Leadership

Professional Experience

Systems Engineer, Raytheon Space & Airborne Systems (El Segundo, CA)   07/2014-08/2014, 05/2015-08/2015
- Improved requirements for Advanced Synthetic Aperture Radar System (ASARS) in Dynamic Object Oriented Requirements System (DOORS).
- Edited Statement of Work and Product Requirements documents for Multi-Platform Radar Technology Insertion Program (MP-RTIP).

Academic Projects

Electrical & Software (ESW) Lead, NASA eXploration Habitat (X-Hab) Challenge   09/2014-05/2015
- Developed reduced-scale prototype for Martian greenhouse that enables plant studies in closed environments.
- Managed design/manufacturing of electrical hardware and development of software. Worked directly on electrical components integration and Python driver code for CO_2, O_2, Temp, Pressure, Relative Humidity sensors.
- Wrote requirements, developed mass/power budgets, developed interface control documentation between ESW and other subsystems.

Environmental Control & Life Support Systems Lead, Caltech Space Challenge 2015   03/2015-03/2015
- Developed requirements for a crewed mission to an asteroid in distant lunar retrograde orbit.
- Researched and designed air revitalization, water recovery, fire suppression and thermal systems for mission's science module. Contributed via design integration with EVA and established mass/power budgets.

Microcontroller Project Lab: Final Project   04/2014-05/2014
- Proposed, designed and built a water-strobe lab with a theremin control paradigm. Used R31JP/8051 CHIPS, PSoC (Programmable System on Chip), self-assembled LED panels, and sonic range finders with Assembly and C code. Built a system where the user can experience the illusion of stationary, separate water droplets when strobing LEDs are directed at a pulsing water stream of the same frequency.

Systems Lead, MIT Satellite Design Capstone Class   01/2013-05/2013
- Led group of 10 students in capstone class to design a satellite that would carry a HOLODECK camera in LEO to image the Earth.
- Organized requirements, developed risk assessments and synched design configurations between power, avionics, communications, thermal, structures, and propulsion subsystems.

Research Experience

MIT Man Vehicle Lab & NASA Ames Research Center: ECG Sensor Configurations   09/2013-06/2014
- Collected and analyzed data from various electrocardiography (ECG) sensor configurations on the body. Potential application to physiological state monitoring harness for astronauts.

MIT Nano-Engineered Composite Structures & Army Research Lab: Multifunctional Supercapacitor 09/2013-06/2014
- Developed a carbon-nanotube (CNT) reinforced multifunctional supercapacitor for final year thesis project. Worked on design and fabrication of a load-bearing capacitor that can store energy via CNTs.

NASA Ames Research Center: Analysis of Clean Energy Sources for Rotorcraft   06/2013-08/2013

- Conducted a clean energy analysis of AK1-3 Ultralight Kit helicopter by implementing efficiency models in MATLAB. Analysis included applying mass and power research of hydrogen fuel cells, flywheels, solar cells, generators and batteries to software tools I developed.

MIT Man Vehicle Lab: Gravity Loading Countermeasure Skinsuit   03/2013-04/2014
- The Gravity Loading Countermeasure Skinsuit (GLCS) provides a resistive load on the wearer. Research involved testing suit wearers with different exercise regimes to map their physiological responses. Analysis was conducted using ANOVA and MATLAB.

MIT/NASA Systems Engineering Educational Discovery Team   01/2013-10/2013
- In a team of four, designed and built a model artificial gravity vehicle and tested model on microgravity parabolic maneuver flight; logged approx 450 seconds in microgravity.

NASA/Caltech Jet Propulsion Laboratory: Robotics Controls   06/2012-08/2012
- BioSleeve Project: wearable sleeve of EMG electrodes for hands-free robotic control and prosthetic hand control.
- Worked on gesture classification by using machine learning algorithms (support vector machines) to decode gestures carried out while wearing the sleeve to commands on a robot.

Leadership

McCormick Hall House Government   2011-2013
- President, VP, Treasurer, Orientation Chair
- Led a group of 32 house government members to organize activities and operations of 200 resident dorm.

Tech and Robotics Club (11 FIRST/Botball competitions in high school)   2005-2010
- President (09-10), Vice President (08-09), Treasurer (07-08).

Publications

Darnell A., Azad A., Borlaug B., Case D., Chamberlain C., Fortier K., Guerrie P., Jethani H., Marino J., Soma C., Srivastava A., Wassenberg A., Holquist J., Nabity J., "MarsOASIS: A predeployable miniature Martian greenhouse for crop production research" 45th International Conference on Environmental Systems, ICES-2015-224

Diaz A., Trigg C., Jethani H., Tritchler S., Newman, D.J., Physiological Assessment of the Gravity Loading Countermeasure Skinsuit during Exercise 64th International Astronautical Congress 2013. Beijing, China. (Poster)

Wolf M.T., Assad C., Stoica A., You K., Jethani H., Vernacchia M.T., Fromm J., and Iwashita Y. "Decoding static and dynamic arm and hand gestures from the JPL BioSleeve." InAerospace Conference, 2013 IEEE, pp. 1-9. IEEE, 2013.

Wolf M.T., Assad C., Vernacchia M.T., Fromm J., and Jethani H.L. "Gesture-based robot control with variable autonomy from the JPL BioSleeve." International Conference onRobotics and Automation (ICRA), 2013 IEEE International Conference on, pp. 1160-1165. IEEE, 2013.

Accomplishments/Skills
- **Skills:** Java, Python, Apache Spark, MATLAB, 8051 Assembly, STK, LaTeX
- EdX Certified Scalable Machine Learning
- 6.570 Android Application Design Competition Semi-Finalist
- Level I Certified by National Association of Rocketry (NAR) 2012
- NASA MUST (Motivating Undergraduates in Science and Technology) Scholar 2011-2014