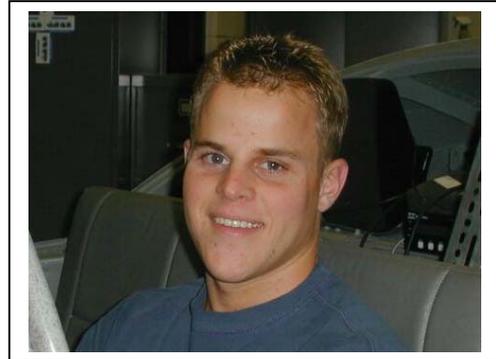


Texas A&M University
College Station, TX

Mechanical Engineering
Bachelor of Science, June 2003

NASA Academy Research Project:
Physiology and Imaging of the
Vestibular System



Principal Investigator: Dr. Richard D.
Boyle

EMAIL: robert2852@engineer.com

Education and Experience:

I love the idea of space travel! My dream job is to ferry people into Earth orbit and to the Moon for research, fun, and leisure. To learn more about space I have held three internships at NASA centers and contributed to several space-related research projects. I plan to study Aeronautical and Astronautical Engineering at MIT in graduate school and explore the research topics of autonomy and reliability in space system design. This area of study will teach me how to increase manned space system reliability and safety while simultaneously reducing space mission cost. Both of these are necessary to enable safe, cheap, and routine human access to space.

My sophomore year I performed my first internship at NASA Johnson Space Center (JSC). I helped to repair and refurbish space suits and EVA tools. It was amazing to think that the tools I tested would soon be zooming around the Earth going 17,000 mph in the hands of an Astronaut! This internship inspired me to learn about all aspects of the manned space program, and to pursue a job at Johnson Space Center after graduation.

In the summer of my junior year I performed my second internship at NASA JSC. During this term I worked in the Automation, Robotics, and Simulation Division. I helped to develop a robotic arm training simulation that teaches Astronauts how to use the remote manipulator system (robotic arm) on the Space Shuttle.

My next internship was at Langley Research Center. I worked in the Advanced Materials and Processing Branch and tested piezoelectric ceramic actuators. These devices are very neat because they deform when an electric current is applied. My mentor and I tested

piezoelectric pumps that did not have any moving parts! The pump parts are rigid but deform relative to one another when an electric current is applied to create a pumping action.

In addition to internships, I also contribute to space-related research projects at my university. Currently I am helping to characterize a visual navigation system that will be used to enable autonomous spacecraft rendezvous and docking, proximity operations, and on-orbit maintenance. Also, I am leading a KC-135 Reduced Gravity Student Experiment on the “vomit comet”. This is a NASA-owned jet that flies parabolas through the sky and subjects its passengers to periods of simulated microgravity. Our project is titled Asteroid Anchoring: Low Velocity Solutions to Landing on an Asteroid, and we are testing a way to attach thrusters to an asteroid's surface. These thrusters could be used to move Near Earth Asteroids away from a collision course with our planet. Another project worth mentioning is my senior design project in which we are designing a pressurized, manned, Mars rover. We are investigating safe and redundant rover designs that incorporate inflatable materials technology similar to the Transhab module planned to provide crew quarters on the International Space Station.

I have enjoyed my internships and research projects and cherish the knowledge and friends that I have gained from each of them. This summer at NASA Academy I hope to learn more about the Astrobiology side of space research, and also how the NASA centers interact and coordinate to further the human exploration of space.

Extracurricular interests:

My hobbies include playing soccer, attending space-related conferences and seminars, and spending time with my friends and family. For three years I was a member of the Texas A&M Mens Club Soccer Team, and I also play city league and intramural soccer whenever I get a chance. I enjoy sand-volleyball, tennis, surfing, running, hiking, and anything active.

I am an avid space enthusiast and enjoy space-related conferences and organizations. I am a member of the National Space Society and the Space Frontier Foundation, and I participate in AIAA student meetings and conferences.

In addition to space and sports I spend the rest of my time with family and friends. My friends and I like going to clubs on the weekend and just hanging out. My parents and grandparents live on a ranch so it is fun to go home and hike, fish, or just relax.