BRIAN J. ROBERTS

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NASA EXPERIENCE

Dr. Robert H. Goddard Space Flight Center **Greenbelt, MD**

Aerospace Engineer with Jackson and Tull, Inc. (December 2006 – Present)

- Manage day to day operation of demonstration grapple arm, a 39′ space-qualified robotic arm based on the design of the Space Shuttle Remote Manipulator System capable of autonomous rendezvous and capture of a free-flying satellite.
- Developing plan for and demonstration of modularity and maintenance philosophy of mobility units on the lunar surface.
- Leading team developing testing and risk mitigation for mechanisms designed to operate on the lunar surface.
- Manage day to day operation of contact dynamics facility, a FANUC industrial robot used to simulate robotic tool-to-spacecraft contact dynamics.
- Support Soft Capture Mechanism impact testing and Relative Navigation System testing. Both systems will fly on Hubble Space Telescope (HST) shuttle-based servicing mission.
- Mentored 10 university graduate students for 10-weeks and one high school student for 3 weeks (summer 2007); 1 cooperative education student (fall 2007 and spring-summer 2008); 1 undergraduate (spring 2008).

Student Research Fellow (July 1996 – August 1999)
Co-Investigator on Center Director Discretionary Fund (DDF) Project (November 1996 – October 1998)
Principal Investigator as part of NASA Academy Summer Program (June – August 1997)

- Analyzed and optimized the performance of a roller and sprag clutch to be used in aerospace mechanisms and as a replacement for the ratchet mechanism.
- Managed a $70K prototyping and advanced development budget.
- DDF was reported to NASA Headquarters as one of GSFC's top five DDF success stories.

Staff Assistant to the Office of University Programs (August 1994 – September 1995)

- Performed office staff duties and co-coordinated graduate-level technical symposium.
- Coordinated Center-wide daylong program entitled "Meeting the Russian Technocrats: Interfacing with Russian Culture," which provided some insight into Russian history, mentality, and psychology. Topics included introduction to Russia, language, and people; science in Russia; NASA's involvement with the Russians; traveling to Russia; and a panel discussion.
- Administered distribution of $2.6M in research funds for the Center Director.
- Planned and helped administer the NASA Academy program for undergraduate and graduate students.
- Developed and administered a joint agreement between NASA and the University of Maryland to allow undergraduate and graduate students and faculty from all over the world to conduct research at NASA.

NASA Academy Research Associate (June 1994 – August 1994)

- Gained extensive knowledge of how NASA and its field centers operate, NASA's link to the private sector, and how to work in a group to achieve common goals.
- Developed an electromechanical subsystem for an innovative optical image analysis system.
- Worked with Shuttle Small Payloads Projects to develop their pilot Space Experiment Module (SEM) program to allow small experiments to be designed, constructed, and tested by students at elementary, secondary, or college level and flown on the space shuttle at minimum cost. Worked with NASA Educational Workshop for Mathematics, Science, and Technology at Goddard during the summer and with Space Grants to try and increase the number of Get Away Special/SEM experiments flown. Gave presentation on objectives of project to the NASA Administrator's Senior Policy Advisor and NASA's Director of Education Programs at NASA Headquarters.

Langley Research Center **Hampton, VA**

Langley Aerospace Research Summer Scholars Program (June 1993 – August 1993)

- Analytically modeled the optical distortion of the complex geometric relationship between the camera focal plane image and the actual orbiter surfaces being viewed, the single most critical factor in the processing of Shuttle Infrared Leeside Temperature Sensing (SILTS) data to determine accurate surface temperature information. SILTS was an experiment designed to obtain high spatial resolution infrared imagery of the temperatures of the space shuttle orbiter leeside fuselage and left wing during atmospheric reentry (flown on STS 61-C, STS-28, STS-32, STS-35, and STS-40).
- Attended weekly technical lectures by prominent engineers and scientists.
- Toured wind tunnels, computational facilities, and laboratories.

John F. Kennedy Space Center **Kennedy Space Center, FL**

Spaceflight and Life Sciences Training Program (June 1992 – August 1992)

- Participated in an intensive training program designed to teach how experiments are designed and how to conduct biological research and operations in space.
- Designed and constructed a plant growth chamber and studied the influence of infrared light on plant growth and gravitropic response (similar to an experiment flown in IML-1 on STS-42).
- Gained an in-depth examination of conceptualization, preparation, pre- and postflight testing, data analysis, and report preparation phases of space flight experiments and life sciences research with groups of students from different academic disciplines from around the world.
- Attended daily lectures by prominent scientists, engineers, and administrators from government, academia, and industry. Lecture topics included equipment and vehicle descriptions, biological problems encountered in the space environment, current NASA life sciences research, mission operations and management, and future project goals.
- Toured the major KSC facilities.

John H. Glenn Research Center at Lewis Field **Cleveland, OH**

Part-time work during school (Oct. 1988 – April 1989, Sept. 1989 – May 1990, Nov. 1991 – June 1992)
Case–NASA Aerospace R & D Internship Program (May 1989 – August 1989)

- Performed charge/discharge cycling of boilerplate and flight weight nickel-hydrogen batteries; monitored battery life-cycling tests; and evaluated and analyzed data to gain an understanding of battery performance as a function of cell design, separator materials, and depth of discharge.

NASA Committees

NASA Academy Scoring Committee (2007)

- Review and scored a group of applications.

NASA Robotics Academy Scoring Committee (2007)

- Review and scored a group of applications.

NASA Academy Conference (March 2006 – August 2006)

- Participated in 3-day conference and follow-up discussions to map out future of NASA Academy by determining statements of mission, vision, and core values for Academy; strengthening core team of stakeholders for Academy support; and identifying strategic goals and desired results, as well as long-term strategies and near-term action plans for each goal.
- Member of "core team" to determine specific direction of the strategic planning session.

NASA Robotics Internship Executive Selection Board (2005, 2006)

- Reviewed and scored endorsed semi-finalist applicants for the program.

NASA Academy Executive Selection Board (2005, 2006)

- Reviewed and scored endorsed semi-finalist applicants for the NASA Academy.

NASA Academy Interview Committee (2002 – 2006)

- Conducted phone interviews for top 30 finalists for NASA Academy Program at the NASA/Goddard Space Flight Center and provided recommendations to NASA Academy Selection Board.

NASA Academy Diversity Committee (2003 – 2005, 2006 - Present)

- Develop and implement strategies to increase the percentage of highly qualified minorities and other underrepresented groups who are extremely passionate about aerospace careers that apply to and participate in the NASA Academy and other NASA educational opportunities.

NASA Educator Astronaut Program Minimum Qualifications Review Panel (June 2003)

- Performed credentials check on application materials received by NASA's Educator Astronaut Program.

NASA Academy Selection Board (1995, 1996, 1998, 2000, 2001)

- Served on committee that reviewed close to 100 applications and selected between 16 and 24 Research Associates each year for the program at NASA/Goddard Space Flight Center.

NASA Academy Independent Assessment Team (2000)

- Member of a three-person team that conducted a 60-day independent assessment of the NASA Academy programs at Ames Research Center, Dryden Flight Research Center, Goddard Space Flight Center, and Marshall Space Flight Center to evaluate their processes and practices and offer suggestions for improvement. Evaluated the program against its objectives and posited recommendations concerning structure; hiring, management, and oversight; broadened program awareness; a tightened selection process; and program design. Improved practices are now in place and have resulted in increased success for the program.

CONSULTING EXPERIENCE

AnthroTronix, Inc. **Silver Spring, MD**

Consulting Research Engineer (August 1999 – Present)

- Provide human factors engineering consulting and product development services.
- Assisted with writing of proposals totaling over $1M.

WORK EXPERIENCE

Space Systems Laboratory **College Park, MD**

Diving Control Board member (January 2004 – August 2007)

- Member of board that had authority over campus' scientific diving program's operation, approves and monitors diving projects, and reviews and revises the diving safety manual.
- Reviewed certification exams and gave advice to the Diving Safety Officer.

Project Manager (June 2003 – November 2006)

- Astrobiology Science and Technology Experiment Program (January 2004 – November 2006)
  - Systems engineer of NASA-funded ($3M over 3 years) team partnered with Woods Hole Oceanographic Institution to develop 6 degree-of-freedom (DOF) robotic manipulator, autonomous vision system for target acquisition and ranging, and autonomy to autonomously sample life around hydrothermal vents at the bottom of the Arctic Ocean.
- Ranger Satellite Servicing System (June 2002 – November 2006)
  - Managed day-to-day operations of NASA-funded space robotics development project.
  - Responsible for integration and testing of over $2M of neutral buoyancy and 1-g robotic hardware.
  - Team established objectives and performance metrics.
  - Published data, photos, and videos of robotic tests in papers and on web sites.
- Neutral buoyancy simulation of robotic servicing of Hubble Space Telescope (June 2004 – September 2005)
  - Served as lead engineer and coordinated test activities for NASA-funded ($600K) neutral buoyancy simulation of robotic servicing of Hubble Space Telescope (HST).
  - Group modified existing robotic hardware to simulate Special Purpose Dexterous Manipulator, assembled HST neutral buoyancy hardware in neutral buoyancy tank, and conducted tests (~ 48 tests; 138 hours).

- MORPHbots/Lightweight Dexterous Modular Manipulators for Space Applications (July 2003 – January 2004)
  - Led DARPA-funded ($300K over 6-months; was to grow to $1.5M over 3 years) team to develop and refine requirements and develop a 100 kg 6-DOF robotic manipulator for use by Defense Advanced Research Projects Agency.
  - Team developed sample architectures and a prototype 2-DOF 2-kg roll/pitch actuator.

Operations Manager (July 2002 – November 2006)
- Coordinated day-to-day operations and interface with rest of campus community for 3 different Space Systems Laboratory facilities: Neutral Buoyancy Research Facility, Advanced Robotics Development Laboratory, and 1-g robotic test facility.
- Managed purchase of $450K of equipment and supplies for new Advanced Robotics Development Laboratory.

Diving Operations Manager (July 2002 – November 2006)
Assistant Diving Operations Manager (April 2001 – July 2002)
- Helped establish and maintain FileMaker Pro and web-based dive-related records, including diver qualifications and test plan records.
- Responsible for maintenance of equipment and overall dive operations.
- Scheduled periodic training classes, organized dive teams for externally requested tests, and participated in training classes.

Faculty Research Assistant (April 2000 – November 2006)
- Mentored graduate and undergraduate employees (approximately 6 per semester).
- Member of committee that advises university administration and students on severe weather. Help organize Skywarn classes taught by the National Weather Service on campus (November 2001 – Present).
- Performed systems trade studies to evaluate the use of robotics for HST servicing missions and conduct ambient and neutral buoyancy simulations of robots performing or participating in HST servicing mission tasks (March 2001 – Present).
- Coordinated and provided engineering support services for Goddard Space Flight Center HST Flight Systems and Servicing Project EVA simulation in the Neutral Buoyancy Research Facility (July 1998 – July 2002).
- Conducted tours of the laboratory for approximately 300 people each year (school groups and prospective students) (July 1996 – Present).

Scientific Diver (July 1996 – November 2006)
- Certified as a lead diver in the NBRF, with responsibilities for all personnel in the water during dives.
- Participated in dives (over 417 hours during 281 dives) of neutral buoyancy testing.

Principal Investigator as part of NASA Academy Summer Program (June – August 1997, 2005, and 2006)
- Mentored NASA Academy Research Associates as they conducted tests of ratchetless wrenches (1997) and developed strategies (2005) and concepts and prototypes (2006) for sampling and storage devices for autonomous sampling of life around hydrothermal vents.

Principal Investigator – Maryland-Georgetown-Army Exoskeleton (March 2004 – June 2006)
- Led Georgetown University-funded ($180K) team designing, building, and integrating an upper arm robotic exoskeleton being developed for assessment and rehabilitation of shoulder pathology.
- Responsible for interaction with Georgetown University's Imaging Science and Information Systems Center who is leading the controls effort and assisting with the kinematic design, electronics, and operation.

Ranger Telerobotic Shuttle Experiment – Research Engineer (April 2000 – July 2002)
- Lead engineer for EVA issues and development of contingency EVA tools for the Ranger Telerobotic Shuttle Experiment (RTSX), a four-manipulator dexterous telerobot designed to fly in the space shuttle cargo bay to demonstrate the capabilities of robots in space via teleoperation.

- Lead engineer for RTSX task equipment and neutral buoyancy components: EVA trainer (unpowered underwater form-and-fit unit) and Ranger neutral buoyancy vehicle II (fully functional, powered underwater engineering test unit of the RTSX flight robot).
- Directed operational neutral buoyancy testing of the EVA trainer (60 dives; 77 hours) and neutral buoyancy dexterous robot (89 dives; 186 hours).
- Assisted with the design, integration, testing, and verification of end effectors.
- Performed configuration trade studies and prepared and presented technical briefings and reports.
- Generated design layouts and completed production drawings per ANSI Y14.5 and procured mechanical subsystem hardware.
- Mentored various undergraduate students in assorted projects, including honors research projects (2002: free-floating tool board; RTSX-assisted servicing of HST).

NASA Graduate Student Research Fellow (July 1996 – August 1999)

- Analyzed and optimized the performance of a roller and sprag clutch to be used in aerospace mechanisms and as a replacement for the ratchet mechanism.
- Principal investigator for Analysis of Three-Dimensional Sprag Performance in a Micro-g Environment, an experiment designed and built by a team of graduate and undergraduate students and flown on the space shuttle (STS-95 in October 1998) to evaluate the performance of a sprag mechanism.
- Flew an experiment, along with a group of undergraduate students, on the KC-135 as part of the Reduced-Gravity Student Flight Opportunities Program.
- Mentored local high school students (1998–99 and 1999–2000 school years) in the development of a shuttle spacesuit-like glove for use in the NBRF.

Case Western Reserve University **Cleveland, OH**

Elementary Computer Programming Instructor (August 1989 – May 1994)

- Responsible for weekly lectures, review sessions, homework assignments, development of quizzes and exams, assignment and evaluation of final project, and assignment of final grades for two classes of 30 students each per semester.
- Drafted a textbook to be used for the class.

von Kármán Institute for Fluid Dynamics **Brussels, Belgium**

Short Training Period for Undergraduate Students (January 1993 – April 1993)

- Received a full scholarship to participate in an ongoing computational fluid dynamics research project dealing with solving the complete compressible Euler equations on an unstructured mesh. The project involved investigating the introduction of limiters to limit the errors associated with the piecewise linear reconstruction of the conserved variables.
- Attended week-long lecture series titled “Introduction to Computational Fluid Dynamics” and “Computational Fluid Dynamics.”

Los Alamos National Laboratory **Los Alamos, NM**

Department of Energy’s Science and Engineering Research Semester (August 1992 – December 1992)

- Utilized analytical and numerical skills to solve 15 coupled first-order ordinary differential equations used to model the effect of a rotating distorted electrostatic quadrupole on the confinement of a one-species nonneutral plasma while attempting to achieve maximum plasma compression.
- Presented results to theoretical division at the lab.

Ohio Supercomputer Center **Columbus, OH**

National Science Foundation’s Research Experience for Undergraduates (June 1991 – August 1991)

- Conducted numerical investigations using a CRAY Y-MP supercomputer of lift characteristics of symmetric and cambered airfoils for varying angles of attack and visualized the results using software on UNIX workstations.
- Attended classes on introduction to supercomputers, supercomputer applications, CRAY computers, CRAY UNIX, FORTRAN programming on the CRAY, vectorization and optimization of code, numerical methods, and fluid dynamics.

G.E. Aerospace **Camden, NJ**

Cooperative Education Program (July 1990 – December 1990)

- Participated as engineer in mechanical design of UHF Communications Transmitter and Receiver, part of the Communications and Tracking System for NASA's space station program. Generated printed wiring assembly breadboard artwork, generated an engineering department database that defined details for printed wiring board fabrication, performed weight calculations of orbital replacement units, and produced resistor network layouts for fabrication.
- Participated in company-wide initiative on better ways of doing business in which the focus was to learn more about competitors. Was selected by group to give presentation of our results to Government Communications Systems Division general manager and his staff.

EDUCATION

University of Maryland at College Park **College Park, MD**
James Clark School of Engineering

Master of Science (part time) in Fire Protection Engineering, part-time degree expected December 2008

University of Maryland at College Park **College Park, MD**
James Clark School of Engineering

Master of Science in Aerospace Engineering, August 1999

Thesis research focused on the development of a "ratchetless" wrench for extravehicular activity (EVA) under Dr. David Akin in the Space Systems Laboratory. Work funded by a NASA Graduate Student Researchers Program Fellowship. Wrench mechanism was evaluated on NASA's reduced-gravity flying laboratory (KC-135), by astronauts in the Neutral Buoyancy Laboratory, and on space shuttle mission STS-95.

Case Western Reserve University **Cleveland, OH**
Case School of Engineering

Bachelor of Science in Aerospace Engineering, Magna Cum Laude, May 1994

Senior thesis involved compressible flow computations on unstructured meshes and was conducted at the von Kármán Institute for Fluid Dynamics in Brussels, Belgium.

Coursework in Computer-Aided Design at Cuyahoga Community College (summer 1989); fluid mechanics at Villanova University (fall 1990); economics at The Ohio State University (summer 1991); space life sciences at Florida A&M University (summer 1992); plasma physics at the University of New Mexico (fall 1992); Earth and space science at University of Maryland Baltimore County (spring and summer 1995); and fire, rescue, emergency medicine, and emergency management at Maryland Fire and Rescue Institute (summer 1996 – present).

TEACHING EPERIENCE

University of Maryland **College Park, MD**

ENAE 488P: Fundamentals of Engineering Design (January – May 2006 and 2007)

- Course presented a broad overview of the many aspects of designing an engineered product. Coursework related design philosophies to solving engineering and manufacturing problems. Open discussions used to encourage creativity at problem solving. Emphasis placed on manufacturing requirements and their effects on product processing and quality control. Students given homework to challenge them to progressively understand how to use I-deas (Modeling, Assembly, Drafting & FEA) CAD software to communicate concepts.

VOLUNTEER EXPERIENCE

Maritime Archaeological and Historical Society **Washington, DC**

Member (January 2003 – Present)

- Attended classes on basic underwater archaeology.
- Preparing to support team during underwater archaeology field work on ship wrecks in Maryland and Florida.

Dr. Gerald A. Soffen Memorial Fund for the Advancement of Space Science Education

Founding Committee (November 2000 – Present)

- Worked with a group to organize the memorial fund and establish a travel grant and astrobiology fellowship in memory of Dr. Gerald Soffen, the chief scientist for the Viking program and the founder of the NASA Academy program.
- Award yearly travel grant to undergraduate and graduate students to attend a conference to present their research.

Spaceflight and Life Sciences Training Program Alumni Association **Maryland**

Founding Committee (April 2000 – Present)

- Founding member of the Association.
- Assisting with the drafting of web requirements and establishment of an online alumni database.
- Working with the NASA Fundamental Biology Outreach Program and the Kennedy Space Center education office to define tasks for the association and to obtain funding.
- Speak to summer interns about spaceflight engineering lessons learned and post-summer opportunities.

Greenbelt Volunteer Fire Department and Rescue Squad, Inc. **Greenbelt, MD**

Volunteer Firefighter/Emergency Medical Technician-Basic (EMT-B) (July 1996 – Present)

- Respond to approximately 130 fire calls and 100 ambulance calls per year (station responds to over 3,500 fire/EMS calls per year; county responds to over 130,000 fire/EMS calls a year; the county has the 15th busiest department in the nation). Volunteer approximately 30 hours a month.
- Over 1,200 hours of classroom and practical training and continuing education.
- Serve as secretary of antique fire engine restoration committee (April 2003 – Present).

Lieutenant (July 1998 – December 1998)

- Directed crew of up to eight on fire and emergency scenes.
- Responsible for conducting station training drills and coordinating maps of response area.

EMS Sergeant (January 1998 – July 1998)

- Responsible for coordinating monthly EMS drills for 40 members and orienting new members to the ambulance.

Prince George's County Volunteer Water Rescue and Recovery Team **Maryland**

Volunteer Public Safety Diver/Swiftwater and Ice Rescue Technician (July 1996 – Present)

- Respond to approximately 20 dive, swiftwater, and ice rescue calls a year in metropolitan Washington, DC area. Volunteer approximately 20 hours per month.

Board of Directors (July 1999 – July 2001)

- Responsible for the overall management, policy, distribution of funds, and coordination of all activities of the team.

Chief (July 2000 – July 2001)

- Commanded team when operating on water/dive rescue/recovery operations in county of over 800,000 residents and over 320,00 acres (500 square miles) of land and water, including over 8,000 acres of water with 3 major rivers, 4 reservoirs, 50 lakes and ponds, and over 100 creeks and branches.
- Supervised all operational officers and responsible for team of 25 personnel.
- Coordinated two monthly dive, swiftwater, and ice rescue-related drills (search and rescue, black-water diving, rappelling, aerial-deployed rescue, and boat safety and operations) for 30 members.
- Coordinated response with two other water rescue stations and interfaced with county fire commanders.
- Represented the team at the Prince George's County Fire/EMS Department Volunteer Chief's Council.

- Represented the team at the Potomac River Rescue Association (July 1999–July 2001), a group of county, state, federal, and private organizations that promotes cooperation between jurisdictions, assesses response and rescue procedures along the Potomac River, and conducts mock drills with the boat lines in Washington, DC, and Alexandria, VA, to better prepare for mass casualties and other emergencies.
- Represented the team at the Maryland State Public Safety Diving Group (March 2000–July 2001) that coordinated training and responses among all public safety diving teams and agencies in the metropolitan Washington, DC area.

Captain/Assistant Chief (July 1999 – June 2000) / Team Training Officer (July 1998 – July 1999)
- Coordinated two monthly drills.

NASA/Goddard Space Flight Center Visitor Center **Greenbelt, MD**
Speaker's Bureau (October 1999 – Present)
Earth and Space Science Public Outreach Specialist (September 1995 – Present)
- Give tours of satellite integration and communications facilities to over 400 people a year.
- Speak to over 250 people a year in school and public groups from elementary to college level about topics ranging from space engineering to the importance of science and math.
- Serve as judge for local science fairs.

NASA Academy Alumni Association, Inc.
Founding Committee (September 1995 – February 1997)
Vice President of Finance (February 1997 – November 1998)
- Founding member of the Association.
- Established financial program, directed fundraising activities, and served as webmaster for first two years.

TECHNICAL SKILLS

- *Computer Experience*: In-depth knowledge of popular DOS and Macintosh software packages, proficiency with computer-aided design tools (AutoCAD and I-DEAS) and UNIX.
- *Programming Languages*: Quick Basic, Turbo Pascal, FORTRAN 77, CRAY FORTRAN 77.
- *Engineering*: Knowledge of engineering graphics and geometric dimensioning and tolerancing and basic machine shop skills; Engineer-in-Training license, laser safety and cleanroom certifications.
- *SCUBA Certifications*: open water (PADI), advanced (NAUI), rescue (NAUI), enriched-air Nitrox (IANTD), advanced Nitrox (IANTD), decompression procedures (TDI), cavern (NACD), introduction to cave (NACD), underwater archaeology; dive rescue specialist (Dive Rescue International); DAN oxygen provider; Interspiro Divator Mk-II Service and Maintenance Technician Certification; over 38 hours during 61 open water dives.
- Nationally certified firefighter, EMT-B, fire officer, and fire/emergency service instructor.
- Internationally certified dive rescue specialist, swiftwater rescue technician, ice rescue technician, low- to high-angle rope rescue technician, and National Weather Service SKYWARN Spotter.
- Amateur radio technician class license (call sign: KB3KID).

ACTIVITIES

- Associate member of the American Academy of Underwater Sciences (AAUS; 2004–Present), Member of the American Institute of Aeronautics and Astronautics (AIAA; 1991–Present), American Society of Mechanical Engineers (ASME), International Association of Dive Rescue Specialists (1996–Present), National Association of Rocketry Headquarters Astro-Modeling Section (1994–1996), National Fire Academy Alumni Association, National Fire Protection Association (2000–Present; Fire Service Section, 2002–2003), Society of Automotive Engineers, Society of Fire Protection Engineers (2001–Present), and The Society for Human Performance in Extreme Environments (1998–Present).
- Founder and first President of Students for the Exploration and Development of Space, CWRU Chapter.

- Programmer on student-operated radio station (WRUW, 91.9 FM) as an undergraduate student. Spent at least 4 hours a week at the station. Helped to produce a blues show for one semester and produced a 30-minute news program the following semester.
- Played drums in Case Western Reserve University marching and jazz bands.
- Hobbies include home improvements; playing softball (NASA/Goddard Space Flight Center league and fire department league), golf, soccer, football, racquetball, and ultimate frisbee; swimming; reading about space history; woodworking; SCUBA diving; playing the drums; amateur astronomy; traveling (have lived in England, Scotland, and Wales for 1 month; Belgium for 4 months; and France for 2 months); compiling a comprehensive list of space-related Internet sites (`http://spacelist.org/`); and working on cars.

AWARDS

- *Cambridge Who's Who of Executives and Professionals* (2006/2007), *Great Minds of the 21st Century* (2006), *Empire Who's Who Among Executives and Professionals* (2006/2007), *International Directory of Experts and Expertise* (2006), American Biographical Institute's Man of Achievement (2005), *America's Registry of Outstanding Professionals*, 2005-2006 edition; International Biographical Centre's International Professional of the Year–2005; American Biographical Institute's Man of the Year–2005; *Contemporary Who's Who of Professionals The Contemporary Elite*, 2004/2005 Edition; *2,000 Outstanding Intellectuals of the 21st Century*, 2005; *Strathmore's Who's Who*, 2004-2005 Edition; *The Contemporary Who's Who of Professionals*, 2004/2005 Edition and Second Edition; *Strathmore's Who's Who*, 2003-2004 Edition; *International Who's Who of Professionals*, 2001 Edition; *United Who's Who*, 2001 edition; *Who's Who in Science and Engineering*, 3rd (1996–1997) and 5th Editions; *Who's Who in the World*, 17th Edition.
- United Cultural Convention's International Peace Prize (2004, 2005, 2006) for the attainment of excellence in the face of obstacle and circumstance, for the benefit of society, on the local or international level and to celebrate the work of individuals who are achieving results across political, religious, business, and ethnic divisions, to the greater good of society.
- Prince George's County Fire/EMS Department Certificate of Award, American Legion Citation for Meritorious Service, Greenbelt Fire Department Distinguished Service Award, and Governor of the State of Maryland's Citation for firefighting operations at the Pentagon on September 11, 2001.
- Certificate of appreciation from the United States Secret Service in special recognition of fire and rescue efforts and superior contributions to the law enforcement responsibilities of the U. S. Secret Service for firefighting efforts at their training facility on January 18, 2004.
- *Tools of the Trade* Editor's Choice 2002 Grand Award in recognition of technical leadership and innovation in space tool design.
- Runner-up in graduate category of Year 2000 ASME Student Mechanism Design Competition held at 26th Biennial Mechanisms and Robotics Conference.
- First place in graduate division at second annual Human Exploration and Development of Space – University Partners Mars Exploration Forum (6-7 May 1999) for the group design of an astronaut assistant rover.
- Third place in graduate division at 1999 AIAA Middle Atlantic Regional Student Conference paper and oral presentation competition.
- NASA Graduate Student Researchers Program Fellowship (1997–2000).
- Tau Beta Pi national engineering honor society; Golden Key National Honor Society in recognition of outstanding scholastic achievement and excellence.
- Fred Hale Vose Prize for the senior in Mechanical and Aerospace Engineering who demonstrated the greatest promise for professional leadership.
- National Dean's List (12th edition, 1988-89; 13th edition, 1989–90); Outstanding College Students of America (Volume VIII, 1989–90); United States Achievement Academy National Collegiate Engineering Awards Winner (Volume IX, 1994); United States Achievement Academy All-American Scholar Collegiate Award (1998).
- Dean's Honors (fall 1988, spring 1992, spring 1994); Dean's High Honors (spring 1991, fall 1993).
- Congressional Youth Leadership Council's Honorary Congressional Board of Advisors' National Young Leaders Conference Youth Leadership Award (1988) in recognition of meritorious achievement in scholarship, leadership, and citizenship; Ohio Leadership Award (1988–89).

PUBLICATIONS

Journal Papers

Roderick, Stephen, Roberts, Brian, Atkins, Ella, Churchill, Phil, and Dave Akin, "Design and Validation of an Autonomous Software Safety System for a Dexterous Space Robot," *AIAA Journal of Aerospace Computing, Information, and Communication*, Volume 1, December 2004.

Roderick, Stephen, Roberts, Brian, Atkins, Ella, and Dave Akin, "The Ranger Robotic Satellite Servicer and its Autonomous Software-Based Safety System," *IEEE Intelligent Systems*, vol. 19, no. 5, September/October 2004, pp. 12-19.

Conference Papers

McGuire, Jill and Brian Roberts "Hubble Robotic Servicing and Deorbit Mission: Risk Reduction, Mitigation, and Lessons Learned," AIAA-2007-6255, *AIAA Space 2007*, Long Beach, CA, 18-20 September 2007.

Akin, David L. and Brian Roberts, "Robotic Servicing of the Hubble Space Telescope: Lessons Learned from a Short-Lived Program," AIAA-2006-7393, *AIAA Space 2006*, San Jose, CA, 19-21 September 2006.

Akin, David L., Roberts, Brian, Roderick, Smith, Walter, and Jean-Marc Henriette, "MORPHbots: Lightweight Modular Self-Reconfigurable Robotics for Space Assembly, Inspection, and Servicing," AIAA-2006-7408, *AIAA Space 2006*, San Jose, CA, 19-21 September 2006.

Akin, D., Roberts, B., Pilotte, K., and M. Baker, "Robotic Augmentation of EVA for Hubble Space Telescope Servicing," AIAA-2003-6274, *AIAA Space 2003*, Long Beach, CA, 24 September 2003.

Gefke, Gardell G., Carignan, Craig R., Roberts, Brian J., and J. Corde Lane, "Ranger Telerobotic Shuttle Experiment (RTSX): Status Report," In *Telemanipulator and Telepresence Technologies VIII*, Matthew R. Stein, ed., *Proceedings of the International Society for Optical Engineering*, vol. 4570, 28 October 2001, pp. 123–132 (also published as SSL Document Number 01-013).

Akin, Dr. David L., Lane, Dr. J. Corde, Roberts, Brian J., and Steven R. Weisman, "Robotic Capabilities for Complex Space Operations," AIAA-2001-4538, *AIAA Space 2001*, 28–30 August 2001 (also published as SSL Document Number 01-014).

Parrish, Joseph C., Sullivan, Brook R., and Brian J. Roberts, "Planning for the Ranger Telerobotic Shuttle Experiment On-Orbit Operations," AIAA 2000-5291, *AIAA Space 2000*, 19–21 September 2000 (also published as SSL Document Number 00-006).

Roberts, B., Shook, L., Hossaini, L., and R. Cohen, "Analysis of Three-Dimensional Roller Performance in a Micro-g Environment," In *1999 Shuttle Small Payloads Project Symposium Proceedings*, NASA-CP-1999-209476, 13–15 September 1999 (also published as SSL Document Number 99-010).

Roberts, Brian J., and Dr. David L. Akin, "Weightless Testing of a 'Ratchetless' Extravehicular Activity Wrench," SAE 1999-01-2036, 2*9th International Conference on Environmental Systems*, 12–15 July 1999 (also published as SSL Document Number 99-007).

Roberts, Brian, "Development of a 'Ratchetless' Wrench for Extravehicular Activity," *1999 AIAA Region 1 Mid-Atlantic Student Conference*, 16–17 April 1999 (also published as SSL Document Number 99-005).

Theobald, D., and B. Roberts, "Design of an Astronaut Assistant for Martian Exploration," *1999 AIAA Region 1 Mid-Atlantic Student Conference*, 16–17 April 1999 (also published as SSL Document Number 99-004).

Posters

Akin, D. L., Roberts, B. J., Smith, W., Roderick, S., Reves-Sohn, R., Singh, H., "SAMURAI / AVATAR: Polar AUV-Based Autonomous Dexterous Sampling," Poster Number C41B-0332, American Geophysical Union Fall Meeting 2006, San Francisco, CA, 11-15 December 2006.

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