**John M. Horack, Ph.D.**
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**ENGINEERING, SCIENCE and TECHNOLOGY SCHOLAR, LEADER, AND EXECUTIVE**

I am a results-driven business and technology leader who possesses technical, managerial, communications, and critical-thinking skills and over 30 years of experience in scientific, technical, academic, and research environments. I thrive on leadership challenges in high-technology enterprises - whether in government, academia, or the private sector - where innovation is valued, and the leadership encourages healthy team dynamics, and operates with the highest ethical standards.

**Expertise:**

- Executive Leadership
- Strategic Planning
- Process Engineering
- Communications
- Spaceflight Hardware and Programs
- Business Development
- Innovation and Critical Thinking
- International Team Building
- Software Product Architecture and Prototyping
- Research and Development
- Internet Technology and Applications
- Venture Capital Fundraising
- Budget and Strategy Alignment
- Recruitment of high-value personnel
- Proficient in German, learning Chinese

**Professional Experience:**

**The Ohio State University** **January 2019-Present**
College of Engineering
Columbus, Ohio
***Senior Associate Dean for Research***

As the Senior Associate Dean within the College of Engineering, I act on behalf of, and represent the Dean of Engineering on a wide range of strategic college and university-level issues including research, academics, teaching, development, advancement, hiring, and budgeting. This includes responsibility for implementation and design of particular large-scale initiatives such as the continued growth of Aviation and Aerospace activities at Ohio State, raising the public profile of the College of Engineering, and recruitment of key faculty and endowed chair positions. I collaborate with our Executive Director for Finance and Chief of Staff to help implement long range financial strategy in support of the college's strategic plan. Responsible for oversight of selected areas at the determination of the Dean, including most recently leading the College's Covid-19 pandemic crisis response team.

**The Ohio State University** **July 2016-Present**
College of Engineering and
John Glenn College of Public Affairs
Columbus, Ohio
***Professor and Neil Armstrong Chair in Aerospace Policy***

I serve as a professor in the College of Engineering's Mechanical and Aerospace Engineering Department and in the John Glenn College of Public Affairs, and am the inaugural holder of the Neil Armstrong Chair in Aerospace Policy. My role is to provide integration and leadership at Ohio State equally within the technical and policy aspects of spaceflight, aviation, engineering, and related academic and research areas. Through teaching, research, service, and outreach, I provide The Ohio State University community with access to the global space community, and provide the global space community with technical, policy, and knowledge benefits from OSU, enabling the creation of positive social, economic, educational, and quality-of-life outcomes from space activities world-wide. This is a full-professor appointment with tenure.

In 2019, I was awarded the prestigious Ohio State University Alumni Award for Distinguished Teaching, which usually is bestowed as recognition for excellence in instruction following many years in the

classroom. My teaching responsibilities to date have included co-development and presentation of an inaugural Freshman Seminar on the history of the US Space Program (Spring 17, 18, 19, 20), Advanced Space Propulsion (AAE 5752, Spring 17, 18, 19, 20), Orbital Mechanics for Engineers (AAE 5626 Fall 17, 18), and Leadership in Public and Non-Profit Sectors (PUBAFF 2130, Spring 2018, 2019, 2020). Currently I am developing a course on US Space Policy and the Global Political Economy (PUBAFF 3620) to be offered in the Fall of 2020, and one of the core-courses in the Academic Minor in Science and Engineering in the Public Interest.

In January 2018, I was asked by the Dean of Engineering to steward the Center for Aviation Studies as its interim director, while the existing director was on sabbatical. Following this sabbatical, leadership in the College of Engineering chose to leave me in this position, and to not return the directorship to the previous holder. In this position, I have reshaped the leadership structure of CAS, investing significantly into staff members to grow their careers and to improve the performance of the Center, reflected in a record 300+ students now enrolled. We have implemented and grown a National Conference on Diversity in Aviation, which has quickly become a leading venue for students, faculty, staff, and industry to meet and actively improve upon equality and opportunity in the industry. I served also as a leader of the search committee for the new Executive Director of the Aerospace and Air Transportation Campus at KOSU/Don Scott Airport. This position is now filled by Ms. Stephanie Morgan, and we are experiencing all-time records in flight training hours, aircraft uptime, and revenue related to our flight education activities, even during the Covid-19 crisis. Our relationship between the Center for Aviation Studies and operations at the KOSU/Don Scott Airport have never been better.

I mentor a wide spectrum of students across Engineering and the John Glenn Colleges, in particular through leadership and engagement with the Battelle Center's *Space Innovations* Student Community of Practice and Engagement (SCOPE). Through this SCOPE, I steward the research, educational, and career growth of scores of OSU students. These include sponsorship for students presenting research papers at the 68th International Astronautical Congress in Adelaide, Australia in September 2017, the 69th IAC in Bremen Germany (nine students), and over fifty (50) students to the 70th IAC in Washington, DC. The scope of these research papers includes the technical capabilities of Chinese launch vehicles, satellite remote sensing for agriculture policy assessment in Mexico, using of space-based observations to track infectious disease, nuclear thermal propulsion, policy recommendations and insights for orbital debris, and more. I serve as the Faculty Advisor for the Buckeye Space Launch Initiative, OSU's student rocket program, which received first-place finishes in the 2017 and 2018 Spaceport America Cup, among more than 70 university-based competitive teams. I am also Faculty Advisor for the OSU chapter of the Students for the Exploration and Development of Space (SEDS).

My work with BWXT, Inc. and NASA is in development of a nuclear-thermal powered spaceflight mission, currently named *Jesse Owens*, to deploy instrumentation and hardware rapidly to the outer solar system (e.g., reaching Mars in ~75 days). Currently, over 25 students have worked or are working under my leadership on trajectory design, nozzle design, additive manufacturing, computer modeling, and spacecraft integration of this mission, which serves as an important precursor for human exploration of the deep solar system. Groups of students have engaged in this work as part of their capstone courses since the 2017-2018 school year. Through this effort, BWXT has committed funding for graduate and undergraduate research students, including summer internship opportunities.

As part of my work with the Sustainable and Resilient Economies Discovery Theme at Ohio State, I am working closely with Professor Karen Dannemiller on her work in understanding the microbiome of the built environment. Specifically, this team is analyzing dust being returned from air-filters aboard the International Space Station, and culturing this dust across a range of humidities and temperatures, to explore the microbiome of confined spaceflight environments. This work is part of funded NASA research activities, as well as an emerging collaboration with the Center for the Automation of the Life Sciences (CELISCA) at the University of Rostock in Northern Germany. Research in understanding the microbiome of long-duration spaceflight systems and vehicles is an important part of NASA's future exploration activities, and in ensuring the sustainability of crew health. The implications of this research will extend far beyond spaceflight, into confined or specific human-occupied environments such as aircraft, submarines, cruise-ships, hotels, and other public spaces.

*Made in Space* is one of the United States' premier commercial space companies, working to pioneer additive manufacturing in space. Founded by an OSU M&AE graduate, we have established an operational "Mission Control Center," enabling OSU students to perform Made in Space activities on-orbit, including on the International Space Station. I have personally worked with the company to place full-time and summer-intern students in gainful employment. The company currently has two 3-D printers aboard the ISS, is engaged with NASA on "Project Archinaut,' a spacecraft designed to fabricate structures in space which are larger than the confines of a rocket fairing, and has significant customers across the United States' National Security Community. Student research activities include capstone courses on zero-CTE materials, design reference mission studies, and planning for large, next-generation space telescopes and in-situ platforms, and we are seeking an additional $250,000 in funding for the FY21 cycle.

In February of 2017, I coordinated and led the 2017 United Nations workshop on the future of space, held in Vienna, Austria under the auspices of the UN Office of Outer Space Affairs. This was part of my ongoing work with the International Astronautical Federation, where I have served in the Executive Bureau and continue as the leader of several technical committees. In Spring 2019, I was invited by the Deutsches Zentrum für Luft- und Raumfahrt (DLR, the "German Space Agency") to chair their initial technical formation review for their new Space Weather Research Institute in Neustrelitz, Germany. Fall 2019 brought two additional international invitations, one to host and provide a keynote lecture in honor of the 50th Anniversary of the Apollo 11 Moon Landing at the Danish Astronautical Society in Copenhagen, Denmark, and a second invitation from the US Department of State for a lecture tour across Japan, also in recognition of the 50th Anniversary of Apollo 11, and to celebrate US/Japan collaboration in space.

I take a paramount interest in serving our students, and have worked with nearly seventy-five individuals on structuring their resumes, helping apply for jobs and internships, writing recommendation letters, introducing them to my network in global aerospace, and offering career guidance. In particular, I am very proud of my work with women, students of color, and other members of under-represented groups to help forge a path forward for them to build productive careers in aerospace, and in charing the M&AE Department's Diversity and Inclusion Committee.. I have personally helped place over 50 students in research and career opportunities in the US, Scotland, Korea, Israel, Italy, across NASA, in the private sector, and in graduate schools. I am proud also of my service to broader OSU objectives, for example through events such as the recent "*Masterminds*" lecture series in October 2017, and in November of 2017, I was honored to be appointed to the Search Committee for the position of Senior Vice President of Research at The Ohio State University.

**Teledyne Brown Engineering** **June 2015-November 2015**
Huntsville, Alabama
***Vice President, Global Commercial Space***

In this position, I was responsible for strategy and direction of Teledyne's emerging commercial space endeavors in the US and abroad, as well as serving as an integration point for all of Teledyne's space activities. I have led the Huntsville-based team to develop initial studies for assessment of landing the Sierra Nevada DreamChaser space vehicle at the Huntsville International Airport, the first 14 CFR part 139 (public use) airport to consider landings from low-Earth orbit. I have also led the efforts to secure the first commercial data purchase agreement for the Teledyne/DLR DESIS-30 hyper-spectral space-borne instrument, valued at $15M, 18 months prior to instrument launch to the International Space Station. Current efforts include the development of a Teledyne strategic partnership with a Germany-based optical laser communications company for application to LEO satellite constellations, DESIS-30 data sales to the European Space Agency and US National Geospatial Intelligence Agency, a partnership with AirbusDS GmbH in Bremen to commercialize the European *Columbus* Module aboard ISS, and multiple turn-key mission commercial customers for the MUSES platform.

**International Astronautical Federation** **October 2014-October 2018**
Paris, France
***Vice President and Special Advisor to the President***

In October 2014 I was nominated and elected to serve as one of the twelve Vice Presidents of the International Astronautical Federation (IAF). The IAF is the world's largest body of space-related

organizations, comprised of companies, national space agencies, universities, and non-profits. My responsibility at the IAF is to guide the technical content and evolution of the Federation, and its annual International Astronautical Congress meetings, with over 2,500 selected papers and presentations annually. The tenure of this position is four years, renewable for another four, and brings me into working contact with heads of space agencies (ESA, NASA, Roscosmos, ASI, CNES, JAXA, ISRO), company CEOs, and space policy makers from around the world. In 2016, I was appointed as a special advisor to the President, Dr. Jean-Yves LeGall, to lead initiatives on Diversity and Inclusion, Technical Evolution of the International Astronautical Congress, and to represent the IAF in a variety of International venues and fora.

**Teledyne Brown Engineering** **July 2012-May 2015**
Huntsville, Alabama
***Vice President for Space Systems***

I lead and manage the Space Systems portfolio of Teledyne Brown Engineering, driving revenue from $48M (2013) to $68M (2015 November Forecast) of annual business for government and commercial customers since starting in 2012. Results for 2014 provided the first year-over-year revenue growth for Space Systems in seven years. Revenue has met (or exceeded) plan each year in which I have had P/L responsibility. Since my arrival at Teledyne Brown, my team has successfully captured two major prime-contracts; the ~$120M Mission Operations and Integrations (MO&I) contract at NASA, to continue our leadership in executing the 24/7/365 payload operations activities aboard the International Space Station, and the Engineering Solutions and Prototyping (ESP) contract at NASA, an Indefinite Delivery Indefinite Quantity contract valued at approximately $300M over five years. The performance on MO&I led to Teledyne Brown being selected as the 2015 NASA/Marshall Large Prime Contractor of the year. The first successful task order won on the ESP contract was the $60M Launch Vehicle Stages Adapter (LVSA) flight hardware for NASA's new Space Launch System heavy-lift rocket. This hardware is now built and will fly on the first launch of the SLS. During my tenure at Teledyne Brown, of the ~$90M awarded on ESP, my team captured ~$87M of the total. We built the world's first commercial hyperspectral imaging capability aboard the International Space Station through Teledyne Brown's *Multi-User System for Earth Sensing (MUSES)* imaging platform, which was launched on a SpaceX Falcon 9 rocket, and is now operating on the ISS. I was personally responsible for leadership in acquisition of the first partner instrument for flight on MUSES, including all negotiations with the Deutsches Zentrum für Luft und Raumfahrt (German Space Agency) for contribution of a hyperspectral imaging camera, as well as negotiations with NASA on advanced data purchase agreements for imaging spectrometer data, and other commercial space imaging-partnerships. The overall performance of Space Systems grew through August 2015 to make this unit is the single largest entity by revenue, among the seven which comprise Teledyne's Engineered Systems Division.

**University of Alabama in Huntsville** **February 2009-July 2012**
Huntsville, Alabama
***Vice President for Research***

I stewarded the research enterprise of UAHuntsville, and the research work performed within its five colleges and fourteen research centers. Under my leadership, research expenditures were grown from $65M (2008) to over $85M (2011), and the University achieved the highest possible Carnegie Classification of Research Universities - "Research Intensive / Very High Activity." We invested over $2.0M into strategic research infrastructure across the University. These investments resulted in a number of notable accomplishments, including UAHuntsville's collaborative team being awarded a flight instrument on NASA's *Solar Probe* mission, now probing the Sun from a distance of only 9-solar-radii. Research infrastructure grants were actively cultivated into start-up companies, winning competitive business plan proposals at the state level. We built stronger partnerships, including with NASA/Marshall, evidenced by the awarding of a new 5-year cooperative research agreement, grew deeper research ties to Oak Ridge National Laboratory, through their on-campus partnership office, and through internal partnership efforts that resulted, for example, in the university receiving the largest NSF research grant ever given to the College of Liberal Arts. Our partnerships with DoD also grew, establishing new research activities with the Missile Defense Agency, the development of a Joint-Command Technology Demonstration Program (JCTD) for Arctic research in cooperation with the Huntsville-based Von Braun Center for Science and Innovation, and the growth of research expenditures tied to software engineering, systems management and production, and other activities within the US Army Aviation and Missile

Development and Research Command. I reshaped the annual office budget of ~$8M to align with the strategic priorities of the university, including a near-doubling of the internal competitive research funds available to faculty and staff, the hiring of the university's first-ever full-time grant writer, and improvements in training and workshops for faculty and staff to be more competitive in proposal writing. We instituted new capabilities for communicating the quality, impact, and human-stories of UAHuntsville research, and allocated funding to research centers according to a performance-driven, quantitative metric system. I fortified three major international research opportunities for students, faculty, and staff from across UAHuntsville, building on relationships in Panama with the NGO CATHALAC and with the Smithsonian Tropical Research Institute (earth science, climate, and sustainability), in Germany with the University of Rostock and the DLR (engineering, science, culture, philosophy, language, music, arts), and within the International Astronautical Federation, enabling nearly 100 students from all parts of UAHuntsville to enter peer-reviewed abstracts of original research and to present this research at the world's largest international conference of space professionals in Cape Town, Naples, and Prague. I also secured the visits of numerous high-profile people to the University, including German Ambassador to the United States, Dr. Peter Ammon (Spring 2012), and Apollo 17 Lunar Astronaut Harrison Schmitt (Spring 2009) as commencement speakers and honorary doctoral degree recipients.

**National Aeronautics and Space Administration** **December 2005-February 2009**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Science and Mission Systems Office, Manager***

In this Senior-Executive-Service (SES) position, I served as the leader of the Science & Mission Systems Office, responsible for managing advanced spaceflight hardware development and complex scientific research and implementing formulation, maturation, design, development, and operation of science and human exploration spaceflight systems, overseeing an annual program/project budget of ~$300M. Successes of the 300+-person organization during my tenure here are the result of highly collaborative activities between government, University, private-sector, and not-for-profit entities, and include the delivery of the Oxygen Generation and Water Recovery Systems to orbit aboard the International Space Station, launch and activation of the Gamma-Ray Burst Monitor aboard NASA's GLAST spacecraft, ground testing of mirror assemblies for the James Webb Space Telescope, the development of two new Earth Science instruments for soil moisture and hurricane wind measurement, program management in the return of NASA's Stardust comet-sample-return mission, *New Horizons* mission to Pluto, *Messenger* Mission to Mercury, and *Chandra* X-Ray Telescope, and the formulation of a new lunar science program for NASA, as well as early development of America's next lunar robotic lander spacecraft. I represented the Agency and the Marshall Center in a number of national and international professional meetings, conferences, public speaking, and educational forums.

**National Aeronautics and Space Administration** **February 2005-December 2005**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Space Transportation Programs and Projects Office, Assistant Director***

I returned to NASA in February 2005 to provide leadership to the Space Transportation Programs and Projects Office as a GS-15(10) under the Agency's NEX hiring authority. Shortly after my arrival, the Director was assigned to the NASA Headquarters, making me responsible for the day-to-day operations of the ~$40M per-year program and project office. In addition to the overall organizational responsibility, I was tasked to provide leadership for two major NASA space-flight program proposals, totaling nearly $2B in value. These proposals involved extensive collaboration with other NASA Centers, Government agencies, and University-Affiliated Research Centers.

**Mobular Technologies, Inc.** **January 2000-February 2005**
Huntsville, Alabama
***Co-Founder, Corporate Director, Chief Product Architect, VP Technical Business Development***

I founded Mobular Technologies, a company which enables companies to turn print assets/publications and print/electronic inventories into internet-based, interactive applications that can also be emailed. Products include interactive shareholder communications, proxy voting, electronic merchandise catalogs, and

interactive marketing materials and brochures. Customers included IBM, CDW, Bank of America, Sony, Dick's Sporting Goods, and Gateway Computers. I held day-to-day responsibility for designing and implementing the overall product architecture and managing the technical aspects of corporate business development in the Financial Services, eCommerce, and Travel/Tourism markets. I designed and implement corporate sales metrics and processes. This company is still a going concern as of July 2020.

Specific achievements include:

- Secured over $7M in venture capital money, including the first private equity investment in the state of Alabama by Deutsche Banc/Alex. Brown.
- Conceived, designed, and implemented the company's overall product architecture. Software is the foundation for IBM's corporate-wide electronic catalog and winner of the 2003 eTail eCommerce application of the year.
- Redesigned corporate sales processes and infrastructure to reduce average customer acquisition time by 40% in three months; and to increase visibility and understanding of the sales pipeline.
- Led expansion of Mobular product line into travel and tourism related markets, closing three new revenue-generating partnerships in the first 120 days of the initiative.
- Developed the first patent-pending proxy-vote by email system incorporating all relevant financial documents and secure voting by email. Product used by Microsoft, eTrade and others in support of corporate annual meetings.
- Developed and deployed three product lines in the first four years of the company, resulting in revenue growth that contributes to achieving business plan milestones.

**National Aeronautics and Space Administration (NASA)** **1996 -2000**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Space Sciences Laboratory, Assistant Director for Science Communications***

Conceived, developed, and implemented cross-disciplinary and cross-organizational process and infrastructure to communicate scientific research to non-scientific audiences. As a GS-14 (4), I managed a 7-person, high-performance team and a three-year $1M cooperative research agreement to improve the scientific accuracy, volume, and public awareness of new knowledge generated by NASA/Marshall.

Specific achievements include:

- Won the 1999 "People's Voice" Webby Award for best science website on the Internet, NASA's first for a science-related website.
- Grew a 200,000-member on-line subscription community.
- Established NASA/Marshall as the Agency leader in the communication of science and technology research.
- Established a national research roundtable for communicating science and technology in the 21st century. Non-FACA panel included Pulitzer Prize winners, members of the National Academy, and communications professionals. Published final report on nationwide best-practices and a roadmap for the future in science communications.
- Managed a three-year $1M cooperative research agreement with the University of Florida, which produced 4 PhD Journalism and Communications students and several Master's Degree students.
- Served as a primary spokesperson for NASA research in print, radio, and television venues such as CNN, NPR, and the Discovery Channel.

**National Aeronautics and Space Administration (NASA)** **1994 -1995**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Assistant Mission Scientist, Astro-2/STS-67 Space Shuttle Mission***

Assigned responsibility for optimizing overall scientific return from the Astro-2 Space Shuttle mission. Used scientific management and creative problem-solving skills to balance competing needs and scientific goals of three science teams. Served as a primary spokesperson for the science from the mission in television, radio, and print venues.

Specific accomplishments include:

- Coordinated science objectives and viewing schedules for three separate science payloads and research teams from Johns Hopkins University, University of Wisconsin, Goddard Space Flight Center, and their affiliated institutions.
- Worked on-console operations in the Payload Operations Control Center for 16-days of continuous scientific observations.
- Enabled a successful scientific data return, including:
    - the detection of intergalactic Helium as a test of the Big-Bang theory
    - the first wide-field atlas of the sky in the far Ultraviolet
    - the first space-borne polarimetry studies of cosmic objects in the far ultraviolet.
    - over 150 peer-reviewed journal papers published from the mission.

**National Aeronautics and Space Administration (NASA)** **1991 -1998**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Research Scientist, Gamma Ray Astrophysics***

Conceived and executed original experimental and theoretical research in high-energy astrophysics. Authored or co-authored over 75 research publications and presentations in the field.

Specific accomplishments include:

- Co-authored the discovery that gamma-ray burst distributions are consistent with a cosmological origin, invalidating nearly 20 years of previously accepted models.
- Co-authored the discovery of flashes of gamma rays from thunderstorms.
- Authored invited review article in *Science* magazine, reviewing the state of gamma ray burst research.
- Mentored graduate students and taught graduate coursework at the University of Alabama Huntsville.

**National Aeronautics and Space Administration (NASA)** **1987 -1991**
George C. Marshall Space Flight Center, Huntsville, Alabama
***Assembly, Test, and Calibration Scientist***

Designed and implemented assembly, test, and calibration programs for the Burst and Transient Source Experiment (BATSE), one of four science payloads launched into space aboard NASA's *Compton* Observatory, the second of NASA's four Great Observatories in astronomy and astrophysics.

Specific assignments include:

- Led scientific testing and calibration activities for BATSE at the NASA/Marshall Center during initial experiment assembly and test while Principal and Co-Investigators implemented a balloon-flight program to study Supernova 1987A from launch sites in Australia.
- Worked as the resident scientist for spacecraft integration at TRW in Redondo Beach, CA. Responsible for the functional and scientific testing program of BATSE during the 16-month integration phase to verify proper operation of the experiment once integrated into the observatory.
- Directed and implemented scientific testing and calibration activities for BATSE at the Kennedy Space Center in Florida as the satellite was prepared from January 1990 to April 1991 for its launch aboard the Space Shuttle.

**KMOX/CBS Radio Sports Department** **1984**
St. Louis, Missouri
***Sports department intern***

**St. Louis Baseball Cardinals** **1983**
St. Louis, Missouri
***Media and Public Relations Intern***

**Special Professional Assignments, Boards, Licenses, and Awards:**

- Elected Fellow of the Royal Aeronautical Society UK, (2020)
- Ohio State University Alumni Award for Distinguished Teaching (2019)
- Danish Astronautical Society, Invited Speaker (2019)
- US State Department/Japan, Invited Speaker (2019)
- Ohio Aerospace and Aviation Technology Committee (State of Ohio Appointment) (2019)
- DLR Space Weather Institute Inaugural Technical Evaluation Committee, Neustrelitz, Germany (2019)
- 3rd International Human Lunar Exploration Conference, Xi'an, China, Invited Speaker (2018)
- Smithsonian Air and Space Museum, Udvar-Hazy Memorial Wall of Honor, Chantilly, VA (2018)
- The Ohio State University, John Glenn College of Public Affairs, Undergraduate Teacher of the Year (2017-2018)
- The Ohio State University College of Engineering, Mechanical and Aerospace Engineering Professor of the Year (2017- 2018)
- Chinese Society of Astronautics, 20th Anniversary Hong Kong Space Exhibition, Invited Speaker (2017)
- UN Office of Outer Space Affairs, Vienna, Austria - Future of Space Workshop and Plenary, Coordinator and Moderator (2017)
- Appointed Special Advisor to the President of the International Astronautical Federation (2016-present)
- Board of Directors, Ohio Aerospace Alliance (2016-present)
- Elected Vice President of the International Astronautical Federation (2014)
- Draper Laboratories Space Systems Board of Directors Review Panel (2012)
- Board of Directors, Alabama-Germany Partnership (2012)
- National Science Board's Invited Workshop on NSF Unsolicited Mid-Scale Research, Panel Member (2011)
- Board of Directors, Oak Ridge Associated Universities (ORAU), (2010), member of the Executive Committee (2011), head of Finance and Audit Committee (2012)
- Board of Directors, Economic Development Partnership of Alabama (EDPA) Foundation (2011)
- Leadership Alabama, Class 21 (2011)
- Member (2006), Secretary (2009), Co-Chair (2011) Space Transportation Congress of the International Astronautical Federation (IAF)
- Member Space Universities Advisory Committee, International Astronautical Federation (2011)
- NASA Exceptional Achievement Medal (2008)
- Leadership Huntsville, Class 21, (2007-2008)
- Member Ex-Officio, Board of Directors, Von Braun Center for Science and Innovation (2006)
- University of Alabama Huntsville Alumni of Achievement Award (2007)
- University of Alabama Huntsville College of Science Distinguished Alumnus (2006)
- NASA Lunar Human and Robotic Exploration Strategic Working Group (2005)
- Board of Directors, Sci-Quest Hands-On Science Center (2004-2006)
- Restricted Stock Grant by Mobular Technologies' Board of Directors in recognition of contribution to company's growth and achievements (2003)
- Invited Speaker, DEMO 2002, the leading conference on emerging internet products and technologies (2002)
- Chair, NASA/Goddard Space Flight Center Earth Science Internet Peer Review Panel (1999)
- NASA University-Class Explorer Mission Selection Review Board (1999)
- Member, NASA Communicate Knowledge Process Improvement Team (1997-1998)
- Finalist, NASA Astronaut Candidate Selection Class (1998)
- Member, National Research/Roadmap Working Group for the Communication of Science and Technology in the 21st Century. (1997 – 2000)
- NASA Full-Time Study Award (1994)
- FAA Licensed Private Pilot with Instrument and Commercial Ratings, FAA Flight Instructor

**Professional Society Affiliations:**

- Member, American Institue for Aeronautics and Astronautics (AIAA)
- Member, American Association for the Advancement of Science (AAAS)
- Member, American Astronomical Society (AAS)
- Member, Aircraft Owners and Pilots Association (AOPA)
- Eagle Scout, Boy Scouts of America.

**Patents and Publications:**

- Patent Pending for Proxy Voting within email (2000 Filing Date)
- Over 100 publications in peer-reviewed journals and conference proceedings. Detailed list available upon request.
- 2020 July: *h*-index for research: 22 (Google Scholar), 22 (ResearchGate)
- 2020 July: Citations: 4,385 (Google Scholar)
- 2020 July: Most Cited Paper - *Spatial Distribution of Gamma Ray Bursts Observed by BATSE*, Nature **355** (6356), 143-145, with 1,061 Citations

**Executive Training:**

- MIT/Sloan Executive Training – *Building, Leading, and Sustaining the Innovative Organization*; *Managing Technical Professionals and Organizations; Understanding and Solving Complex Business Problems* (2005-2007)
- NASA/Marshall Space Flight Center representative to the International Space University Summer Session, Toronto, Canada. (1990)
- Hammer and Company, Process-Centered Management and Design training, 1997, 1998

**Education:**

- PhD, Physics, University of Alabama in Huntsville, Huntsville, AL, December 1993
- MS, Physics, University of Alabama in Huntsville, Huntsville, AL, June 1992
- BS, Physics and Astronomy, *Phi Beta Kappa*, Northwestern University, Evanston, IL, June 1987