National Aeronautics and Space Administration

NASA ACADEMY AT GLENN RESEARCH CENTER

PROFILE BOOK 2007

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2007 NASA Academy

Glenn Research Center
Cleveland, Ohio

2007
Profile Book

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Cleveland, OH 44135
http://academy.grc.nasa.gov/

Michael Griffin
NASA Administrator

"This is NASA's vision for the future. Our mandate is:

- *To improve life here,*
- *To extend life to there,*
- *To find life beyond*

So, how do we get to that impressive picture of the future? Part of the answer is by executing NASA's mission:

- *To understand and protect our home planet*
- *To explore the Universe and search for life*
- *To inspire the next generation of explorers … as only NASA can."*

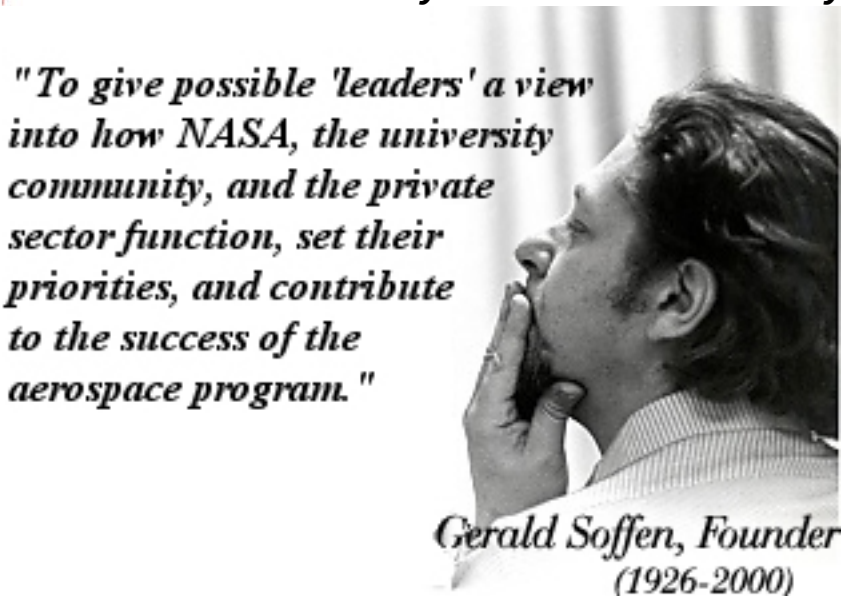
Woodrow Whitlow Jr.
Director, NASA Glenn Research Center

New Horizons:

The Glenn Research Center drives the engine of innovation. The Center's expertise continues to be critical to NASA's future missions in air and space. As private and commercial aviation expands, NASA Glenn will propel aircraft to new standards of performance and efficiency. With a new vision for exploring our solar system, NASA Glenn engineers and scientists are ready to pursue breakthrough technologies in advanced power, propulsion and communications to enable human and robotic missions to the Moon and beyond.

(From "The Glenn Research Center: Expanding Horizons and Opening Frontiers", NASA Fact Sheet FS-2004-08-009-GRC.)

A Brief History of the NASA Academy



The NASA Academy was founded in 1993 as the "NASA Space Academy" at Goddard Space Flight Center by Gerald (Jerry) Soffen, former Mars Viking project scientist, architect of the NASA Astrobiology program, and first Director of the Goddard Office of University Programs. Jerry was an accomplished scientist and a dedicated educator. He took advantage of the unusual opportunities presented to him during his career and realized the importance of mentoring in the life of young professionals. In his vision, the Academy was intended to exceed in purpose and content all the other regular internships by familiarizing its participants with as many facets of NASA as possible. With his dynamic personality and unique leadership, he opened many gateways and defined a new standard of excellence.

NASA Academy programs were established later at the Marshall Space Flight Center (1994), the Ames Research Center (1997), the Dryden Flight Research Center (1997), and the Glenn Research Center (2005). In 2007 Ames, Glenn, Goddard, and Marshall will host Academies.

Jerry Soffen died on November 22, 2000. We honor his legacy by continuing the Academy program that he loved so well.

In 2007, the NASA Academy celebrates fifteen years of operation. So far, more than 600 participants have graduated from the program.

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Program Description

The NASA Academy is an intensive resident summer program of higher learning for college undergraduate and graduate students interested in pursuing professional and leadership careers in space-related fields. It is a unique and prestigious NASA internship program for talented students interested in pursuing professional and leadership careers in space-related fields.

The NASA Academy program is designed to present a broad picture of the organization of the NASA agency, some of its most important current and planned science, engineering, education, and technology enterprises, as well as a number of non-technical areas of critical significance, such as management, budgeting, safety, personnel and career development, leadership, space law, international cooperation, etc. Besides attending lectures and workshops, students are involved in supervised research in GRC laboratories, and participate in visits to other NASA Centers and facilities, space-related academic laboratories, and industries.

NASA Academy provides immersive and integrated multidisciplinary exposure and training for students with various backgrounds and career aspirations. The academic curriculum balances opportunities for direct contact with advanced science and engineering research and development and an awareness of the complex managerial, political, financial, social, and human issues faces by the past, present, and future aerospace programs.

Program Objectives

- To provide an opportunity for participants to contribute to research in a world-class, space-related laboratory
- To provide a unique, intensive, and rigorous educational and training curriculum for NASA, its in-house science and technology projects, its collaboration with other national centers, industry, and academia, and its extensive technology-transfer programs
- To foster creativity, personal initiative, and leadership qualities together with teamwork, appreciation for diversity, and professional ethics
- To facilitate access to, and dissemination of, valuable information on career development paths, financial support, technical writing standards, intellectual property, etc.

Eligibility and Selection Criteria

The 8 participants in the 2007 NASA Glenn Academy have been selected from a pool of over 2000 financially supported applicants from institutions of higher education both within and outside of the United States. Selection was based following criteria:

- academic rank (junior, senior, first- or second-year graduate)
- academic performance (minimum GPA of 3.0 or equivalent)
- demonstrated interest in the space program
- demonstrated leadership qualities
- research and/or project interest and experience
- maturity
- recommendation and references
- citizenship is required for US applicants

The selection process and placement of the Academy participants within Glenn's research groups were assisted by recommendations from faculty, administrators, academic supervisors, and co-workers, and the applicants' self-profiling essays.

Rebecca Arvanites

Massachusetts Institute of Technology
Cambridge, MA
Aeronautical and Astronautical Engineering
Bachelor of Science, June 2007
Email: becca.arvanites@gmail.com

NASA Academy Research Project:
Analyzing MER Image Data to Quantify Mars Atmospheric Dust
Principal Investigator: Geoffrey Landis

Academic Experience
- ***MIT – Cambridge, MA, June 2007***
  Bachelor of Science, Aeronautics and Astronautics Engineering, 2007.

Work Experience
- ***NASA SAWDRIP Internship in Systems Engineering for the James Webb Space Telescope, Summer 2006***
- ***BioSuit Research at the MIT Man Vehicle Lab, Fall 2005***
- ***Jentek Sensors Applications Summer Intern, Summer 2005***
- ***Member of In-Situ Resource Utilization University Design Competition winning team, sponsored by NASA***
- ***MIT Admissions Office Overnight Program worker***

Memberships and Activities
- Career Development Chair of MIT Society of Women Engineers (SWE), 2006-2007
- Social Chair of MIT International Association for the Exchange of Students for Technical Experience (IAESTE), 2006-2007
- MIT TechFair Academic Relations Committee, 2006-2007
- MIT Vehicle Design Summit Organizing Team, 2005-2007
- Simmons Hall Orchestra member (2003-2007), coordinator 2006

Skills and Certifications
- Computer Skills: Microsoft Office, Matlab
- Programming Languages: Java, C/C++, Ada95, Verilog
- Experience with machine shop tools

Honors and Awards
- Attended Space Policy Summer Seminar hosted by the Air Force Academy Center for Space and Defense, Summer 2007

Hobbies and Interests

Playing viola, playing tennis, learning about the space industry, going to the beach, traveling, watching soap operas.

Personal Statement

"My interest in NASA is to spend the summer at the Academy learning about the space industry and how I can best contribute to it. Space science and exploration are two ways that are becoming more and more essential for humans to learn about the world and answer more of our many questions. I think it is an exciting time to be involved in the space industry, and I follow the technological advances in lowering space launch costs through private efforts with interest."

Case Western Reserve University
Cleveland, OH
Engineering Physics
Bachelor of Science, January 2009
Email: kbg4@case.edu

NASA Academy Research Project:
Genetic Algorithm Optimization for Inlet Bleed Design Systems
Principal Investigator: Meng-Sing Liou

Academic Experience

- ***Case Western Reserve University; Cleveland, OH, Aug '04 - Present***
  Bachelor of Science, Engineering Physics, Jan. 2009

Work Experience

- ***Intern with Engineering Ministries International***
- ***Research Assistant in fuel cells for Case Advanced Power Institute***
- ***Rock Wall Supervisor at Case Veale Athletic Center***
- ***Guys Counselor for Mission Meadows youth camp***

Memberships and Activities

- Vice President, Engineers Without Borders, Spring '06 – Spring '07
- Co-Founding Officer, President, Campus Crusade for Christ, '05 – Present
- Case Crew Team, Fall 2004, Fall 2005
- Case Concert Choir, Fall 2004 – Present
- Member of the Association of Christian Design Professionals

Skills and Certifications

- Computer Skills: Microsoft Office, Igor, Java, MATLAB, Origin, LoggerPro, Mathematica, AutoCAD, OrCAD, Photoshop
- CPR/First Aid certified

Honors and Awards

- Recipient of the Board of Trustees Scholarship, Case Western Reserve University, Spring 2006 – Present
- Dean's Honor's List, Five Semesters
- Published Essay, "Oil's Demise and Hydrogen's Debut," *Voice of the Future*, Elder & Leemaur Publishers, 2006
- Recipient of National Education Association, Western NY Scholarship
- Recipient of Chautauqua Region Community Foundation Scholarships
- Recipient, "Right Stuff Award," Advanced Space Academy, 2003

Hobbies and Interests

Soccer, Rowing, Traveling, Hiking, Rock climbing, Space, Playing Guitar, Singing in Choir, Musical Theater, Homeless Outreach, and Reading

Personal Statement

"I have always been an explorer, whether traveling the world and experiencing different cultures or taking apart my dad's drill to understand how it works. After designing and building a dog feeder in fourth grade I began to imagine, draw, and build inventions. In sixth grade I attended U.S. Space Camp where my creativity and inquisitiveness was channeled toward space. I attended two more Space Camp programs before graduating high school, each one teaching me more about Space, NASA, leadership, and responsibility as an individual and within a team. During this time, launching model rockets, building circuit boards, and designing my own science experiments fostered my knowledge and interest in science and engineering. At college, I chose to major in Engineering Physics, with an Aerospace Concentration, in order to understand how things fundamentally work and apply that understanding to new technologies. I aspire to work with NASA, running experiments both on the ground and in space, in pursuit of exploring the universe and expanding mankind's horizons."

Portland State University
Portland, OR
Mechanical Engineering
Bachelor of Science, June 2008
Email: jennifer_jones_2004@yahoo.com

NASA Academy Research Project:

Liquid Propellant Gauging in Low Gravity
Principal Investigator: Neil T. Van Dresar

Academic Experience

- ***Portland State University – Portland, OR, Sept 2005 – Present***
  Bachelor of Science, Mechanical Engineering, June 2008
- ***Portland Community College – Portland, OR, Jan 2004 – Mar 2006***
  Transfer in Engineering

Work Experience

- ***Mechanical Engineering Intern, Cascade Energy Engineering, Sept 2005 - May 2007***
- ***Team Leader and Flyer, JSC Reduced Gravity Student Flight Opportunities Program, PSU Advisor: Dr. Mark M. Weislogel, 2007***
- ***Research Assistant, National Science Foundation Research Experience for Undergraduates Program, Portland State Univ. Dept. of Physics, Advisor: Dr. Jun Jiao, Sept 2005 - June 2006***
- ***Research Fellow, California Institute of Technology Student Undergraduate Research Fellowship (SURF) Program at the Jet Propulsion Laboratory, Advisors: Barbara McGuffie, Dr. Eric Dejong, June 2005 - Aug 2005***
- ***Reading and Math Tutor, Buckman Elementary School, Oct 2004 - June 2005***
- ***Chemistry and Physics Lab Technician, Portland Community College, Sept 2004 - June 2005***
- ***Engineering Intern, USDA Forest Service, Columbia River Gorge National Scenic Area, June 2004 - Sept 2004***
- ***Computer Building Instructor, Free Geek Computer Education and Recycling Center, Oct 2003 - June 2004***

Memberships and Activities

- American Society of Mechanical Engineers, Member and Officer, 2005 - Present
- Sigma Xi, Member, 2006 - Present

Skills and Certifications

- Computer Applications - Proficiency: MS Office Programs: Word, Excel, PowerPoint; ArcGIS; Familiarity: MATLAB; Mathematica; Mathcad; Maple; AutoCAD
- Computer Operating Systems - Proficiency: Windows; Familiarity: Linux

Honors and Awards

- Oregon NASA Space Grant Consortium Scholarship, 2007
- American Society of Mechanical Engineers North American Pacific District D Regional Old Guard Competition, 2007
  - 1st Place Award, Old Guard Oral Competition
  - Best Technical Presentation, Old Guard Oral Competition
- 1st Place Award, ASME Oregon Section Student Oral Presentation Competition, 2007
- Portland State University Bookstore Scholarship, 2006-2007
- Sigma Xi Outstanding Research Award, 2006
- All-Oregon Academic Team, Oregon Scholar, 2006
- Portland State University Scholarly and Creative Activity Grant for Undergraduate Research, 2005-2006
- Oregon NASA Space Grant Fellowship, Caltech SURF at JPL, 2005
- Oregon NASA Space Grant Consortium Scholarship, 2005
- Americorps Students in Service Award, 2004-2005
- Portland Community College Foundation Engineering Scholarship, 2004-2005

Hobbies and Interests

Jazz Music, Classical Piano, Hiking, Biking, Kayaking, Art, Writing, Computers and Volunteering

Personal Statement

"I enjoy research because it is exciting and challenging. My professional interests focus on theoretical, numerical and experimental thermal and fluids research (fluids and heat transfer), with applications to fields such as low-g fluid physics, propulsion, power, and renewable energy. In a career I'm looking for an opportunity for growth, increased responsibility, and the ability to direct and pursue interesting research. My ideal career would be an outlet to express my creativity, enable me to use my technical and analysis skills, and be challenging enough to keep my interest for the long-term. I'm interested in continually learning new things, collaborating with colleagues, and sharing my results and knowledge with others."

Ashley Micks

Massachusetts Institute of Technology
Cambridge, MA
Aerospace Engineering, Theater
Bachelor of Science, June 2009
Email: aemixx@mit.edu

NASA Academy Research Project:
Genetic Algorithm Optimization of Jet Engine Inlets
Principal Investigator: Meng-Sing Liou

Academic Experience

- ***Massachusetts Institute of Technology – Cambridge, MA, Sept. 2005 – Present*** Bachelor of Science, Aerospace Engineering, June 2009; Bachelor of Science, Theater Arts, June 2009

Work Experience

- ***Program Assistant for the MIT Office of the Arts***
- ***Spectrum Player at the Columbus Center of Science and Industry (COSI)***
- ***Northwest Worthington Library Volunteer (ran children's programs, trained volunteers)***
- ***Video Editor for the MIT Space Systems Lab's SPHERES program***
- ***Audio Systems Operator at Atonement Lutheran Church***
- ***Battelle Design Team Member at COSI Academy (designed a metal-detecting robot and an ROV)***

Memberships and Activities

- Member of Teen Program Planning Committee at the Northwest Worthington Library – June 2000-August 2005
- MIT Dramashop Box Office Manager – August 2006-May 2007
- MIT Dramashop Publicity Designer – Present
- MacGregor House Entry Chair (F Entry) – Present
- Member of the National Society of Collegiate Scholars
- International Thespian Society – 2004-Present

Skills and Certifications

- Computer Skills: MATLAB, Final Cut, Java, Excel, Power Point, 3D Studio Max, Dreamweaver, Adobe Photoshop, Word, graphics tablet, equally comfortable with Macs and PCs
- Language Skills: Fluent in English and proficient in French.
- 1st degree black belt in tae kwon do

Honors and Awards

- National Scholars Honors Society (2006)
- AP Scholar with Distinction (2005)
- Presidential Academic Excellence Award (2005)
- Robert C. Byrd Honors Scholarship
- Charles E. Jefferson Award (2005)
- Science Olympiad: 1st place in chemistry at invitationals (2005), 1st place in chemistry at states (2004)
- Chemistry Olympiad: top ten at regionals (2004)
- National Merit Finalist (2004)
- National Honor Society (2003)
- Socratic Society (2001)
- French Honor Society (2001)

Hobbies and Interests

Directing, acting, drawing, tae kwon do, video games, politics, religion, and writing (especially science fiction).

Personal Statement

"When I tell people that I want to major in aerospace engineering and theater, I get responses anywhere from 'That's . . . quite a combination,' to ' . . . Why?' so I'll try to explain briefly.

The main question for people in these fields is why the fields themselves are relevant, why we should spend billions on a trip to Mars or absurd amounts of time and talent on a stage production when hunger and violence threaten so much of the world. There are professions that address those problems directly: medicine, food production, civil engineering . . . professions whose goal is to help people live longer and more comfortably. The question there is why. There needs to be a *reason* to live, and that's the business I'm interested in. Exploration and the pursuit of knowledge, creative expression and human relationships—these are the things that make people want to get up in the morning. The universe beyond this planet is fascinating, and getting out into it would be incredibly meaningful—mostly because it could tell us a lot about who we are and what our role might be in the larger picture, as well as just what that larger picture is. Similarly, human relationships are fascinating, and theater is one of the most widely accessible and creative ways to explore them. Creativity-driven exploration is my ideal occupation, with vehicle creation and outer space for my left brain, and show creation and the social universe for my right. Both deserve the disciplined and meticulous attention commonly ascribed to science, as well as the vision and awareness of humanity commonly ascribed to art."

Larry Bernard Murphy

University of Maryland
College Park, MD
Mechanical Engineering
Master of Science, May 2009
Email: bmurphy5@mail.umd.edu

NASA Academy Research Project:
Exploration Life Support - Dust Mitigation and Support
Principal Investigator: Juan H. Agui

Academic Experience

- ***University of Maryland – College Park, MD, Aug 2005 – Present***
  James A. Clark School of Engineering
  Bachelor of Science, Mechanical Engineering

Work Experience

- ***Advanced Polymer Processing*** ***9/06-present***
  Lab Assistant
  Assist PhD student in developing and manufacturing a polystyrene/ carbon nano-tube (CNT's) composites. Operate a twin-screw extruder.
- ***GE Eco-Imagination Competition*** ***9/06-12/06***
  Designed a system to improve the efficiency of the Food Services Operation at the University of Maryland. If implemented, will save a minimum of $7 million annually
- ***Community Assistant – LaPlata Hall*** ***9/06-1/07***

Memberships and Activities

- ***College Park Scholars Program***
  A living-learning program for academically talented students. Provides courses and experience that relate to Business, Society and the Economy.
- ***Quality Enhancement Systems and Teams Honors Program***
  A highly selective three-year cross-functional program focused on developing critical engineering and business skill sets, especially on topics of quality.
- ***LSAMP Undergraduate Research Program***
- ***National Society of Black Engineers – Univ. of Maryland Chapter***

Skills and Certifications

- Computer Skills: Microsoft Office
- AutoDesk AutoCAD

Honors and Awards

- Altria Inc. Scholarship recipient
- Louis Stokes Alliance for Minority Participation Scholars recipient

Hobbies and Interests

Reading, SLR Photography, Basketball, Watching movies.

Personal Statement

"Having the opportunity to work with NASA is very exciting. I am a junior mechanical engineering major at the University of Maryland. In addition, I am very interested in the technology of modern times. NASA is a first class institution that brings these technological ideas, their application and the realm of possibility together. I aspire to take my love for technology and interest in leadership, to the work place. My goal is to become a director of engineering in either NASA or within another first rate engineering environment."

Adam P. Pfendt

University of Louisville
Louisville, KY
Chemical Engineering
Bachelor of Science, May 2008
Email: adam.pfendt@gmail.com

NASA Academy Research Project:
Cryogenic Analysis Tool Applied to LSAM (Lunar Surface Access Module)
Principal Investigator: David Plachta

Academic Experience
- ***University of Louisville –Louisville, KY, Aug 2004 – Present***
  Bachelor of Science, Chemical Engineering, May 2008; Master of Engineering, Chemical Engineering, May 2009

Work Experience
- ***Production Chemical Engineering co-op DuPont Fluoroproducts***
- ***Research Assistant, Wood Hudson Cancer Research Lab***

Memberships and Activities
- Vice President of the Speed School of Engineering Student Council
- Community Service Chair of Triangle Fraternity
- Flag Football Coach
- Student Government Association Senator
- Honors Student and member of ΤΒΠ, ΟΔΚ, ΤΒΣ, Golden Key, and Order of Omega honor societies

Skills and Certifications
- Computer Skills: Proficient Microsoft Excel VBA programmer
- Proficient Laboratory skills and safety

Honors and Awards
- KY Academy of Sciences 2nd Place in Physiology and Biochemistry, Undergrad Research Competition
- Grawemeyer Scholar
- Robert C. Byrd Scholar
- Dean's Scholar and Dean's List

Hobbies and Interests

Hobbies include water and snow skiing, sailing, fishing, reading, playing 14 different intramural sports, and SCUBA diving. Has traveled to China, Australia, France and England. Has played piano for 16 years and also knows saxophone and guitar.

Personal Statement

I have always been interested in space and NASA from a very young age, and have grown up in a family of engineers. My dad once got us into Yerkes Observatory one night by claiming that his two biggest contributions to the exploration and study of space were protective coating designs for planetary probes, and his six year old son, me. In college I began pursuing degrees to lead me into a career in the fields of biomedicine and engineering and until recently had not expected that this might lead me to NASA, although it had always been a hope. I am grateful for the opportunity that has been afforded to me and eagerly await the friendship, growth, and memories that the NASA Academy will foster.

University of Kansas
Lawrence, Kansas
Engineering Physics, Astronomy
Bachelor of Science, May 2009
Email: jegab8@ku.edu

NASA Academy Research Project:
Human Power Generation in Space
Principal Investigator: Beth E. Lewandowski

Academic Experience

- ***University of Kansas – Lawrence, KS August 2004 – Present***
  Bachelor of Science, Engineering Physics Aerospace, May 2009; Bachelor of Science, Astronomy, May 2009

Work Experience

- ***Undergraduate Researcher, Physics Dept., University of Kansas***
- ***Lifeguard***
- ***Lab Assistant, Aerospace Dept., University of Kansas***
- ***Solar Telescope Assistant, Exploration Place***

Memberships and Activities

- Secretary and Founding member of Experimental Balloon Society, spring 2005 - Present
- Society of Physics Students member Spring 2005 – Present, Mascot Fall 2005 - Present
- Physics and Engineering Student Organization Student Council Representative Spring 2007 - Present

Skills and Certifications

- Computer Skills: Microsoft Office, Pinnacle Studio, Matlab, NX Unigraphics
- Language Skills: Moderate Spanish
- Swimmer

Honors and Awards

- National Merit Finalist
- Engineering Dean's Honor roll, two semesters
- School of Liberal Arts and sciences Honor Roll, three semesters
- University of Kansas undergraduate Research Award, two semesters

Hobbies and Interests

Gardening, telescoping, drawing, singing, guitar, cycling, water sports, high energy physics, watching sci-fi movies, baking, photography

Personal Statement

"There are many goals that I have for my life. As I have grown, my plans for the future have shifted repeatedly. When I was a much younger, I wanted to be either a ballerina or an astronaut. After my first vacation in the mountains, I wanted to be either an adventure guide or an astronaut. When I was given my first telescope, I was set on becoming an astronaut. I believe that there is a great deal we can learn by looking up and outside of our immediate existence. Beyond that, there always has and always will be a drive for humans to explore the unknown, through scientific exploration and manned journeys. I look into the night sky and I see my next journey."

Stephanie Vasicek

Ohio Wesleyan University
Delaware, OH
Physics
Bachelor of Arts, June 2008
Email: srvasice@owu.edu

NASA Academy Research Project:
Next Generation High Power Multi-frequency Transmitter for Space Borne Doppler Radar Sensing and Precipitation Measurements
Principal Investigator: Edwin Wintucky

Academic Experience

- ***Ohio Wesleyan University - Delaware, OH, Aug 2004 – Present***
  Bachelor of Arts, Physics, Jun 2008

Work Experience

- ***Lab Grader at Ohio Wesleyan for Physics 115/116 labs***
- ***Lab Assistant at Ohio Wesleyan for Physics 111 lab***
- ***Upward Bound Tutor in Physics and other sciences***
- ***Target: Guest Services, Cashier, Sales Floor or Fitting Room Attendant.***

Memberships and Activities

- Sister of the Delta Gamma Sorority (Ohio Wesleyan University, Alpha Rho Chapter), Spring 2006 – Present; House Director: Fall 2006; Director of Recruitment Records: Spring 2007 – Present.
- Society of Physics Students (Ohio Wesleyan University chapter), member since Fall 2004; President: Fall 2005 – Spring 2006; Secretary: Fall 2006 – Spring 2007.
- American Physical Society, Fall 2005 – Present
- Astronomy Club (Ohio Wesleyan University), member since Fall 2004; Secretary: Fall 2005 – Spring 2006; Treasurer: Fall 2006 – Spring 2007.
- Church – Eucharistic Minister/Volunteer Work

Skills and Certifications

- Computer skills: Perl programming, LaTeX, and LabView. programming, Mathematica, Microsoft Word, Excel, and Power Point.

Honors and Awards

- Spring 2007: Marsh W. White Award (SPS: "Ph^3 – Physics Phun Phriday" proposal by Claire Ryu and myself) – members of Ohio Wesleyan University chapter of Society of Physics Students went to a local elementary school to help promote physics amongst youngsters.
- Spring 2006: The Robert and Elizabeth Muller Award for Promise in Physics.
- Spring 2004: Ohio Wesleyan Faculty Scholarship; Thiele, Witenhafer, and Chrien Scholarship; Medina Rotary Club Scholarship; Brewe Garrett Scholarship.

Hobbies and Interests

Star-gazing, Cooking, Delta Gamma (my sorority), Music, Reading books (especially mystery), Shopping, Dancing , Family, Friends, Church.

Personal Statement

"My love of physics and astronomy has existed throughout my life, so my career goal has always been to work at NASA. I used to sit outside when I was younger, and even today, just staring up at the stars in the night sky. I remember how this overwhelming feeling would come over me when I would envision myself being in outer space or at the possibility of designing or building something that would travel into space. Thinking about what kind of a difference I could make in this world working at NASA and in the aerospace program truly inspires and excites me. I am a persistent, hard-working individual always challenging myself to do more and work even harder. I love to be involved in as much as I can. I have visited the Green Bank Telescope at the National Radio Astronomy Observatory, helped organize a trip to the National Air and Space Museum for our Astronomy Club, and toured Kennedy Space Center on a family vacation."

Operations Manager,
2007 NASA Academy

The George Washington University
Washington, DC
B.S. and M.S. in Electrical Engineering
and Mathematics, Concentration Communications
December 2008
Email: keb1@gwu.edu

Research Experience

- **Research Associate, NASA Glenn Research Center (GRC)** *Antennas & Microwave System Branch May 07 - Present* Research area: Ka-Band Atmospheric Calibration. Conducting statistical analysis of Ka-Band attenuation time series. Outcome of project will be used to design Next Generation Deep-Space Network Antennas supporting NASA Ka-band communication links to near Earth (Moon) and deep space (Mars). The overall work has direct applicability to lunar and planetary systems, as well as ground operations.
- **Research Associate, NASA GSFC/ The John Hopkins University Applied Physics Laboratory** (JHU/APL) *Space Department, Space Systems Applications, Mission & Space System Engineering (SE) Jun – Aug 2007* Conducted a requirement assessment for designing the System Engineering Conceptual Design Laboratory (SE Lab). Developed spacecraft Subsystem relationship models to identify top-level mission needs. Spearheaded a study on the software toolset Phoenix Integration to identify whether it will serve the SE Lab in developing Deep Space mission studies and prototypes.
- **Research Associate**, **NASA MSFC / NASA Academy** *Spacecraft & Vehicle Systems Division, Advanced Sensors & Health Management Branch. June – Aug 2005* Spearheaded a study on how artificial intelligence (AI) technologies can create intelligent (decision-making) space vehicle systems. Most of my time was spent analyzing AI Bayesian and neural networks techniques for tracking and docking space vehicles purposes.
- **Engineer Intern, NASA GRC,** *Space Communications*. *Jun - Aug 1998* Calculated and analyzed signal level strengths received by a ground station from the Advanced Communications Technology Satellite (ACTS) during rainy durations; this supported earlier works in testing and evaluating adaptive rain fade compensation protocol for a communication satellite system operating from Ka-Band.

Work Experience

- **Operations Manager, NASA Glenn Research Center (GRC)**
  Research and Technology Directorate, NASA Academy May 07 - Present Establish and implement programmatic and strategic requirements for the NASA Academy. Develop alliances in government, industry, nonprofit, and academia. Team manager of 8 Research Associates (RAs). Provide guidance and encourage discussion among RAs in the areas such as technical and team development, leadership, and group project management.
- **Lockheed Martin Corporation (LMC) / NASA GRC**
  ACTS Mission Engineering Team, Satellite System Engineer Associate. Jan 2001 - Sept 2004 Provided satellite communication engineering and technical advice on the health, status, and command and control for the ACTS spacecraft; Involved in mission planning with NASA Engineers and experimenters.
- ***NASA GRC / Lockheed Martin Corporation***
  Space Communication Office (SCP) / ACTS Mission, Technical Consultant. Jun 1999 –Dec 2000 On-call engineering support for RF and TT&C system problems and spacecraft anomalies occurred.

Memberships and Activities

- NASA Academy Alumni Association (NAAA), Executive Council (EC) Officer, *President* (Dec 2006– Present)
- NAAA, EC Officer, *Vice President of Operations* (Mar – Nov 2006)
- Institute of Electrical and Electronics Engineers, Inc. (IEEE), *Member*
- Society of Satellite Professionals International, (SSPI), *Member*
- George Washington University Space Society (GWSS), *Member*
- Toastmasters International, *Participant*

Skills and Certifications

- Computer Skills include: AutoCAD, MathCAD, MatLAB, PSPICE, Satellite Tool Kit, C++, HP VEE, Visual Basic 6.0, HTML, FORTRAN, Windows NT and 2000 Platforms.
- Foreign Language Skills: Mid-Level Training in Japanese
- Certification: Train the Trainer Certification

Hobbies and Interests

GPS Systems, Entrepreneurship, Public Policy & Foreign Affairs, Racquetball, Mystery novels, Watching the Cartoon Network Channel.

Personal Statement:

"I had such a wonderful experience in the NASA Academy in 2005 and am willing to give back to the program afterwards. With the NASA Academy Alumni Association (NAAA), there are many if you explore them! This summer, we have a great troupe of RAs in all 4 Academies. Our goal is to unite them all and create a great experience."

Dr. M. David Kankam

Program Director,
2007 NASA Academy

Cleveland, OH
PhD, Applied Science and Electrical Engineering
Email: mark.d.kankam@nasa.gov

Dr. Kankam joined the NASA Glenn Research Center (GRC) in March ’90, as a Senior Research Engineer in the ‘Power and On-Board Propulsion Technology Division’. He currently serves as the GRC University Affairs Officer in the New Business and Partnership Office within GRC’s Research and Technology Directorate. He has oversight responsibility for GRC research community collaboration with academia, in support of the Center research programs.

Dr. Kankam earned his Diploma in Business Admin. (Mgt. Studies), and Ph.D., M.A.Sc. and B.A.Sc. (Applied Science & Engineering) degrees in Elect. Engineering from the U. of Toronto, Canada. He is a Registered Professional Engineer in Ontario/Canada, a member of the Canadian Society of Professional Engineers, and a Life Senior Member of the IEEE and its Industry Application Society (IAS). He was the 2005 and 2006 chairman of the Industrial Automation and Control Committee of the IEEE/IAS, and is now the Vice-Chair of the Manufacturing Systems Development and Applications Department of the IEEE/IAS, for Magazine publications.

Dr. Kankam was a Research Officer in the R/D Division-Ontario Ministry of Transportation & Communications (MTC), Toronto/Canada, from Dec.’73 to Aug.’77. He was then employed as an Engineer at Ontario Hydro, Toronto/Canada, from Sept.’77 to Feb.’79, and an Application Engineer at General Electric Company in Schenectady, NY, from March ‘79 to March ’90.

He served on the GRC’s Fellowship Selection Committee for several years, Technical Review Teams, Panel of Evaluators for NASA Research and Internship Programs, and as GRC’s Technical Representative of NASA ‘Faculty Awards for Research’ Program from ’92 to ’97. He has proctored and mentored summer Faculty Fellows and Student Interns, respectively, to complement in-house research programs. He was selected as a NASA Administrator Fellow from ’97 to

’99. During the ’97-’98 academic year he was a Visiting Professor in the Dept. of Electrical Engineering, Howard Univ., in Washington D.C., where he taught “Energy Conversion”, and co-developed the “Automation and Control Laboratory.” Subsequently, he was a Study Director at the National Research Council’s Aeronautics and Space Engineering Board, and later as a Visiting Research Engineer at the Royal Military College of Science in Shrivenham, England.

He was appointed Acting Chief of the ‘Electro-Mechanical Systems Branch’, from Nov. ‘00 to March ‘01. Later, he served as a Strategic Planning Manager in the Aeropropulsion Research Program Office, in support of Aerospace Propulsion and Power Programs. As a former senior research engineer, he planned and performed research, and managed, identified and consulted on the development of power and power electronics-based systems for aerospace and terrestrial applications. He has authored/co-authored over fifty technical reports, and more than sixty refereed publications on the dynamics and control of power and electronics-based systems, in IEEE Transactions Conference Proceedings and affiliated Journals.

Michael Lamberty (staff)

Logistics Manager,
2007 NASA Academy

Univ. of Houston
Houston, TX
BA physics, MS space architecture
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Academic and Research Experience

- ***University of Houston, Houston, TX, 8/04 - 5/06:*** *MS in space architecture at SICSA (Sasakawa International Center for Space Architecture).* Since everyone asks, space architecture is the "big picture" design of space vehicles, habitats, and missions, frequently but not exclusively for human spaceflight.
- ***NASA MSFC, Huntsville, AL, 6/05 - 8/05:*** *NASA Academy Research Associate.* Contributed to the design of a miniaturized SEM, particularly the sample feeding and handling mechanism.
- ***Gustavus Adolphus College, St. Peter, MN, 9/86 - 5/90:*** *BA in physics.* Researched pressure-related blood gas disorders and triboluminescence in wintergreen Lifesavers.

Work Experience

- ***NASA GRC, Cleveland, OH, 05/07 - 8/07:*** *Logistics Manager.* Scheduled events, arranged speakers planned trips, and generally managed and supported 8 RAs throughout the Academy program.
- ***NASA MSFC, Huntsville, AL, 6/06 - 8/06:*** *Operations Manager.* Scheduled events, arranged speakers planned trips, and generally managed and supported 15 RAs throughout the Academy program.
- ***Merchant & Gould, Minneapolis, MN, 11/99-7/04:*** *Patent agent.* Researched, wrote, filed, and prosecuted patents.
- ***Detector Electronics Corp., Bloomington, MN, 8/98 - 9/99:*** *Compliance Engineer.* Certified the safety of industrial smoke, gas, and fire sensors for hazardous locations.
- ***PAMI, Edina, MN, 10/94 - 7/98****: Product engineer.* Produced inflatables, MLI blankets, and laminates for spaceflight, including solar collector circuitry for the ISS.
- ***Sheldahl, Inc, St. Peter, MN, 9/91 - 9/94:*** *QA/Test engineer.* Qualified and tested materials and products for space applications.
- **Sheldahl, Inc, St. Peter, MN, 8/90 - 9/91:** *Laboratory technician.* Tested optical, mechanical, and electrical properties of films and laminates.

Memberships and Activities

- American Institute of Aeronautics and Astronautics
- Planetary Society
- NASA Academy Alumni Association, Vice President of Operations

Skills and Certifications

- Patent Agent registered to practice before the USPTO
- Computer Skills: AutoCAD, StudioMax, Rhino, Bongo
- basic reading skill in German

Honors and Awards

- Summa Cum Laude, University of Houston, May 2006
- Excellence in Research Award, 2005 MSFC NASA Academy
- National Merit Scholar 1986-1990
- Partners in Scholarship Scholar 1986-1990

Hobbies and Interests

- I collect hobbies. I have hands-on experience (with varying degrees of expertise) in throwing pottery, silverworking, glassworking, woodworking, home-brewing, theatrical makeup, stage combat, and bookbinding. Right now I'm trying to learn to knit.
- I make ice cream with liquid nitrogen.
- Anti-hobby: I am an infamously bad photographer.

Personal Statement

"I believe that the universe is the best toy around. I believe that humanity's destiny is either in the stars or six feet under the earth, and that it's up to humanity to choose. I believe that the human race needs a frontier to be healthy, happy, and free, that space exploration is as good a frontier as any and a better one than most, and that although a frontier of homesteads is preferable, a frontier of dreams will do in the meantime. I believe that the universe can be known and understood, that it can be a good and even a noble thing to try, that knowledge and understanding are always provisional, and that anyone who claims to know The Truth™ should be watched very, very carefully. I believe in self-medicating with dear friends and good ice cream. I believe that you don't have to stay anywhere forever. I believe that you need to think like a child in order to learn how to think like an adult, and that you need to stop thinking like a child to truly become an adult. I believe in the power and importance of myth. I believe that the important things are very simple, and the simple things are very hard. I believe that someone with no sense of humor probably doesn't understand serious things, either. I believe in passion, compassion, imagination, intuition, daydreams, hardheadedness, doubt, making decisions based on hard data, that real-life decisions usually have to be made with insufficient data, and that everyone should know how to make at least one thing with their own hands."

Links

- ***NASA Main Page***
  http://www.nasa.gov

- ***NASA Glenn Research Center***
  http://www.nasa.gov/centers/glenn/home/index.html

- ***NASA Academy***
  http://academy.nasa.gov/

- ***Office of University Programs, GRC***
  http://www.grc.nasa.gov/WWW/5000/oup.htm

- ***NASA Academy Alumni Association***
  http://www.nasa-academy.org/

- ***National Space Grant Foundation***
  http://www.spacegrant.org/

- ***The Soffen Memorial Fund***
  http://www.nasa-academy.org/soffen/fund.html

- ***International Space University***
  http://www.isunet.edu

- ***Space Generation Foundation***
  http://www.spacegeneration.org