

The book cover features a grey background with a large, stylized red rocket plume on the right side. A white orbital path with several white stars is visible in the center. The text is centered over this background.

**NASA ACADEMY AT
MARSHALL SPACE FLIGHT CENTER**

**PROFILE BOOK
2008**



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."***



Table of Contents

PROGRAM DESCRIPTION	1
ELIGIBILITY, SELECTION CRITERIA, AND PLACEMENT	1
A BRIEF HISTORY OF THE NASA ACADEMY	2
ADRIENNE ACCARDI.....	3
TATIANA AGUILERA	5
ADRIAN ALBERT.....	7
EMILY BOWSHER	9
KRISTEN GOOSHAW.....	11
MARK HOFACKER	13
JOSEPH HOLLAND.....	15
ALEXANDER HREIZ	17
HECTOR MORALES	19
CURRAN MUHLBERGER	21
JOHN POLANSKY	23
LEAH RANDLE	26
JOHN SEARS	28
STAFF	30
PROGRAM DIRECTOR.....	30
PROGRAM MANAGER	30
OPERATIONS MANAGER.....	31
LINKS	32



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.

The NASA Academy program is designed to present a comprehensive package of information and experiences about 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 MSFC laboratories, and participate in visits to other NASA Centers and facilities and a number of space-related academic laboratories and industries.



Eligibility, Selection Criteria, and Placement

The participants in the Marshall NASA Academy have been selected based following criteria:

- academic rank (junior, senior, first, or second year graduate)
- academic performance (GPA higher than 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 or permanent residence is required for US applicants

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



A Brief History of the NASA Academy

The NASA Academy was founded in 1993 (as the "NASA Space Academy") at the 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 the NASA agency as possible. With his dynamic personality and unique leadership, he opened many gateways and defined a new standard of excellence.

"To give possible 'leaders' a view into how NASA, the university community, and the private sector function, set their priorities, and contribute to the success of the aerospace program."



*Gerald Soffen, Founder
(1926-2000)*

As the reputation of the Goddard Academy widened, new NASA Academy Programs were started at the Marshall Space Flight Center (1994), the Ames Research Center (1997), and the Dryden Flight Research Center (1997). In 2005 Goddard, Glenn, and Marshall will host their own Academy.

The name of the program changed from "NASA Space Academy" to "NASA Academy" at specific NASA Centers. A continuous effort is being made to establish or re-establish Academies at various NASA Centers, with different profiles and focus areas.

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

In 2002, the NASA Academy celebrated ten years of successful activity. So far, more than 450 students have graduated from the program, both domestic and international students.



University of South Florida

Tampa, Florida
Mechanical Engineering
Masters of Science, May 2009



NASA Academy Research Project:

*"Historical Archive Development of the Ares I
Upper Stage"*

Principal Investigator: Tim Vaughn

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aaccardi@mail.usf.edu

Permanent Address:

1304 Valley Grove Dr.
Seffner, FL, 33584

Academic and Research Experience

- **University of South Florida, Tampa, FL, May 2007 - Present**
Aided in running test on rebar, and data analysis. Designed testing regimes and built hardware to run on tests
- **Beijing, Xi'an, and Yichang, China, Summer 2006**
Gained an international perspective on engineering while attending engineering lectures and Chinese Universities. Experienced and visited automobile manufacturing plants.

Work Experience

- **L.D. Bradley Land Surveyors**
Aided in the creation of a database including digitized survey maps as well as linked photographed images in real space format.

Memberships and Activities

- National Society of Collegiate Scholars
- Sigma Alpha Lambda secretary 06-07
- Golden Key International Honor Society
- Tau Beta Pi
- Engineers Without Borders (President, co-founder 06-07, treasurer 07-08)
- 3rd Place Harvey Herro Award for research in Applied Corrosion Technology
- National Association of Corrosion Engineers

Skills and Certifications

- Knowledge of ARCGIS program
- Microsoft Office

- ProE

Hobbies and Interests

Reading, painting, sculpting, cooking, baking

Personal Statement

I have always wanted to working for the space industry. Growing up in northern Florida, I could see shuttle launches from my backyard. This initiated my interest in NASA and the field of mechanical engineering. I currently attend the University of South Florida where I am enrolled in a five-year program to receive my BS and MS degrees in mechanical engineering. I will graduate in approximately one year.

The NASA academy has provided a very special opportunity for me to explore the space industry and to develop the skills needed to really become a leader in the engineering field. I plan to take full advantage of this opportunity and learn qualities that will allow me to become an integral part of the space research program.



Carnegie Mellon University

Pittsburgh, Pennsylvania
Chemical Engineering, Business
Bachelor of Science, May 2009

NASA Academy Research Project:

"Acid Gas Removal from the Process Air Stream of the ISS Trace Contaminant Control System"

Principal Investigator: Jay Perry



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Academic and Research Experience

- **General Electric/LNP Plastics Engineering – Exton, PA**
Tested plastic experiments in the lab. Tests include rheological, mechanical, and electrical testing. Worked on a LEAN manufacturing project. Helped develop new plastic in the fields of nano-clay, natural fiber filler, and a special project for Michelin.
- **General Electric/LNP Plastics Engineering – Thorndale, PA**
Working on engineering projects related to color process of plastics. Reorganized pigment room, and digitized color chips of color standards for completed color matches. Developed a business analysis illustrating the effectiveness of the color match process. Learned Six Sigma, and LEAN principles, in order to facilitate the development of assigned projects.
- **Chemical Engineering Boat**
Designed a chemical reaction powered boat to travel a specified distance with a team of four other students.

Work Experience

- **Resident Assistant, August 07-Present**
Fostering opportunities for residents to explore and achieve their optimal social, physical, spiritual, and emotional health and well-being. Developing supportive relationship with individual residents and creating strong floor and house communities.

Memberships and Activities

- Society of Hispanic Professional Engineers, Secretary(06-07), Internal Vice President(07-08), Fall 2005-Present

- Kappa Kappa Gamma Sorority, New Member Chairman Fall 06-Spring 07
- Dancers Symposium, Spring 2005 Choreographer
- Mentor, Big Brothers Big Sisters, Pittsburgh, PA, Fall 2006-Spring 2007

Skills and Certifications

- Windows 95/98/ME/XP/Vista
- Fluent in Spanish
- Microsoft Word, Excel, PowerPoint, Adobe Photoshop, MathCAD

Honors and Awards

- Xerox/Society of Hispanic Professional Engineers Chapter Scholarship, 2007
- Miami-Dade County CAP Grant Recipient, 2007
- GE Student Intern/Co-op Contribution Award (SICCA) Nomination Recognition, 2006
- Lanzate Southwest/ HACU Travel Scholarship Recipient, 2006

Hobbies and Interests

Running, movies, dancing ballet, reading, cooking

Personal Statement

My motivation for studying engineering began in middle school when I attended the Miami Prep Proyecto Access at a local university, Florida International University. This program is a NASA sponsored program aimed for underrepresented minorities taking place during the summers. Learning logic, and working on circuits for the first time were my initial experiences with the field of engineering. The different style of thinking involved in these types of activities is what attracted me to being interested in the field. Being from Florida I followed closely countless of space missions from Cape Canaveral, and always dreamed of some day being one of the engineers involved with planning a mission or researching information for NASA in the future.

I believe in perseverance. I am the first to go to college in my family, being the oldest, and the only girl. I was Salutatorian of my class at Coral Gables High, and have been attending Carnegie Mellon's rigorous engineering school for three years. Always I have set high aspirations for myself, and always seek the best. Being inspired by NASA at such a young age in middle school, it has been my goal since I left the program in eighth grade. Participating this summer in the Marshall NASA Academy is a very unique and rewarding experience for me. I look forward to bringing my experience in the engineering of plastics, and further school research to this summer. I am very excited for the many learning opportunities this summer.



Adrian Albert

Jacobs University Bremen

Bremen, Germany
Space Physics
Masters of Science, December 2008

NASA Academy Research Project:

"Electric Field Change Meters Array for lightning experiments."

Principal Investigator: Rich Blakeslee



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28759 Bremen Germany

Academic and Research Experience

- **Algorithmica Technologies gmbH, Bremen, Germany, October 2007- March 2008**
Developed a machine learning code in an industrial C++ framework for fault control and prediction for a Degussa chemical plant.
- **University of California Santa Barbara, Mathematics Department, August-September 2007**
Research on vortex sheet dynamics. Investigated analytically and performed numerical calculations on the deingularization of the Birkhoff-Rott integral using a variable smooth parameter.
- **NASA/AURA Space Telescope Science Institute, Baltimore, MD, June-August 2007**
Worked on the Google Sky project. Constructed and managed astronomical database of images from Hubble, Spitzer, and Chandra space telescopes. Developed python code for finding World Coordinate System for FITS images.
- **Pixar Animation Studios/University of California Los Angeles, June 2006-September 2006**
Research at the Institute of Pure and Applied Mathematics. Developed C++ code for simulation of many colliding deformable objects.

Work Experience

- **Teaching Assistant, Earth and Space Sciences Department IUB, September 2007 - Present**
Helped students with homework and questions related to the advanced courses in Astrophysics and Space Plasma Physics.

- **Teaching Assistant, Mathematics Department IUB, September 2005-2007**
Created and graded homework in numerical mathematics, calculus, and differential equations.

Memberships and Activities

- Royal Aeronautical Society
- IUB Academic Integrity Committee
- Student Body President and Faculty Representative
- Romanian Physics Team

Skills and Certifications

- Experience in programming, algorithms, machine learning, computer graphics and visualization, parallel programming, numerical computing, and software engineering
- C, C++, IDL, MATLAB, Python, LATEX, Open GL, MPI, VTK, QT

Honors and Award

- Scholarship for Academic Achievement and leadership
- DAAD Award for Community Involvement
- Silver and Bronze Medal in Romanian Physics Olympiad

Hobbies and Interests

Traveling, History of Religions, and Table Tennis

Personal Statement

My interest in space stems from the childhood spent at my grandparents' farm in northeastern Romania. There, I would divide virtually all my free time between star gazing and reading literature, including books on popularized science or science-fiction novels. During secondary and high school, I was lured by computer science, to which I could not resist and even got a BSc in later. For the sake of my old fascination with space, I studied Physics during high school and college, and then space physics at the graduate level. I became to realize that I was drawn more by the challenge and the mystery of space exploration, than by the science part of it. I rather enjoy challenges of the mind, and I believe that no result can be achieved without perseverance and hard work. My hobbies come then naturally: cooking and table tennis.



Emily Bowsher

Georgia State University

Atlanta, Georgia
Physics and Astronomy
Masters of Science, May 2009

NASA Academy Research Project:

"Meteoroid Detection and Lunar Impact Monitoring"

Principal Investigator: Bill Cooke



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Atlanta, GA, 30308

Work Experience

- **Smithsonian Astrophysical Observatory, Cambridge, MA**
Member of small team building the Smithsonian Astrophysical Observatory Wide-Field Infrared Camera (SWIRC) for use on the MMT telescope. Wrote and tested temperature monitoring software and filter wheel control software in Tcl and Tk. Assisted with commissioning of SWIRC, June-July 2004. Designed and implemented data reduction software.
- **Wellesley College, Wellesley, MA, 2002-2004**
Assisted with research at Wellesley's Whitin Observatory. Astronomy Department Peer Tutor (2001-2004), Provided one-on-one tutoring assistance for introductory Astronomy. Student Manager, Faculty/Staff Computing Helpdesk (2002-2004), Promoted to supervisor of student workers, spring 2003, engaged in troubleshooting operating systems and applications over the phone.
- **Lowell Observatory, Flagstaff, AZ, Summer 2003**
National Science Foundation Research Experience for Undergraduates. Assisted an astronomer with a research program on the extended neutral hydrogen region of irregular galaxy Sextans A at radio wavelengths.

Work Experience

- **Applied Systems Intelligence, Inc., Roswell, GA, October 2004-August 2007**
Designed and implemented the intelligent component of artificial intelligence software for a defense contractor. Worked with clients to determine intelligent functionality.

Memberships and Activities

- FIRST Robotics – Roswell, GA: Volunteer working with students from Roswell High School to build their robot
- A.S.T.R.O. Club, Vice President (2003-2004), Corresponding Secretary (2002-2003)
- Davis House Council, Fire Chief(2002-2004)

Skills and Certifications

- Computer Skills: Proficient in Macintosh, PC, and Unix environments.
- Astronomy Programs: IRAF, AIPS++, DS9
- Other Programs: Macromedia Flash, Dreamweaver, Fireworks, Microsoft Word, PowerPoint, Excel, Visio, Adobe Photoshop
- JAVA, C++, LISP, Scheme, OCAML, Tcl/Tk, Action Script, Assembly Language, Logo, IDL, HTML

Hobbies and Interests

Traveling, Camping, Hiking, Cooking

Personal Statement

I have been interested in Astronomy my entire life, and have been involved in recreational astronomy since childhood. I graduated from Wellesley College with a degree in Astronomy and Computer Science and I just finished my first year of graduate school at Georgia State University in the department of Physics and Astronomy. I became interested in astronomical instrumentation while participating in a summer NSF Research Experience for Undergraduates fellowship at Lowell Observatory. During the summer, I toured many telescopes throughout Arizona and New Mexico and was impressed by the design and capabilities of the instruments and their telescopes. An internship at the Smithsonian Astrophysical Observatory further piqued my interest in instrumentation. After Wellesley, I worked for three years at a software company and gained valuable experience in dealing with very long-term projects and cutting edge technologies. However, my long-term goals still included work in astronomy, so I enrolled in a masters program in the fall of 2007 to pursue my interest in astronomy and instrumentation. Attending the NASA Academy allows me to work with top researchers in an area where NASA has traditionally been a leading innovator. I hope my experiences will help me find direction in my future doctoral work and better prepare me for a professional career in instrumentation.



Kristen Gooshaw

University of Washington

Seattle, Washington
Chemical Engineering, Computer Engineering,
Paper Science and Engineering
Bachelor of Science, June 2012



NASA Academy Research Project:

"Designing a Thermal Swing Adsorption test rig for screening candidate structure sorbents"
Principal Investigator: Jim Knox

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Research Experience

- **University of Washington, Seattle, WA, January 2008-present**
Created a TCF bleaching process for wheat and alfalfa straw including chelation and biobleaching steps in efforts to increase brightness.

Academic and Research Experience

- **Georgia-Pacific, Camas, WA, July 2007-January 2008**
Planned and designed trials for the paper machine. Worked to find solutions to a dramatic increase in cost of bleaching pulp, followed through by creating and testing hand sheets. Resulting in saving the company several hundred thousand dollars per year.

Work Experience

- **University of Washington – Hutchinson Hall, Seattle, WA September 2006-Present**
Student Assistant. Worked 18 hr/wk while attending school
- **Tutoring, Vancouver, WA**
Tutored High School and College students in math and sciences. Also tutored freshman English, AP Calculus, Auto CAD, and symphonic band.

Memberships and Activities

- Society of Women Engineers (SWE) - UW Chapter President, Region J RCNE (2007-Present)
- Xi Sigma Pi Honor Society

- Students for the Exploration and Development of Space (SEDS)
- Technical Association of the Pulp and Paper Products Industry (TAPPI)

Skills and Certifications

- Web Development: HTML, Java Script, Visual Basic, CSS
- Operation Systems: Windows XP and Vista, UNIX, Linux, Mac OS
- Specialized Skills: Auto CAD, Office, Solid Works, database connectivity and mining, Solid Works, Python, Java.

Honors and Awards

- Deans List 2007
- Washington Pulp and Paper Foundation Scholarship 2007
- Dollars for Scholars 2006

Hobbies and Interests

Hiking, wakeboarding, puzzles, soccer, racquetball, having adventures, Rubik's cube, karate

Personal Statement

The choice to become an engineer was an easy one to me. The hard decision was what kind? As I entered my junior year in high school I found out that chemistry was a growing love. My teacher at the time pushed me to consider majoring in chemical engineering in college. During the end of my junior year in high school I was allowed to sit in an astronomy class in the University of Washington. The class was going over payloads and rocket fuel and the professor presented the challenge of creating a more efficient rocket fuel. I spent most of my junior summer and senior year obsessing over possible ideas to the solution. So when I applied to the University of Washington, I applied to the Aerospace/Aeronautical Engineering major because I thought that it was most suited for a career in rocket fuel.

Currently, I am pursuing a double major in Chemical Engineering and Paper Science and Engineering at the University of Washington. Paper Science and Engineering focuses not only on the science of paper, but also alternative fuels, such as biofuel. I am also working on a concentration in fuel cells in chemical engineering. I hope at some point to be able to engineer some sort of alternative fuel in rockets. This is why I am excited to be working at NASA.



Vanderbilt University

Nashville, Tennessee
Mechanical Engineering
Masters of Science, May 2009

NASA Academy Research Project:

“Sandwich Composite Damage Tolerance”
Principal Investigator: Mike Kovach



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3 Elm Ct.
Colstrip, MT 59323

Academic and Research Experience

- ***Graduate Research Assistant Vanderbilt University, August 2007-Present***
Researched, designed, and aided in manufacture of prototype Free Piston-Stirling cycle engine. Modeled as dynamic systems, optimized using control theory.
- ***NASA Intern, MSFC Summer 2006, 2007***
Manufactured, tested, and documented findings on composite materials. Wrote preliminary stress analysis software for composite intertank in Matlab.
- ***Undergraduate Research, Adaptive Optics Research Group, September 2005-May 2007***
Designed and fabricated deformable fast-steering mirror using micro-electromechanical systems. Designed, build, and manned testing apparatus. Developed control system.
- ***Intern Stress Engineering, Goodrich Cargo Systems, January –July 2005***
Performed failure analysis on aerospace components. Extensively used Ansys, Catia V5 and Unigraphics. Wrote reports using standard with aerospace design manuals.
- ***SPOT Presenter, Montana Space Grant Consortium, May-August 2004***
Space Public Outreach Team (SPOT) researched the solar system, NASA, and Mars rovers. Gave 30+ educational space-related presentations to high schools, museums, etc.

Memberships and Activities

- Phi Eta Sigma Honor Society, Spring 2006 - Present

Skills and Certifications

- E.I.T., Catia, V5, Ansys, ProE, Solid Works, AutoCAD, MATLAB, C++

Honors and Awards

- Deans List 8 out of 9 semesters, in undergraduate
- Vice Chair American Society of Mechanical Engineers
- Tau Beta Pi
- Center of Excellence for Advanced Manufacturing and Productions (CAMP) Fuel Cell Car team

Hobbies and Interests

Welding, Machining, Writing, Basketball, Tennis, Golf

Personal Statement

I attribute my interest in engineering/research to spending much of my childhood working on projects that I was severely under qualified to complete. At the age of six, my brother and I attempted to make a go kart even though we were poor craftsmen and even worse designers. After several weeks of labor we created an unsteerable death machine whose maiden voyage left me with lifelong scars on my elbows. I have spent the years since recovering from my injuries and developing skills to become a more competent researcher. To accomplish this goal, I have attained a Mechanical Engineering undergraduate degree and am currently pursuing a PhD at Vanderbilt University. This is my third internship with NASA, and I have returned because my past experiences have been enjoyable and I have been very satisfied with the things I have accomplished as an intern. Under my mentor, I was able to participate in and contribute to advancing spacecraft development. Working at a NASA facility excites me because they are well-equipped with both the faculty and the facilities to conduct advanced research. Eventually, I would like to direct a research lab that develops spacecraft. I have viewed my mentors at NASA as role models and someday I want to lead my own research project. I would like to work in the aerospace industry because the extreme demands of launch and of outer space itself present formidable challenges. The complexity and importance of such problems is such that I believe I could happily spend my career trying to overcome them.



Joseph Holland

The University of Alabama

Tuscaloosa, Alabama
Aerospace Engineering
Bachelors of Science May 2010

NASA Academy Research Project:

"Overview of Von Braun Center for Science and Innovation (VCSI) projects with exposure to project and contract management."

Principal Investigator: Marty Kress



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Work Experience

- **Computer Technician, Gadsden, AL, July 2005-August 2006**
Setup/installation of new computers and peripheral devices. Maintenance of teacher's and faculty's computers, peripheral devices, and all other technology used to educate students. Hardware/software/network/wireless network support for over 20 sites countywide. Worked closely with teachers to ensure the technology needs of their classroom were met.
- **Disk Jockey AM Entertainment, Southside, AL, January 2002-Present**
Provide entertainment at various parties, high school events, and weddings. Setup/Breakdown of audio equipment, light shows, and karaoke.
- **University of Alabama Tutor/Grader, Tuscaloosa, AL, August 2007-Present**
Grade homework and tests for Dr. Michael Freeman's Statics class and Algorithm Development. Tutor Statics weekly. Office Assistant for Aerospace Department Head Dr. Stanley E. Jones.

Skills and Certifications

- Computer Skills: Windows 98, 2000, XP. Microsoft Word, Excel, PowerPoint, C++, Matlab. Hardware/Software troubleshooting, networking, wireless networking, HTML.

Honors and Awards

- Presidents List Spring 2007
- UA Honors Program
- Deans List F04, F06, F07

- Phi Eta Sigma
- Sigma Alpha Lambda
- Gamma Beta Phi
- Golden Key
- UA President's Cabinet Scholar

Hobbies and Interests

Mentoring, anything outdoors, golf, intramural sports, politics, space exploration, and history.

Personal Statement

From early childhood, I have always been fascinated with flight, and especially spaceflight. It is the defining reason for my choice of undergraduate studies. As a logical step in building my career, I applied to the NASA Academy knowing it would provide me with both an extremely valuable learning experience, and a personally fun and interesting adventure, and wow, has the experience delivered thus far.

I have the privilege of working with Dr. Marty Kress of the National Space Science and Technology Center each day. While I am currently not working with any single specific research project, I am able to observe the day to day operations at the NSSTC, as well as interact with many or all of the projects that the NSSTC houses. For someone pursuing an engineering degree that has interest in possibly making a transition to management, this is the best undergraduate summer experience that I could have hoped for.

We are less than a week into the NASA Academy program, and it is already quite obvious that this experience will provide me with tools, contacts, experiences and friends that will profoundly impact my life and career.



Alexander Hreiz

Georgia Institute of Technology

Atlanta, Georgia
Aerospace Engineering
Masters of Science May, 2009

NASA Academy Research Project:

"Materials Testing for the J-2X Engine"
Principal Investigator: Tina Malone



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Alexandria, VA 22308

Academic and Research Experience

- **Georgia Tech Aerospace Engineering Department, Atlanta, GA, August 2007-Present**
Experimental Fluids Lab Teaching Assistant. Maintain and supervise operations of experiments.
- **Siemens Westinghouse Power Generation, Orlando, FL, September 2006-November 2006**
Program in-house heat transfer and fluid flow correlations from in-house tools to Excel/Visual Basic to verify accuracy and correctness. Selected for the 2006 University Turbin Systems Research Fellowship
- **Georgia Tech Combustion Laboratory, Atlanta, GA, January 2005-Present**
Responsible for 9' turbulent unstable combustor. Developed extensive experimental database on effects of acoustic driving on flame instability control and damping for approximately 10,000 different flow and acoustic conditions. Assembled instruments for use with photo-multiplier tubes during data acquisition.

Memberships and Activities

- Sigma Gamma Tau National Aerospace Honor Society
- Tau Beta Pi National Engineering Society
- Faculty Honors (3 Semesters)
- 2006 University Turbine Systems Research Fellow
- National Society of Collegiate Scholars
- Phi Eta Sigma National Honor Society

Skills and Certifications

- Excellent verbal and written communication skills
- Ability to contribute proactively and creatively in a small team environment
- Experience with MATLAB, Cosilab, Solid Edge, and AutoCAD
- PADI Scuba Diving Society Member, Advanced Open Water Certified

Honors and Awards

- Deans List 4 Semesters
- 2006 University Turbine Systems Research Fellow

Hobbies and Interests

Lacrosse, Scuba Diving, AIAA, Paintball, Golf, Snowboarding

Personal Statement

I was born in Washington, D.C. and raised just 8 miles south in Alexandria, VA. When I was three, my mom made me a rocket costume for Halloween, complete with a nose cone hat and red streamers for exhaust flames. The Polaroid is still on the fridge at my parents' house. Growing up, I flew model rockets, and led to the highlight of my young life: when I was in 7th grade, I went to Space Camp at KSC. I've wanted to work at NASA since I discovered its existence. There is nothing more thrilling to me than watching something like the Shuttle launch or seeing pictures from the rovers on Mars and knowing that I can be a part of that.

The NASA Academy is an excellent opportunity to meet the leaders of today and prepare to be a leader tomorrow. It provides a unique chance to see the inner workings of NASA: not just the engineering side and the end result, but also a chance to understand the management skills and leadership necessary to run a multi-billion dollar government organization. Additionally, getting to work hands-on for such an organization is invaluable. I hope the insight, networking and experience I can gain this summer will help me determine a clear career path to my ultimate goal: being an astronaut, of course!



Hector Morales

Rensselaer Polytechnic Institute

Troy, New York
Aero/Astronautics, Mechanical Engineer
Bachelors of Science, May 2009

NASA Academy Research Project:

"Fracture Testing of Metals"

Principal Investigator: Tina Malone



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Work Experience

- **RPI Student Union Father's, Summer 2007**
An on campus convenience store.
- **RPI Student Union Games Room, Summer 2007-Present**

Memberships and Activities

- Society of Hispanic Professional Engineers (SHPE) Fall 2006-Present
- Member of SHPE Rensselaer Team for the National Academic Olympiad Competition
- Tutoring: Collaborated in mentoring and tutoring underprivileged students to help succeed in their academic endeavors.

Skills and Certifications

- Microsoft Word, Excel, PowerPoint, NX 5.0, Maple 10, MATLAB
- Bilingual Spanish and English

Honors and Awards

- Dean's List, Fall 2005-Fall2007

Hobbies and Interests

Reading books I've been told to be good, watching movies that seem semi-amusing, listening to music on my iPod while walking the streets at night during winter, reverie...and that sort of stuff.

Personal Statement

Growing up in Puerto Rico meant being satisfied with taking trips to the beach, mostly, for vacations. One Christmas, though, my grandfather decided to pay for all of his grandchildren to go to Disney World, which would be my first time on a plane and out of the island. Ever since I was in that first plane bound for Orlando I have been fascinated with airplanes and anything else that could travel the skies as gracefully. The gleam in my eyes then was mostly due to youthful ignorance that has died out by now having taken a course in aerodynamics: planes no longer fly on account of magical, invisible things that had and needed no explanation, but pressure differences on the surfaces of the wings and thrust from an engine. The interest and curiosity with these vehicles was never outgrown and it eventually played a key part in my decision to study Aeronautical Engineering.

Having my curiosity along the years shift from airplanes to spacecrafts, NASA seemed like a natural next step in seeking to put into practice what I have so far been taught in college and to gain real experience in the workforce. Having been selected into the Academy, I have been given an opportunity for which I am extremely grateful, for it is not only one that meets my expectations but surpasses them greatly; this chance is to be a part in research that will play some role in a future NASA mission...and nothing can take that away from me.



Cornell University

Ithaca, New York
Physics
Ph.D., May 2014



NASA Academy Research Project:

“On-Orbit Performance of the GLAST Burst Monitor”

Principal Investigator: Chip Meegan

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Ellicott City, MD 21042

Academic and Research Experience

- ***UMD Institute for Advanced Computer Studies, College Park, MD, June 2006-May2007***
Developed J2EE web applications to interact with an LDAP infrastructure. Migrated and maintained existing J2EE web applications. Assisted in maintaining HPC Linux clusters utilizing MPI and Condor.
- ***UMD Experimental Nuclear Physics Group, Jefferson Lab, Newport News, VA, January 2006***
Assembled the neutron detector for the GeN experiment in a multi-national environment. Completed DoE's RadWorker I radiation training.

Memberships and Activities

- Pi Beta Kappa Honor Society
- Banneker/Key Scholar
- University of Maryland Honors Citation
- National Merit Scholar
- UMD Putnam math competition team
- UMD Academic Quiz Team
- Webmaster for Terrapin Astronomical Society

Skills and Certifications

- Operating Systems: Linux, UNIX, Microsoft Windows, Mac OS
- Computer Languages: Java 6, C, Perl, JSP, XHTML, CSS, Fortran, MPI, C++, Python, Pascal, LATEX, SQL
- Software Packages: Mathematica, MATLAB, IDL, STK, IDA Pro, LAPACK, GSL

Honors and Awards

- Graduated with Departmental High Honors
- Held TOP SECRET security clearance

Hobbies and Interests

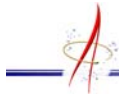
Cycling, hiking, camping, legos, model rockets, programming (yes, it's my hobby), quiz bowl, racquetball, board games, reading, cryptology (codebreaking), percussion, water skiing

Personal Statements and Interests

Of all the famous quotations from the twentieth century, I find Kennedy's address on our race to the moon to be the most inspiring. I

have not chosen to pursue an education and career in science because such things are easy, but rather because I revel in the challenges they offer. Mathematics, astronomy, and fundamental physics are my particular academic interests, accompanied by several in the liberal arts, the study of which I firmly support. While the rigors of learning and joys of new knowledge are appealing to me on their own, they additionally enable me to harness a wealth of human ingenuity to improve both life here on Earth and our understanding of the wider universe.

I am drawn to the aerospace industry and to NASA in particular because of the opportunities it offers to combine state-of-the-art technology and computer systems with theoretical and experimental physics and because of its potential to explore mankind's final frontier. In such an environment I could exercise my programming and design talents while simultaneously working to expand our knowledge of physics. No occupation evokes a greater feeling of overcoming incredible challenges with the power of the human mind than that of "rocket scientist." Combining pure science, applied engineering, and the fulfillment of civic duty, the US Space Program appeals to all of my strongest ambitions, and in pursuing a graduate education in astrophysics at Cornell I hope to prepare myself for a lifetime of contributing to its mission of exploration and discovery.



John Polansky

University of North Dakota

Grand Forks, North Dakota
Mechanical Engineering
Bachelors of Science, May 2008

NASA Academy Research Project:

*"Test Facility Development for testing of
Microlith Based Sorbents for Atmosphere
Revitalization Applications"*

Principal Investigator: Jim Knox



E-mail:

jlp3269@hotmail.com

Permanent Address:

30496 370th St NE
Gatzke, MN 56724

Academic and Research Experience

- **Space Studies Research Assistant, Grand Forks, ND, September 2006-Present**

Create drawings and designs for CEV simulator. Carry out hands on tasks in order to build CEV simulators. Improve and maintain existing NDX-1 space suit. Designed and constructed liquid cooling garment for NDX-1 space suit.

Work Experience

- **Farm Laborer, Gatzke, MN, May 1998-Present**
Develop and expand work ethic. Organize and coordinate harvest, planting, and haying functions. Improve mechanical skills such as electric wiring, welding, and acetylene torching. Strengthen driving skills of vehicles, heavy equipment, and farm equipment.
- **High School Basketball Official, Grand Forks, ND, December 2005-Now**
Establish credibility and respect in a new working environment. Gain confidence and decisiveness during intense competition.
- **CF6/CFM Power Plant cooperative Engineer, Minneapolis, MN, May 2006/7 – August 2006/7**
Worked and learned alongside professional power plant engineers. Maintained and analyzed fuel leak and engine over temp data. Directed maintenance and troubleshooting operations.

Memberships and Activities

- University of North Dakota Student Government
- Phi Delta Theta President
- American Society of Mechanical Engineers
- Tau Beta Pi
- UND Recreational Sports, Intramural Sports

Honors and Awards

- UND Presidential Scholarship
- Polaris Industries Scholarship
- Tau Beta Pi National Scholarship
- North Dakota Space Grant Consortium

Hobbies and Interests

Basketball, Weightlifting, Flag Football, Tennis, Running, Hiking, Reading, and Flying

Personal Statements and Interests

I was born and raised on a dairy farm in northwestern Minnesota and attended a very small high school, graduating in 2004 with 13 other students. I then studied at the University of North Dakota (UND) and graduated in May of 2008 with a Bachelor's Degree in Mechanical Engineering with an Aerospace Concentration. In the fall I will move to a slightly larger city, Los Angeles, and began working towards a Master of Science and PhD in Astronautics and Space Technology at the University of Southern California (USC).

Some of the interesting work that I have done so far includes research at UND and two summer internships with Northwest Airlines. At UND I worked in the Space Studies department for two years, developing a Liquid Cooling Garment for a Martian Planetary Space Suit (NDX-1), helping to construct an Orion CEV simulator and helping to construct and design a Space Ship One simulator. At Northwest Airlines I worked as a Powerplant Engineer, specifically with CFM56 and CF6 gas turbines. Also, my senior design project involved the design and fabrication of a compressible fluid flow wind tunnel.

In my spare time I like to stay active. I enjoy intramural sports, especially basketball and flag football, because they allow me to release some of my competitiveness constructively. I also enjoy running, weightlifting, tennis, hiking and am willing to try almost anything active. Reading, especially historical fiction, is also something that I enjoy.

I have three brothers and one sister, all of whom are currently working or in school in North Dakota and Minnesota. I do not have any

particular career goals, but I do intend to enjoy this summer at Marshall and my life as much as possible.



Leah Randle

Fisk University

Nashville, Tennessee
Physics, Engineering
Bachelors of Science, May 2009

NASA Academy Research Project:

"UV Camera Development for Imaging Upper Atmospheric Processes"

Principal Investigator: Rudy Gostowski



E-mail:

leahphysics@gmail.com

Permanent Address:

3435 North MacGregor
Houston, TX 77004

Work Experience

- ***Lotts's Realty Company, Houston, TX, May-August 2004***
- ***Jesse Jackson Academy, Houston, TX, May-August 2005***
Intern, Monitor during English Proficiency exams at Charter Schools
- ***Kennedy Space Center, June-July 2007***
Intern, Research Department, Lunar regolith

Memberships and Activities

- Beta Kappa Chi Conference
- Rocketry Club, Fisk University, Project Manager
- Basketball, Fisk University
- Presidential Scholar

Personal Statements and Interests

Growing up in Houston, Texas has given me unlimited opportunities to explore the energy industry, real estate industry and more importantly the space industry. My ideal career would be to work for NASA. During the last three years at Fisk University, I have worked towards my goal by studying in advanced physics courses, joining the rocket team, and earning a 2007 NASA Undergraduate Student Research Program internship at Kennedy Space Center.

From my college coursework and other activities, I have gained the capacity to do many things. In my favorite class, a graduate course in Crystal growth, I learned many new things and had the opportunity to contribute to nanowire research. The structure and

growth of different materials has been very interesting. Also as a member of the rocket team, I have been able to present our accomplishments to Arnold Development Research Center, an Air Force research facility and also to Griffin Technology, a consumer electronics company. It has really given me many opportunities to be able to work with technology that I would have never been able to utilize at my University. We do not have an engineering program. However, we still have been able to design and build a rocket to compete with schools that are known for their engineering programs. Presently, I hold a level two certification and look forward to attaining level three certification for flying high power rocket motors.

While at the Kennedy Space Center, we studied lunar soil, its glass like characteristics and how it would damage space suits, habitats and vehicles. The mission is to fully evaluate lunar soil, learn how to control it, and learn how it works. Our overall objective was to determine to prevent lunar soil from damaging our equipment during landing. An idea we brainstormed was the use of bases being placed on the moon. This would create a sturdy and safe place to land on.

I look forward to participating in the NASA Academy at the Marshall Space Flight Center because it will provide many new opportunities also I will get to meet new people and network. I hope to be very active in the different committees and be an asset to my mentor.



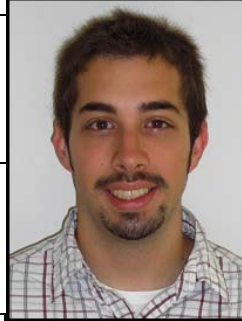
John Sears

Plymouth State University

Plymouth, New Hampshire
Meteorology
Bachelors of Science, May 2008

NASA Academy Research Project:

*"Remote Sensing of Sea Surface Temperature
in Relating to Hurricanes Intensity"*
Principal Investigator: Robbie Hood



E-mail:

Jsears3@plymouth.edu

Permanent Address:

4 Mountain Ave
Salem, NH 03079

Academic and Research Experience

- ***Plymouth State University***
Development of Model Output Statistics (MOS) like temperature forecasting technique using observational data for Plymouth, NH.

Work Experience

- ***Administrative Assistant, September 2006 - Present***
- ***Chemistry Tutor, Physics Tutor, September 2006-May2007***
- ***Substitute Teacher, Salem School District, Salem, NH, January 2007-Present***
- ***Sales/Stocker, Linens N' Things, Salem, NH, January 2005-August 2005***

Memberships and Activities

- Treasurer: Plymouth State American Meteorological Society
- National American Meteorological Society
- Peer Educators

Skills and Certifications

- Critical thinking and math skills
- Organized, self motivated, patient, passionate, approachable, outgoing and charismatic.
- Programming experience in Perl, FORTRAN, Gnuplot and HTML.
- Microsoft word certification. Experience with other Microsoft and Adobe products.

Honors and Awards

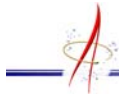
- President's List every semester
- Phi Kappa Phi Honors Society
- PSU Scholars Scholarship

Hobbies and Interests

Learning, meteorology, soccer, tennis, astronomy, being outdoors, watching movies, photography, learning music, playing guitar

Personal Statements and Interests

Working with NASA has always been an ambition for me, ever since my first visit to Kennedy Space Center when I was five. I can still remember seeing the rocket towering over me. I never dreamed that my ambition to become a meteorologist would lead me to NASA. When I discovered that meteorologists were employed by NASA I began to wonder why. These were scientists who wanted to be on the cutting edge of American technology with the brightest minds in our nation. It was no mystery, meteorologists, geologists and any other scientist can find a career here. The NASA Academy allows me to meet young scientists and engineers from around the country, which is a rare opportunity to expand my horizons. I applied to the NASA Academy for a once in a lifetime opportunity to learn things that I cannot learn anywhere else, from the institution leading the world in research.



Program Director

Dr. Frank Six

Frank Six is a scientist in the Space Science Office at MSFC. He joined Marshall in 1986 as Deputy Project Scientist for Hubble, then became assistant to the Director of the Space Science Laboratory and then deputy to the Chief Scientist. He directed the Marshall Academies in 1994, 1995 and 1996, and led all university programs from 1989 to 1996. Before coming to Marshall, Frank worked for Cornell University as assistant to the director of the Arecibo Observatory. Prior to that, he taught physics and astronomy at Western Kentucky University where he was Chairman of the Department for 17 years. Upon receiving the PhD in physics from the University of Florida, Frank joined Brown Engineering in Huntsville, Alabama working on Apollo. His research areas are radio astronomy and planetary magnetospheres. He is married with six children and eight grandchildren and loves to explore the coastal regions of the Gulf of Mexico.

Program Manager

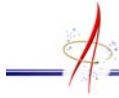
Dr. Gerald R. Karr

Dr. Karr is a Professor of Mechanical and Aerospace Engineering at UAH. Since 1992, Dr. Karr has also served as the UAH Campus Director of the ASGC. Dr. Karr also served as the Chair of the Mechanical and Aerospace Engineering Department at UAH from 1986 through 1999. Dr. Karr has, since 1978, been the University Director of the highly successful NASA Summer Faculty Research Opportunity (NSFRO) program. Dr. Karr has also been an active researcher in the areas of satellite drag, high-energy lasers, cryogenics, spacecraft thermal design and computational fluid mechanics. Dr. Karr earned his BS (1964), MS (1966), and PhD (1969) in Aeronautical and Astronautical Engineering at the University of Illinois at Champaign-Urbana. For recreation, Dr. Karr enjoys golf, running, sailing and visiting with his children and grandsons.

Operations Manager

Marissa Rosenberg

Marissa is an alumnus of the 2007 NASA Academy at MSFC. She is a senior at University of California, Los Angeles, working on her Bachelors of Science in Astrophysics. Her research background includes imaging and data analysis of Chandra images of compact colliding galaxy groups at UCLA and also gamma-ray burst software package development for GLAST in the Academy 2007. In the future, Marissa hopes to pursue a career as an astronaut after receiving a Ph.D. in Astrophysics and a MS from the International Space University. Space activities aside, Marissa enjoys surfing, snowboarding, basketball, softball and music. Marissa's goal in life is to experience as much as possible and to live life with a positive, open, and excited attitude.



Links

- **NASA Academy:**
<http://www.nasa-academy.nasa.gov/>
- **NASA Academy Alumni Association:**
<http://www.nasa-academy.org/>
- **NASA Agency:**
<http://www.nasa.gov>
- **NASA Marshall Space Flight Center:**
<http://www.msfc.nasa.gov/>
- **International Space University:**
<http://www.isunet.edu>
- **The Soffen Memorial Fund:**
<http://www.nasa-academy.org/soffen/donors.html>