National Aeronautics and Space Administration

Aerospace Engineer

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I research the field of computational fluid dynamics (CFD). CFD is the process of using computers to solve complex aerodynamic equations so that aircraft designs can be tested by examining the results. Some of the results that are available from CFD are pressure distribution, forces and moments, and magnitude and direction of the velocity of the air around the aircraft, among many others.

Areas of expertise:

- Computational fluid dynamics

How I first became interested in this profession:

Ever since I can remember, I always enjoyed learning about physics, science, and mathematics. When I was young, I used to watch airplanes takeoff and land. Also, I would see my dad creating mechanical parts for helicopters. I was also interested in space because once my parents took me to a planetarium to see the eclipse of the moon.

What helped prepare me for this job:

I read a lot of different types of books when I was growing up. I always liked to try new things, and I constantly worked on a team, either in sports, musicals, plays, or just playing with friends. I also volunteered to take a leadership role in many activities. Lastly, it is always important to be inquisitive.

My role models or inspirations:

My parents were the two people that influenced me to study hard and achieve what I want in life. Also, I was very fortunate that my science and math teachers made learning the mathematical physics fun! Thus, I continued to search for knowledge and answers even after I was done with school.

My education and training:

- BS & MS, Aeronautical Engineering, California Polytechnic State University (Cal Poly), San Luis Obispo
- PhD, Aeronautical and Astronautical Engineering, Stanford University

My career path:

At Cal Poly in 1992, I worked on the High-Alpha project in a position sponsored by a NASA Ames grant. I then worked on a CO-OP with NASA Ames researching forebodies of aircraft in high angles of attack flow. I was employed by NASA Ames from 1993 - 2000. I am currently employed at Lawrence Livermore National Laboratory (LLNL) where I lead research projects in missile defense.

What I like about my job:

I liked working for NASA and LLNL because we are always investigating and inventing the new technology frontier. I like to know that I am making a difference in the scientific community, and, with my work, I feel that I am contributing to improving science and protecting our nation. I enjoy working in groups and brainstorming ideas with my colleagues. Another positive aspect is that in my work environment, we're always using and trying state-of-the-art equipment and software.

What I don't like about my job:

I do wish I could work more in the outdoors. I miss walking and studying out in the sunshine like I did in college. Another negative aspect is that I work a good part of the day alone.

My advice to anyone interested in this occupation:

I would suggest visiting different engineering sites to see what the work atmosphere is like. It would be beneficial to read a lot about the fields that you are interested in. Also, do well in school and study hard. It will be advantageous to have a strong foundation and good study habits before college.

Additional Resources:

- American Institute of Biological Sciences
  http://www.aibs.org
- American Physiological Society
  http://www.faseb.org/aps
- American Society for Biochemistry and Molecular Biology
  http://www.biophysics.org/biophys/society/biohome.htm
- American Society for Microbiology
  http://www.asmusa.org
- Astrobiology Summer Academy
  http://academy.arc.nasa.gov/
- Biotechnology Industry Organization
  http://www.bio.org/welcome.html
- Graduate Student Researchers Program
  http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Graduate.Student.Researchers.Program.Brochure/.index.html
- MATHCOUNTS Competition
  http://mathcounts.org/
- Minority University Research and Education Programs
  http://mured.nasaprs.com/
- NASA Cooperative Education Program for college students
  http://spacelink.nasa.gov/Educational.Services/NASA.Education.Programs/Student.Support/NASA.Cooperative.Education.Program/.index.html
- NASA Jobs
  http://nasajobs.nasa.gov/
- NASA Office of Life and Microgravity Sciences and Applications
  http://www.hq.nasa.gov/office/olmsa/
- NASA SHARP Internship Program for high-schoolers
  http://www.mtsibase.com/sharp/
- NASA Student Employment
  http://nasajobs.nasa.gov/stud_opps/employment/index.htm
- NASA Student Involvement Program student contests
  http://www.nsip.net/index.cfm
- Order NASA career videos such as "Engineers: Turning Ideas into Reality," "Careers: Aerospace Engineer" or "Reaching for the Stars" from NASA CORE.
  http://core.nasa.gov
- Student's Guide to Astrobiology
  http://www.astrobiology.com/student.html
- Tech-Interns.com
  http://www.tech-interns.com/

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Thank you.