University of Illinois
at Urbana-Champaign

Department of Aerospace Engineering
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# Way to the Future

## Partner in Law Firm, Professor Honored at 2004 Awards

An aerospace engineer who went on to become a partner at a Chicago law firm and a professor at Virginia Polytechnic were recognized as exemplary graduates in Aerospace Engineering's 2004 awards ceremony. Faculty member Scott White acted as master of ceremonies at the dinner, held at the Illini Union on April 22. A portrait of "Shel" Stillwell, the founder of the Department of Aerospace Engineering, was unveiled at the awards ceremony by Michael Bragg, the current department head.

### Distinguished Alumnus Award

**Gregory C. Mayer,** '87, was recognized as a distinguished alumnus of the Aerospace Engineering Department in the 2004 awards ceremony. He is a partner in the Chicago law firm of Marshall, Gerstein & Borun, which he joined in 1993. His practice focuses primarily on mechanical and electromechanical patent prosecution, patent opinions and counseling, and patent and copyright litigation.

Before attending law school, Mayer worked at McDonnell Douglas in St. Louis, specializing in aircraft structural fatigue. He received his master's in aeronautics and astronautics from Stanford University in 1988 and his juris doctorate from the University of Chicago Law School in 1993.

### Outstanding Recent Alumnus

**Donald J. Leo,** '90, an associate professor in the Mechanical Engineering Department at Virginia Polytechnic Institute and State University (Virginia Tech), is this year's recipient for Outstanding Recent Alumnus. At the awards ceremony, Leo deemed his alma mater's recognition an "unexpected honor," so unexpected that he thought it was a joke when Diane Jeffers, coordinator of external relations, called to tell him of his award. He said he searched the Web to make sure that Jeffers truly worked at Aerospace Engineering.

After graduating from the University of Illinois in 1990, Leo traveled east to the State University of New York in Buffalo, where he earned a master's in mechanical and aerospace engineering in 1992 and a doctorate in the same field in 1995.

He worked at CSA Engineering in Palo Alto, California, for two years before he joined the University of Toledo in Ohio as an assistant professor in January 1997. Leo moved to Virginia Tech in August 1998 as an assistant professor and was promoted to associate professor in July 2002.

He is also affiliated with the Mechanical Engineering Department's Center for Intelligent Material Systems and Structures, where he is associate director. His

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**First-year students ready their rocket for launch. Read the full story on page 8.**

## Inside

## Department of Aerospace Engineering

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# From the Department Head

Welcome to this issue of our newsletter. At this writing, the university's Board of Trustees has approved a new president to lead us: B. Joseph White. He will take over from James Stukel, who has served as president since 1995. You can read more about White by linking to *http://www.uillinois.edu/president/biography.html*.

At the department level, we have exciting news to report. The Subsonic Aerodynamics Lab, with its water-stained ceilings and tarboard walls, has been razed. In its place, we now have the Aerodynamics Research Lab (ARL), where the department will conduct sub- and supersonic aerodynamics research under one roof. You can read about the ARL open house in this issue.

The department has a new offering for first-year students: an applied space design course (*see story in this issue*). The goal is to involve undergraduates in design activities early in their studies. The department is also considering offering a similar course in applied aircraft design in 2005.

On the subject of our AE students, it is gratifying to note that some of them took the initiative to participate in a historic, extracurricular activity. A strong contingent flew out to California to witness perhaps the dawn of private space travel. The students assisted the Ansari X PRIZE Foundation with the first SpaceShip One launch. Later in the fall, Gregg Maryniak, the foundation's executive director, came to speak on campus. Read about the students' journey in this issue.

With this issue, we welcome back Staci Tankersley to the department. Staci is serving as coordinator of academic programs. Some of you may remember Staci from her time in the department in the early 1990s.

If you have an opportunity to visit campus, please stop by. We'd like to see you, catch up on your news, and show you some of our latest efforts.

Mike Bragg

**Visit us at our new Web site:**
**www.ae.uiuc.edu**

# Aerodynamics Lab Alumni Reunite at Open House

*Graduate student Ed Whalen demonstrates the flow of air over a wing to some Open House visitors.*

The department unveiled its new Aerodynamics Research Lab (ARL) at an open house on September 24-25, 2004. The two-day event was organized by Department Head **Mike Bragg** ('76, MS '77) and alumnus **Mike Kerho** (MS '92, PhD '95). The weekend included a football game and evening reception. Aerospace Engineering alumni participating in the reunion included **Chris Lyon** (MS '02), **Ryan Oltman** ('98, MS '02), **Sam Lee** (MS '97, PhD '01), **Shawn Noe** ('93, MS '96), **Tony Balow** ('92, MS '94), **Jim Guglielmo** ('92, MS '96), **Bryan McGranahan** ('01, MS '03), **Nadya (Khan) Heinrich** ('01, MS '93), **Doug Heinrich** ('92, MS '04), **Ed Whalen** ('01, MS '03), **Steve Wells** ('90, MS '92), and **John Winkler** (MS '93, PhD '96).

In the Aerodynamics Research Lab, the department's applied dynamicists will share facilities under one roof for the first time. The lab is co-directed by professors Bragg, **Michael Selig** ('84) and Gregory Elliott. Subsonic aerodynamics research is conducted in the laboratory's three subsonic wind tunnels. Supersonic aerodynamics research is conducted in the lab's new blow-down wind tunnel and will focus on laser flow diagnostics. In recent years, research activities have included airfoil ice accretion effects, low Reynolds number airfoils, motorsports aerodynamics, and propeller aerodynamics.

The department contributed funds to this project, as well as the College of Engineering, and the offices of the Vice Chancellor of Research, the Provost, and the Chancellor.

*Alumni and current students gather to celebrate AE's new Aerodynamics Research Lab.*

**AE Space Design Teams Lead the Nation...**Two undergraduate teams from AE won first and second place in the AIAA space transportation design competition for 2003-2004. The Daedalus team won first place, while the STARS team garnered second. The project objective was to develop a conceptual design for a transportation system for space tourists. The vehicle had to carry a minimum of seven people—two crew and five passengers. Team members from Daedalus were Joe Doyle, Aaron Dufrene, Jennifer Mason, Lisa Mueller, Justin Pochynok, and Chas Prebil. The STARS (Space Travel Reusable Systems) team included Erin Cross, Kara Huffman, Melanie Lang, John Magelitz, Niraj Patel, and Darin Shanks. Faculty members Victoria Coverstone and Rodney Burton were advisers for both teams.

**Illinois Aerospace Institute...**
Thirty high-school students from Illinois, Iowa, New York, Pennsylvania, and Maryland attended the department's Illinois Aerospace Institute summer camp in 2004. Instructors in the camp included **Leia Blumenthal** ('03), **Suzy Sandrik** (MS '02), **Ed Whalen** ('01, MS '03), and **Brian Woodard** ('02, MS '04).

## Awards, *continued from page 1*

*Prof. Larry Bergman presents the Outstanding Recent Alumnus award to Donald Leo.*

*Gregory Mayer is recognized as an AE Distinguished Alumnus by Michael Bragg.*

current research topics include electroactive polymer materials, hybrid piezoelectric devices, and launch vehicle noise and vibration control.

In 2001, Leo received a CAREER award from the National Science Foundation. The award recognizes the early career-development activities of faculty most likely to become academic leaders.

## Stillwell Memorial Award

Chances are that if you watched a Marching Illini presentation in 2002 or 2003, you would have seen **Kara H. Huffman** front and center. That's because the Glenview, Illinois, native was the drum major those two seasons. She also played piccolo three years in the Orange and Blues pep band as well as the UI Basketball Band. From 2000 to 2004, she was an instructor in the Smith Walbridge Drum Major Camp.

Huffman excelled off court as well: she was a James Scholar and a Chancellor's Scholar for all four of her undergraduate years, and was enrolled in the Campus Honors Program. She also received a scholarship all four years from the Women in Engineering Distinguished Scholars program. From 2002 to 2004, she was the treasurer of Sigma Gamma Tau, the national honor society for aerospace engineers.

In summer 2003, Huffman worked as an undergraduate researcher for Prof. Greg Elliott, assisting in the design and manufacture of a small-scale wind tunnel. As a member of the CubeSat team, she designed and manufactured torque coils, kill switches, and plungers. Huffman will receive her AE bachelor's degree in May 2004, with a minor in mathematics. She plans to attend graduate school at MIT.

**Thomas P. Krenzke** of Lake Zurich, Illinois, is a successful student—his grade point average attests to that. Krenzke also speaks computerese well. He knows five programming languages and four modeling software packages. The senior applies this knowledge when he works as a lab assistant in a computer drafting class and when he teaches students how to use software programs. In 2002, he spent the summer working as an intern in the Air Force Research Labs Munitions Directorate. He learned and applied code to solve detonation and penetration problems. Summer 2003 was spent working at Frasca International Flight Simulators, where he again enhanced his computer skills.

In addition to department recognition of his academic achievement, Krenzke's name was also included in the list for the 2004 Bronze Tablet. Students whose names appear on the tablet represent the top 3 percent of each college's graduating class.

Krenzke's other honors include receiving the McCloy award from Aerospace Engineering in 2002 and being named the outstanding initiate in the Tau Beta Pi engineering honors society. He is also a James and Illinois State scholar. He is a member of Sigma Gamma Tau, the aerospace engineering honors society, and a former member of the Design/Build/Fly team. He has also tutored math at Urbana High School. Krenzke plans to attend graduate school at MIT.

## McCloy Memorial Award

**Geoffrey C. Bower** of Des Plaines, Illinois, received the McCloy award from Department Head Mike Bragg, who is Bower's adviser. Attending the presentation were Bower's parents. Bragg mentioned that Bower had received only one A grade so far "because all the other grades were A+." Outstanding academic performance has been a Bower hallmark: in high school, he was in the National Honor Society, received three medals from the National Science Olympiad, placed 24th in Illinois on the Annual High School Math Exam in 2001, and was a semi-finalist in the International Physics Olympiad.

In college, the junior has received eight scholarships from various donors, including the Illinois General Assembly, Hellenthal Scholarship, Air Traffic Controllers' Association, Tim and Tom Gullikson Foundation, Ainsworth Memorial Scholarship, and the Gregory, J.M. and L.C. Scholarship. He has been a member of the UI AIAA Design/Build/Fly team, and is the group's chief engineer this year.

He is a member of the engineering and aerospace engineering honor societies, Tau Beta Pi and Sigma Gamma Tau. He also mentors Science Olympiad students throughout the country and has supervised events at several local tournaments. He spent last summer as an administrative intern in the U.S. Department of Labor OSHA Training Institute. Bower plans to graduate in May 2005 in aerospace engineering with a minor in mathematics.

## Strehlow Memorial Award

**Daniel Therriault,** PhD '03, was recognized for his research accomplishments when he was presented the Strehlow award by Prof. Scott White, who recruited Therriault as a graduate student. When Therriault first came to Illinois as a doctoral student, he worked as a research assistant investigating composite bridge manufacturing, for which he was recognized with the Henry Ford II award. For three years, he was also a research assistant in micro and nano technologies. He was the manager of the Composites Manufacturing Lab from 2001 to 2003. He has also worked as a teaching assistant, a consultant for CU Aerospace, and a summer camp instructor for the Illinois Aerospace Institute.

Therriault's proudest accomplishment as a researcher is his work on the direct-write assembly of three-dimensional microvascular networks, which he presented as his doctoral thesis. His findings will add to the knowledge of microdevices used in biotechnology, microelectronics, sensors, chemical reactors, and autonomic materials. Therriault and his advisers, professors Scott White (AE) and Jennifer Lewis (MatSe), have applied for a patent for the method that they used to fabricate these microvascular networks. Their work has received widespread publicity in international scientific journals and Web sites, and was the feature story in the April 2004 issue of Air Force Research Laboratory's *Horizons* magazine.

He was recognized for his experimental research with several awards and fellowships while he was at the University of Illinois, including the Carver Fellowship

*Kara Huffman receives her award from John Prussing.*

*Tom Krenzke is congratulated by Emilio Frazzoli on receiving the Stillwell award.*