

# Way to the Future

## 2003 Awards Honor Boeing Executive, Partner in Local Aerospace Firm, Professor, and Venture Capitalist

Michael Bragg ('76, MS '77), the department head of Aerospace Engineering, welcomed attendees to the department's awards evening. He said that the occasion offered faculty and staff alike a chance to bask in the reflected glory of the accomplishments of Aerospace Engineering's alumni and students. This year, faculty member and alumna Victoria Coverstone ('85, MS '86, PhD '92) acted as mistress of ceremonies at the dinner, held at the Illini Union on April 24, 2003.

### Distinguished Alumnus Award

*This award honors alumni and alumnae who have distinguished themselves by outstanding leadership in planning and direction of engineering and scientific work, by fostering professional development of young engineers, or by contributions to knowledge in the fields of science and engineering. The award was first presented in 1965.*



**Michael W. Miller**, '76, is the managing director and co-founder of ComSpace Development, a private equity and strategic management firm located in Alexandria, Virginia. Miller, who

was Bragg's class contemporary, has over 25 years of experience as an engineer, operations manager, entrepreneur, and venture capitalist. He founded the Comspace Fund in 1998 to invest in early-stage aerospace and telecommunications ventures. He was a venture partner for the Cornerstone Ventures and VB Global Partners funds, involved in investing in or starting technology companies. Miller served as a member of NASA's Space Shuttle Competitive Sourcing Taskforce and most recently supported the management and operations of the Shuttle *Columbia* accident investigation board.

Miller was one of the co-founding executives at Orbital Sciences Corporation, where he was instrumental in developing space commercialization agreements. Orbital Sciences became the first privately financed company to commercially develop orbital launchers, spacecraft, and small-satellite telecommunications systems. Miller served as president and CEO of Arc Second, Inc., a provider of laser measurement systems. He built this patented university technology into an emerging growth firm in the construction, aerospace, and movie special effects industries. In 1999, he co-founded and served as chairman of TracerNet Corporation, a firm that uses global

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## AE Mourns Beddini's Passing

It is with sadness that we report on the death of Robert A. Beddini, an associate professor in Aerospace Engineering.



A memorial service was held on November 7, 2003, at the University of Illinois' Beckman Institute to remember his life. Prof. Beddini died on Thursday, October 9, in Urbana. He was 55. He was born January 2, 1948, in New York City. Survivors include his wife Ann; a son, Andrew Beddini, of New York City; a daughter, Laura Beddini, of Weston, Connecticut; two stepdaughters, Katherine Hoskinson of Pesotum, Illinois and Elizabeth

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## From the Department Head

We have some exciting news to report since our last newsletter. The university and the state have approved changing the name of the department to Aerospace Engineering. This change marks the second time that the department has adopted a new name since it was established in 1944 as *Aeronautical Engineering*. The name was changed to *Aeronautical and Astronautical Engineering* in 1961, and we are now *Aerospace Engineering* in our third incarnation.

We are also happy to report that the department gained two new faculty members in 2003: Gregory Elliott and Joanna Austin (*they are introduced later in this newsletter*). Professor Elliott's research focuses on laser-based diagnostic techniques, primarily in supersonic flows. Professor Austin will conduct experimental research in fluid mechanics, gas dynamics, and detonation.

On a fiscal note, the university and the department continue to struggle with budget issues. Over the last two years, the university has laid off student workers, graduate assistants, and employees; cut back its library services and undergraduate courses; reduced administrative resources, and deferred maintenance, repair, and renovation projects. In Aerospace Engineering, we have given serious consideration to the cuts that we have made, always keeping in mind our mission and goals. [*Update*: The good news is that our 2004-2005 budgets are flat from last year (no cuts), so we hope that we are back on the positive side of the curve.]

In closing, I'd like to acknowledge the contributions of Bob Beddini to the AE Department. During his 18 years at the University of Illinois (*see related story*), Bob was a dedicated teacher and researcher, committed to the education of aerospace engineering students. He will be greatly missed by all of us.



## Introducing Two New Faculty Members...

The Department of Aerospace Engineering continues to increase the number of its faculty members, bringing it to 20 with the recent additions of Gregory Elliott and Joanna Austin.

### ...Gregory Elliott

Gregory Elliott joined the department in 2003 as an associate professor. He is also creating a Gasdynamics and Laser Diagnostics Research Laboratory, which is under construction in the department's new wind tunnel laboratory. Elliott came to AE from Rutgers University, where he had been an assistant and associate professor in the Department of Mechanical and Aerospace Engineering from 1995 to 2003.

Elliott received his primary and subsequent degrees, all in mechanical engineering, from The Ohio State University in Columbus: a bachelor's with distinction in 1987, a master's in 1989, and a doctorate in 1993. He was a postdoctoral research associate in the department until 1995. For his doctoral thesis, he studied compressible free shear layers using laser-based diagnostic techniques. At AE, his research will include the thermal and fluid sciences, experimental techniques with an emphasis on laser-based diagnostic techniques, experimental supersonic and subsonic fluid mechanics, combustion, and plasmas.

Elliott is a member of the American Institute of Aeronautics and Astronautics (AIAA), American Society of Mechanical Engineers, and American Society of Engineering Education. He has served on the AIAA's Aerodynamic Measurement Technology technical committee since 1998. He has reviewed technical papers for many journals, including *Physics for Fluids*, *AIAA Journal*, *Journal of Fluid Mechanics*, *Journal of Propulsion and Power*, *Measurement Science and Technology*, *Experimen-*

*tal Thermal and Fluid Science*, and *Applied Optics*.

Recognition for Elliott's work includes the National Science Foundation CAREER Award in 1998. He received two awards for best paper in 1999 from AIAA, for aerodynamic measurements and fluid dynamics. He will be organizing the Aerodynamic Measurements sessions for the AIAA Aerospace Sciences meeting and exhibit in January 2004 and again in 2005.

### ...and Joanna Austin

Joanna Austin joined the department in October 2003 as an assistant professor. Her research areas will include fluid mechanics, gas dynamics, and combustion. "I am predominantly an experimentalist and will run a lab in the AE Department, but I also maintain an interest in applied mathematics," she said. Austin earned her doctorate in aeronautics, with a minor in applied mathematics, in 2003 from the California Institute of Technology. She also studied for her master's in aeronautical engineering at CalTech and graduated in 1998. She received her first degrees from the University of Queensland, Australia, in 1997: a bachelor's degree in mathematics, and a bachelor's degree in mechanical and space engineering.

Austin has been studying fluid mechanics and gas dynamics since her days as an undergraduate student. As a Queensland undergraduate in 1995, she interned at NASA Langley, where she studied non-equilibrium flow parameters in an arc-heated facility. "The internship really came about because of the collaboration between the University



Gregory Elliott



Joanna Austin

of Queensland and the Hypersonic Air-Breathing Propulsion Branch at Langley. ...It was a great experience and I would say it definitely encouraged my interest in high-speed flow." As a graduate research assistant at CalTech, Austin designed and built a narrow channel detonation facility, as well as a ballistic pendulum facility for direct impulse measurements of detonations and deflagrations. She investigated the role of instability in gaseous detonations for her doctoral thesis.

In 2003, she received the Richard Bruce Chapman award at CalTech. "This (honor) is awarded annually in the Engineering and Applied Science Division at CalTech for distinguished research (that is, thesis) in the general area of hydrodynamics. My research was in detonation physics." She is a member of the American Institute of Aeronautics and Astronautics and the Combustion Institute.

## Awards, *continued from page 1*

positioning systems (GPS) for fleet management and data integration.

In the early 1990s, Miller was general manager for Virginia's Center for Innovative Technology (CIT), where he oversaw the organization's research, development, and commercialization projects in fields as diverse as aerospace, medicine, biotechnology, fiber optics, and wireless communications. He developed Virginia's first state-sponsored small-satellite program, and founded the Center for Commercial Launch Infrastructure at Old Dominion University, the Virginia Space Grant Consortium, and the nation's first aerospace business incubator.

Before he joined CIT, Miller directed marketing and government affairs for Rockwell International's Aerospace Operation in Washington, D.C. He was recognized for his efforts in promoting the expansion and integration of the GPS satellite network throughout the Department of Defense.

Miller began his career as an engineer with McDonnell Douglas Astronautics, where he designed and analyzed launch vehicle control systems. He later moved to Hughes Aircraft Space and Communications Group, where he was a subsystem manager for the design, development, and production of power systems for several communications satellite programs.

Miller received bachelor's degrees in 1976 from the University of Illinois in both Aeronautical and Astronautical Engineering and Electrical Engineering. He then studied at the University of California-Irvine and completed the Engineering and Management Program at University of California-Los Angeles. He received his master's in business administration from the University of Chicago's Graduate School of Business in 1983. He was a Knight of St. Pat

in 1976 and received the department's Outstanding Recent Alumnus award in 1990.

**Robert Spitzer, '61, MS '62**, is vice president of technical affiliations for The Boeing Company in Chicago. Since his appointment to this position in November 1999, he has overseen technical affiliations with government, academic, industrial, and technical organizations in order to increase the awareness of global aerospace issues and technology initiatives.

Spitzer joined Boeing in 1965 and gained experience in programs that dealt with both the commercial and military sectors of aerospace. He graduated from the Sloan Fellows program at the Massachusetts Institute of Technology, receiving a master's degree in management in 1978. Spitzer then returned to the Boeing Military Airplane Company, holding management positions in various programs, including chief engineer and program manager for the Boeing portion of the B-2 program from 1981 to 1987.

In September 1987, he was named vice president of research and engineering for Boeing Military Airplanes in Wichita. In early 1990, the Wichita division changed its focus to commercial products, and Spitzer included vice president for technology and vice president of engineering in the Wichita division to his title.

He was appointed vice president of engineering for Boeing Commercial Airplanes (BCA) in 1994. His responsibilities included leading company efforts in assuring the technical excellence of Boeing staff and products. Before



Harry Zanotti

*Robert Spitzer holds the Distinguished Alumnus plaque presented to him at the awards ceremony. Standing with him are Department Head Mike Bragg, Spitzer's wife Jean (third from left), his father Glen and his wife, Beverly.*

assuming his present duties, Spitzer led Aerospace Industry Interfaces, where he was responsible for government and international cooperation for BCA.

In addition to his duties at Boeing, Spitzer serves as vice president for aerospace for the Society of Automotive Engineers. He also serves on the board of the Adler Planetarium and the Fund Board of the Illinois Math and Science Academy.

Spitzer's father, Glen, and his father's wife, Beverly, came from Decatur to see their son honored as one of Aerospace Engineering's distinguished alumni. Also present for the occasion was his wife Jean.

## Outstanding Recent Alumnus

*This award honors recent graduates who have distinguished themselves early in their careers. The award was first presented in 1973.*

**David Carroll, '85, MS '86, PhD '92**, has been studying and working with lasers for almost half his life, so it's understandable that this Outstanding Recent Alumnus is now a partner, the engineering



Harry Zanotti

*David Carroll (left), Outstanding Recent Alumnus for 2003, chats with Prof. Lee Sentman and Ellen Amberg, the Alumni Association's Assistant Director for Constituent Programs.*

director, and treasurer of CU Aerospace. Founded in 1998 and based in Urbana, CU Aerospace tries to identify and develop promising new aerospace technologies, ultimately for commercial purposes. CU Aerospace's researcher-partners conduct research in five main areas: laser products, space systems software, electric propulsion, aircraft safety, and aerospace materials.

Carroll received three degrees from the University of Illinois, achieving a perfect GPA for both his master's and doctoral degrees. He worked as a postdoctoral research associate at Aerospace Engineering right after earning his PhD, performing investigations on the use of chemical oxygen-iodine laser (COIL) devices for high power, material processing applications; modeled the combustion processes and soot/pollutant formation in the hyperburner of a turbo/ramjet, and carried out experimental and theoretical investigations of the fundamental and overtone performance of a cw HF (continuous wave, high frequency) subsonic and supersonic chemical laser.

From 1995 to 2000, Carroll worked as a research scientist for Aerospace Engineering, investigating the use of COIL devices for

high power, material processing applications and studying the effects of increased pressure on COIL performance. After receiving his master's and before embarking on a PhD, he worked for a year and a half for the TRW Space and Technology Group in Redondo Beach, California.

At various times, Carroll has been an instructor for the

department's Aerodynamics Laboratory course, and a course in thermodynamics and heat transfer for Mechanical Engineering, developed and graded homework problems for a graduate-level course in chemical lasers, trained new graduate students in experimental techniques and theoretical aspects of chemical lasers, and supervised undergraduate research assistants working with chemical lasers.

Carroll is a member of the American Institute of Aeronautics and Astronautics, sitting on its plasmadynamics and lasers (PDL) technical committee. He will be the technical chair for the 2005 PDL meeting. He is also a member of the International Society for Optical Engineering, Institute of Electrical and Electronics Engineers (IEEE), Laser Institute of America, Optical Society of America, the National Space Society, and the U.S. Tennis Association.

**Erik Johnson**, '88, MS '93, PhD '97, told the awards gathering that he recently unearthed his senior design report, which gave him a chance to reflect on his time at the University of Illinois. He thanked his professors for offering him challenges while he was a student here. Johnson, also a recipient of

the Outstanding Recent Alumnus award, attended the dinner with his parents, Marge and Phil Johnson.

While studying for his bachelor's degree at UI, which he attained with high honors, he collected a minor in French studies. He spent the summer of 1986 at Marignane, France, as an engineering trainee at Aérospatiale, Division Hélicoptère, Service Formation. He also made a short detour to Trinity Evangelical Divinity School, from which he received a certificate in Biblical studies in 1991. For his PhD, Johnson studied online monitoring, control, and reliability of structural dynamical systems. For two years after earning his doctorate, Johnson taught as a visiting research assistant professor at the University of Notre Dame. In September 1999, he moved to the University of Southern California in Los Angeles, where he is currently an assistant professor in the Department of Civil and Environmental Engineering.

The quality of Johnson's work was recognized when he received a National Science Foundation CAREER award in 2001. He was also a nominee that year for the Packard Foundation's Fellowships for Science and Engineer-



Harry Zanotti

*Erik Johnson, recipient of the Outstanding Recent Alumnus award, is pictured with his parents, Marge and Phil Johnson.*