

# WAY TO THE FUTURE

## WEAPONS DESIGNER, BOEING PHANTOM WORKS VICE PRESIDENT ARE AMONG ALUMNI HONORED IN AWARDS 2000

The Department of Aeronautical and Astronautical Engineering's awards banquet for 2000 was held at the Colonial Room of the Illini Union on April 13. Department head Michael Bragg welcomed the participants and faculty member Eric Loth acted as master of ceremonies. It was an evening of mutual satisfaction as alumni thanked their professors for the great foundation that was provided them, and faculty recognized the achievements of their former and present students. At one point, an old photo from the 1976 awards ceremony garnered a few laughs—faculty member John Prussing, clad in plaid, presenting the AIAA Scholastic Achievement Award to then-student Michael Bragg, similarly clad in plaid. Twenty-four years later, Prussing presented this award to Jennifer Jones.

### ALUMNI AWARDS

#### 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.


**Bruce Theron Goodwin**, MS '78, PhD '82, is currently both the B program leader and the B division leader at the Lawrence Livermore National



*Bruce Theron Goodwin (left) receives the Distinguished Alumnus Award from faculty member John Prussing.*

Laboratory in Livermore, California. His research interests include the physics of primary nuclear explosives and hydrodynamic instability and turbulent mixing. While working as a nuclear weapons designer, first at Los Alamos National Laboratory and, since

### Inside

From the Department Head . . . . .	2
AAE's Graduate Program Ranks in Top Ten . . . . .	7
AAE Redefines Direction of Its Curriculum . . . . .	7
"Phoenix" Rises To Capture Third Place . . . . .	10
	
Float'n Illini Update . . . . .	11
	
Class Notes . . . . .	12
Faculty News . . . . .	13
Back to Drawing Board for Cetan	18
AAE Medical Scholar Returns from Japan Sojourn . . . . .	23

1985, at Livermore, he was the principal weapon designer for three nuclear tests and was the design physicist for two additional nuclear tests, all conducted underground at the Nevada test site.

Goodwin has received three awards of excellence from the Department of Energy's (DOE)

*continued on page 3*

# DEPARTMENT OF AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

306 Talbot Laboratory  
104 South Wright Street  
Urbana, IL 61801-2935  
Telephone: 217-333-2651  
Fax: 217-244-0720  
WWW: <http://www.aae.uiuc.edu>

## *Department Head*

Michael B. Bragg

## *Associate Department Head*

Rodney L. Burton

## *Professors*

Lawrence A. Bergman  
John D. Buckmaster  
Bruce A. Conway  
J. Craig Dutton  
Ki Dong Lee  
N. Sri Namachchivaya  
John E. Prussing  
Lee H. Sentman  
Wayne C. Solomon

## *Associate Professors*

Robert A. Beddini  
Victoria L. Coverstone-Carroll  
Eric Loth  
Michael S. Selig  
Petros G. Voulgaris  
Scott R. White

## *Assistant Professors*

Philippe H. Geubelle

## *Emeriti*

Harold O. Barthel  
Charles E. Bond  
Harry H. Hilton  
Allen I. Ormsbee  
Kenneth R. Sivier  
Shee Mang Yen  
Adam R. Zak

## *Academic Staff*

M. Fouad Ahmad  
David L. Carroll

## *Administrative Staff*

Lori Ballinger  
Diane E. Jeffers, coordinator of external  
relations  
Kendra Lindsey  
Santee G. Moore  
Jennifer Schuster  
Alison Fong Weingartner, editor

## FROM THE DEPARTMENT HEAD

The gifts of alumni and friends to AAE are crucial for us to be able to provide many of what have become essential parts of a quality educational experience. Funding from the State of Illinois is no longer adequate to support the high quality of education provided at Illinois. There are many examples of how gifts make a difference.

You have, no doubt, read about our student design-and-build projects that have been featured in past issues of *Way to the Future*. These projects began as extracurricular student projects but are becoming a larger part of our program. Currently we support three of these projects with primarily alumni and corporate gifts, but the need grows. Just this week, I was approached by an interdisciplinary group of students, led by an AAE junior: they need support for an autonomous robotic aircraft project for an international competition. We want to encourage our students to participate in these wonderful experiences.

Many other departmental functions, for which there is an inadequate state support, rely upon gift funds. Undergraduate scholarships and some graduate student fellowships often come from these funds. We also fund student awards such as the Strehlow, Stillwell, McCloy, and Margerum memorial awards from gifts of alumni and friends. Individual and corporate gifts provide needed updating of undergraduate laboratory and computer equipment. We have, for the past few years, instituted welcoming receptions for new freshman and new graduate students that have been credited with improving our retention of new students and improving the climate for them. The AAE commencement brunch is also a relatively new departmental function. It is held the morning of graduation and provides a great way for families and graduates to meet and celebrate their accomplishments.

This newsletter and the annual departmental awards banquet are also supported in part by these gifts. New faculty member recruiting would be much more difficult if it were not for gift funds. In the next issue, we plan to introduce you to our new faculty members.

I think you can see from this list of examples just how important your gifts are to the department. They support activities from the first week a new freshman is on campus all the way through to graduation. Gifts truly make the difference between a good department and an excellent one. Thank you for your support over the years and for your continuing support as we strive to grow and build an even better department.



A handwritten signature in black ink that reads "Mike Bragg". The signature is written in a cursive, flowing style.

Mike Bragg  
[mbragg@uiuc.edu](mailto:mbragg@uiuc.edu)

## ALUMNI HONORED IN AWARDS 2000, *continued from page 1*

Office of Military Applications for his significant contributions to the nuclear weapons program. He was recognized in 1997 for his contributions to the understanding of plutonium science in nuclear design. In 1990, the DOE recognized him for his technical leadership in nuclear design; in 1985, he was again recognized for his work in advancing the design principles of weapons. In 1994, he received a Distinguished Achievement Award from the Physics and Space Technology Directorate of Lawrence Livermore Lab for pioneering theoretical and experimental measurements of actinide melt-curves to the megabar pressure range.

He became the deputy leader of the DOE defense program's national hydrodynamic testing program in 1999. Goodwin is also the chair of JOWOG 32P (United States/United Kingdom Joint Working Group for Combined Primary Weapons Physics and Hydrodynamics).

**George K. Muellner**, '67, is vice president and general manager of Phantom Works, the research and development organization of The Boeing Company. Phantom Works strives to advance Boeing's competitiveness through technol-

ogy development, process improvement, and new product development, with a special focus on making products more affordable and more capable. Muellner is based at Seal Beach, California.

He joined Boeing in 1998, after serving 31 years in the U.S. Air Force. At the time of his retirement, he was a lieutenant general and served as the senior military acquisition officer for the Air Force in Washington, D.C., responsible for overseeing a \$20-billion budget for development and acquisition programs and science and technology investments. "Oversight includes all dealings with Congress, the Department of Defense and the other Services," said Muellner. From 1993 to 1995, he was the director and program executive officer for the Joint Advanced Strike Technology program, now the Joint Strike Fighter program.

He has spent most of his career as a fighter pilot, fighter weapons instructor, test pilot, and commander of a fighter wing. A decorated veteran, Muellner flew combat missions in Vietnam and commanded the Joint STARS (Surveillance, Targeting, and Reconnaissance System) deployment during Operation Desert Storm in 1990-91. In 1992, he

became deputy chief of staff for requirements for the Headquarters Air Combat Command at Langley Air Force Base in Virginia, which means he was the general officer responsible for identifying what systems and capabilities were needed by all of the combat

air forces within the Air Force. He later served as mission area director for tactical, command, control and communications, and weapons programs for the Office of the Assistant Secretary of the Air Force for Acquisition.

In addition to his bachelor's degree from AAE, Muellner holds a master's degree in aeronautical systems management from the University of Southern California, a master's in electrical engineering from California State University, and a master's in business administration from Auburn University. He has also completed courses at the Air War College at Maxwell Air Force Base, Alabama, the Defense Systems Management College in Fort Belvoir, Virginia, and the Naval War College.

## OUTSTANDING RECENT ALUMNUS AWARD

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

**Albert L. Herman**, '84, MS '89, PhD '95, is the principal mission analyst for Spectrum Astro, Inc., of Gilbert, Arizona, responsible for mission analysis group efforts across all company programs. After receiving his bachelor's degree from the University of Illinois at Urbana-Champaign, Herman took a position in the Guidance, Navigation, and Control Department of McDonnell Douglas Corporation in St. Louis, Missouri, where he worked on the U.S. Navy's Harpoon anti-ship cruise missile and Standoff Land Attack Missile programs.

He left this position in 1987 to continue in graduate school. While in graduate school, he held temporary positions within the

*continued on next page*



*AAE Prof. Wayne Solomon presents a Distinguished Alumnus Award to George Muellner (left).*

## AWARDS 2000, *continued*



*Albert Herman was one of two alumni honored with the Outstanding Recent Alumnus Award, presented here by faculty member Victoria Coverstone-Carroll.*



*The second recipient of an Outstanding Recent Alumnus Award was Robert Eugene Waldo.*

Flight Mechanics Technology group of the Boeing Aerospace and Electronics Company in Seattle, Washington, and the Advanced System Analysis group of the McDonnell Douglas Space Systems Company in Huntington Beach, California. His duties involved applying preliminary research results to launch vehicle and cruise missile problems. During the last two years of his doctoral work, he was a research assistant at the U.S. Army Construction Engineering Research Laboratory (CERL) in Champaign, Illinois, working to develop a real-time flight simulator for small, unmanned aerial vehicles.

After earning his doctorate, Herman worked at CERL, where he continued his simulation work. He joined Spectrum Astro in 1996. His responsibilities include staffing the various programs and oversight of a broad spectrum of technical issues across a variety of DOD and NASA programs. At Spectrum, he has won four Small Business Innovation Research program contracts, conducting applied research and software development for transfer analysis of low-thrust orbits with funding from the Air Force Research Laboratory and Goddard Space

Flight Center. Spectrum honored him with its Founder's Award in 1998 and the Technical Achievement Award in 1999. Herman is a senior member of the American Institute for Aeronautics and Astronautics.

**Robert Eugene Waldo, '86, MS '88, PhD '91**, is currently the program manager of the gain generator subsystem for the Space-Based Laser Integrated Flight Experiment at TRW Space & Electronics Group in Redondo Beach, California. He manages a 25-person team that performs design, fabrication, and tests of gain generator hardware. The function of the gain generator is to create a supersonic flow field of vibrationally excited hydrogen fluoride from which a high-energy laser beam is extracted. Previously, he was the deputy program manager of the gain generator technology program, developing hardware that included the hypersonic low-temperature (HYLTE) water-cooled and self-cooled laser modules, and the HYLTE gain generator ring.

Upon earning his doctorate in August 1991, Waldo worked until 1996 for Schafer Corporation Inc. in Calabasas, California, as a research scientist. There, he

provided experimental and analytical support to the Ballistic Missile Defense Organization's hydrogen fluoride fundamental and overtone laser programs.

Waldo was enrolled in the Cooperative Engineering Education program during his undergraduate years at the university, from 1983 to 1986, working as an aeronautical engineer on various assignments with the McDonnell Douglas Corporation in St. Louis.

No stranger to honors, he was on the Dean's List and was an Edmund James Scholar in engineering. This is his second recognition from AAE—Waldo was awarded the Strehlow Memorial Award in 1992. In 1999, TRW recognized him by including his name in the Independent Research and Development Roll of Honor of the company's Space & Electronic Group.

### STUDENT AWARDS

#### ROBERT W. MCCLOY MEMORIAL AWARD

Presented annually to a junior or first-semester senior student in recognition of outstanding academic performance.



*Department Head Michael Bragg presents the 2000 McCloy Memorial Award to Scott Zimmer (left).*

**Scott J. Zimmer** of Joliet, Illinois, is a senior in AAE who plans to graduate in May 2001. From January 1998 to January 2000, Zimmer performed undergraduate research under Professor Victoria Coverstone-Carroll, using a computer modeling program to graphically show spacecraft motions.

Since November 1999, he has been the co-director of Engineering 100, a six-week orientation course for incoming first-year students, with responsibility for selecting, training, and managing 40 engineering learning assistants (ELAs). As an ELA himself in fall 1999, he taught this required course and led discussions for an eight-week class on methods of learning. Zimmer also holds positions on several committees: he is the co-chair for the Campus Recreation Advisory Committee, student liaison for the Engineering Council Committee on Physics Education, and the class representative to the AAE Advisory Committee. His awards include being an Aerospace Illinois Scholar in 1999 and 2000, a James Scholar, and being on the Dean's List since fall 1997. Zimmer spent the summers of 1998 and 1999 as an engineering intern for the Will County Land Use Department, reviewing building plans for structural soundness and for building code violations.

## H. S. Stillwell MEMORIAL AWARD

Two awards presented annually on the basis of students' outstanding scholastic achievement and extracurricular activities.

**Lynn Elizabeth Craig** of Springfield, Missouri, is one of this year's Stillwell winners. In addition to her class load, Craig is involved in many activities on campus. She serves as the peer tutoring chair for Tau Beta Pi (engineering honor society), is a member of Sigma Gamma Tau (the aerospace honor society), and is on the Dean's List (1996–2000). She is the secretary/treasurer for the campus chapter of the American Institute for Aeronautics and Astronautics, has participated in research with Professor Victoria Coverstone-Carroll's Spacecraft Dynamics, Control, and Design Group, and belongs to the Society of Women Engineers, the Illini Space Development Society, and the Astronomical Society. Additionally, Craig plays clarinet in the university's Marching Illini and the Illini Basketball Band.

Her last five summers have primarily been spent on space-related activities. The summers of 1995 and 1996 were spent at Southwest Missouri State University as a high school astronomy



*Lynn Elizabeth Craig (left) was a recipient of the Stillwell Memorial Award. She is seen here receiving the award from Victoria Coverstone-Carroll.*

research intern for the NASA Missouri Space Grant Consortium. The summers of 1997 and 1998 were spent at the same university as an undergraduate astronomy research intern. Among other duties, Craig devoted her time to collecting and analyzing data on variable stars and accomplishing her own projects on computer-modeling binary star systems. She has presented her binary star data at successive Missouri Space Grant Consortium annual meetings since 1996. Most recently in 1999, she co-authored a publication for the American Astronomical Society on binary stars.

Summer 1999 was spent as an intern at NASA Langley Research Center in Hampton, Virginia, where she participated in research involving control systems for mitigation of aircraft turbulence hazards. In fall 2000, Craig will begin graduate studies at the University of Michigan in aerospace engineering.



*A delighted Jennifer Jones receives the Stillwell Memorial Award from faculty member Scott White.*

**Jennifer M. Jones** of Cary, North Carolina, is the epitome of the requirements for a Stillwell awardee. She has managed to achieve a perfect grade-point average of 4.0 while being fully involved in an extracurricular schedule. As a cooperative education student attached to NASA Johnson Space Center since

*continued on next page*