

# OSU IMPACT



interior on theater level



theater during opening

theater box seating

# redefining EXCELLENCE

in ENGINEERING, ARCHITECTURE & TECHNOLOGY

2001 OKLAHOMA STATE UNIVERSITY

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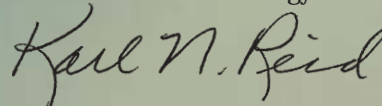
“We’re number one!” is a common mantra at today’s competitive sporting events. Although the claim is often misapplied, as every disappointed fan knows, it is still tempting to add my voice to the chant when I look at the accomplishments of the College of Engineering, Architecture and Technology over the past year. Instead, I’ll resist the urge to raise the call and quietly assert the CEAT is at the top of its game.

When we look at some of the CEAT triumphs, winners and prize-winning moments of last year, as we do in this issue of *Impact*, we see that the caliber of our students, faculty and programs place the college at the forefront nationally and internationally. Highest honors to our architecture and aerospace engineering students leave no question as to our dominance in these arenas while across the college faculty and student honors, research and technology transfer, and international, corporate, government and collegiate collaborations further position the CEAT in the educational front line.

Like every winning team, the effort of individuals leads to the CEAT’s success. We have talented students committed to individual and team achievement, faculty determined to provide the total spectrum of activities inside and outside our classrooms and laboratories and alumni leaders who strongly support our endeavors. This issue of *Impact* highlights several of the CEAT student, faculty and alumni leaders and their contributions to the college as well as to their professions. We also hear from alumni who have chosen nontraditional career paths. Their experiences are testimonies, not just to the richness and diversity of their degrees, but to the breadth, creativity and flexibility of the CEAT team.

Keeping pace with rapid technological change requires the CEAT to remain agile and to work from an ever-evolving game plan if we are to continue to be the leader in preparing the architects, engineers and technologists who will lead the future. We must continue to build a physical infrastructure that will nourish intellectual leaders and develop new knowledge and an academic infrastructure that will attract and retain the very best faculty and students.

While it would be shortsighted to rest on accomplishments, we pause for a moment to recognize our achievements within these pages of *Impact*. In setting the pace nationally and internationally, the CEAT is redefining excellence in engineering, architecture and technology.



Karl Reid, Dean  
College of Engineering, Architecture and Technology

CEAT Dean Karl Reid stands in the new, soon-to-be-occupied dean’s office in the Advanced Technology Research Center, which is rapidly becoming the nerve center of the CEAT complex. Administrative and support services personnel began relocating their offices from Engineering North to the ATRC this summer, and the dean’s office is slated to move this fall. In addition to providing much-needed space for the CEAT administrative center, the new ATRC offices will facilitate communication with faculty and industry partners, Reid says.

Heath Shelton



# I M P A C T

VOLUME 8, 2001

## redefining EXCELLENCE in ENGINEERING, ARCHITECTURE & TECHNOLOGY

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While the world faces a critical shortage of engineering graduates, the OSU College of Engineering, Architecture and Technology continues to prepare and graduate the country's finest engineers, architects and technologists. With expert faculty, outstanding students, engaged alumni, program diversity, research and development opportunities and a full array of enrichment activities, the CEAT is raising the national and international standards for academic excellence.

By providing the leaders who will design and build our future infrastructures, the CEAT's success truly does IMPACT the world.

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IMPACT is a publication of the Oklahoma State University College of Engineering, Architecture and Technology and is designed to provide information on college activities and accomplishments while fostering communication among the CEAT family and friends.

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### I M P A C T

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**ON THE COVER:** The designs of OSU architecture students, Andrew Klare, Daniel Ralls and Robbie Forslund, captured three of six honors, including first place, at the Dupont Benedictus Design Competition. OSU architecture students have won top honors at this "Olympics" of international design for two consecutive years. *The related story is on page 8.*

### VIP INVITATION

The CEAT wants you to have access to up-to-date information on everything from the continuing development of the Advanced Technology Research Center to the establishment of new academic programs on the Stillwater campus and in Tulsa.

We invite you to be our guest for a VIP visit to campus and the CEAT. Contact Dean Karl Reid by phone at (405) 744-5140, by FAX at (405) 744-7545, or by e-mail at [kreid@okstate.edu](mailto:kreid@okstate.edu). If a trip to campus is not possible, visit the CEAT homepage through the OSU website at [www.okstate.edu](http://www.okstate.edu).

## Kangwon, OSU Strengthen Exchange



Heath Shelton

Engineers may speak a common language the world over, but in today's global economy, brushing up on English speaking skills will likely enhance opportunities for 15 electrical engineering students from Kangwon National University, South Korea, who visited OSU this summer for classes in the English Language Institute and the School of Electrical and Computer Engineering.

The visit is the third from Kangwon students and faculty in as many years and is the result of a mutual exchange agreement OSU and Kangwon University signed in 1995 and re-affirmed in 1998. The student visits are part of Brain Korea 21, a competitive program funded by the Korean government to encourage student exchange, says Michael Soderstrand, professor and head of the School of Electrical and Computer Engineering.

"Brain Korea 21 is one of the major programs under the exchange agreement," Soderstrand says. "The Korean government recognizes that the economy of the country depends on globalization. They believe that having students understand Western culture and speak English is vital to the survival of Korea and have organized a seven-year program in order to get students closer to English-speaking cultures."

Kangwon National University, which earned the Brain Korea 21 award in the area of information technology, and OSU are a good fit, he says. "Kangwon is particularly interesting to us because telecommunications is its emphasis, and it's obviously our strong point. At the same time that we're conducting this program with students,

we're initiating research to stimulate interaction and working on an agreement with Kangwon to engage in some joint projects."

Under Brain Korea 21, faculty members from OSU and Kangwon have exchanged visits. In addition, three Korean undergraduate students spent one year at OSU in 2000-2001, and three more undergraduates will spend one year at OSU in 2001-2002. Two other groups of students have come from Kangwon to OSU for short-term study programs, 31 students for 10 days in January 2000 and 25 students for 14 days in July 2000.

Last year Kangwon sent students to two other U.S. universities in addition to OSU, but this year, to the delight of OSU organizers, OSU was the only university selected by Kangwon to repeat the summer exchange program. Kangwon also extended the visit from 10 days to 28 days with added emphasis on English language contact.

"I attribute their decision to several factors," says George Collington, coordinator of Engineering Extension programs who helped organize the visit. "The visiting faculty and students deeply appreciated the 'customer attention' and scheduling detail provided by Engineering Extension and the School of Electrical and Computer Engineering, the effective, and fun, English language classes provided by the English Language Institute and the community hospitality.

"Whether we stopped at a Saturday morning garage sale or window-shopped in downtown Stillwater, the community response to our Korean guests was always friendly."

ADAM HUFFER & EILEEN MUSTAIN



## Expanding Opportunities in Telecommunications

On the heels of an excellent re-accreditation review a year ago from the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, the Department of Electrical Engineering Technology convened its Industry Advisory Council meeting this spring to explore ways to make its program more accessible to students statewide. In outlining plans for a telecommunications option and to strengthen its presence in Oklahoma City and at OSU-Tulsa, Dr. Tom Bertenshaw says the department seeks to better serve the needs of the state by producing more extremely sought-after graduates.

"The growth of high-tech employment in the region has led to a feeding frenzy to hire our graduates," says the professor and head of the department. "Every student has more than one job offer upon graduation, and for the past few semesters, they have received among the highest starting salaries of graduates university-wide."

The department is working to solidify an agreement with Tulsa Community College to allow students from its associate's degree program to more easily matriculate into electrical engineering technology classes at OSU-Tulsa. Several members of its faculty already travel weekly to the cam-

pus to teach, and the department hopes to make more courses available via distance education.

"We have had a presence in Tulsa for about 12 years, but we would like to see it grow there and in Oklahoma City," Bertenshaw says. "The addition of a telecommunications option in Oklahoma City, Tulsa and here in Stillwater is part of our effort to maintain our record of quality and relevance to the growing industry in the state.

"A strong concern of our partners in industry is that we ensure that the telecommunications option gets a healthy start in Tulsa because it's a major center of Oklahoma's telecommunications industry right now."

Above all, the arming of more professionals with bachelor's degrees in electrical engineering technology is the primary concern of the department and its partners in industry, according to Bertenshaw.

"A few of our people opt for graduate school in electrical engineering or the College of Business, but the majority of them go to work immediately because the pay is so good and people hire them to go to work right away," Bertenshaw says.

"There's such a shortage, we could graduate five times as many as we do, and they all would still get jobs."

ADAM HUFFER

redefining  
**EXCELLENCE**  
in COLLABORATIONS

## OSU Partners with Tulsa's Japanese Sister City

A research collaboration that dates back to 1993 between engineering professors at OSU and a national university in Tulsa's sister city in Japan has spawned a formal partnership between the institutions.

Officials from Utsunomiya University in the city of Utsunomiya visited Stillwater in March to sign an Agreement of Academic Exchange. The ceremony officially opened channels for student and faculty exchange and research collaboration.

"This is an important milestone in the ongoing development of OSU's collaboration and partnership with universities around the globe," says Karl Reid, dean of the College of Engineering, Architecture and Technology. "The agreement will enable exchange of faculty members and research staff as well as undergraduate and graduate students between Utsunomiya and OSU, and it will also facilitate joint research and symposia."

The agreement is the result of research collaboration between Ranga Komanduri, Albert H. Nelson Jr. Professor of mechanical engineering at OSU, and Takeo Shinmura, a faculty member in the department of mechanical systems at Utsunomiya.

Komanduri, who established the CEAT's world-class program in advanced manufacturing processes, visited Shinmura at Utsunomiya in 1993 while working on a Department of Defense contract on the precision finishing of ceramic balls using magnetic field-assisted polishing. Shinmura, who spe-

cialized in a related area, later visited Komanduri's laboratory facilities at OSU.

While they established a cooperative project, Shinmura introduced Komanduri to one of his engineering colleagues, Kozo Kishi, who later became president of the university. During Komanduri's subsequent visit to Japan in 1999, Kishi suggested they work to establish a formal partnership to encompass all programs at their respective schools.

While OSU and Utsunomiya are well-matched in the strength of their intellectual and laboratory resources in the area of advanced manufacturing processes, the universities share many other interests as well, according to Komanduri.

Utsunomiya University, a school for engineering, agriculture, international studies and education, sits on two campuses in Utsunomiya. Located approximately 60 miles north of Tokyo, the city is the capital of Tochigi Prefecture. Recently, the Japanese government designated it a "technopolis," where research, development and production of new technology are closely linked. It is a base of top Japanese manufacturers including Canon, Honda, Nissan, Matsushita, Sharp and AIWA as well as U.S. companies such as DuPont, MEMC, Fidelity and Harrison.

"I am thrilled that the sister university status between Utsunomiya University and OSU is finally taking shape," Komanduri says. "This spirit of cooperation can yield productive collaboration."

ADAM HUFFER

OSU President James Halligan shakes hands with Takeo Shinmura, vice president of Utsunomiya University. Looking on are CEAT Dean Karl Reid; Ranga Komanduri; Tom Collins, president of the OSU Education and Research Foundation; Hironori Higuchi, head of the Research Cooperation Section at Utsunomiya; OSU Vice President Marvin Keener; and Hitomi Yamaguchi, Utsunomiya research associate.

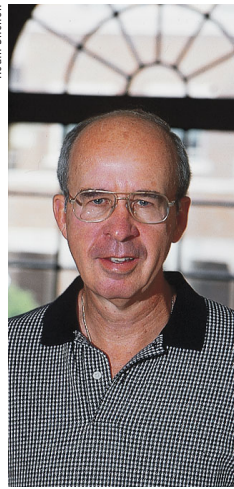


Adam Huffer

## OSU, OU Take the High Road

Despite the healthy rivalry between OSU and the University of Oklahoma, the state's flagship universities share the same mission to make Oklahoma a better place to live. This year, teamed in a common cause, OSU and the University of Oklahoma, working with state transportation agencies and industry representatives, formed the Oklahoma Transportation Center.

Heath Shelton



Gorman Gilbert, professor and head of OSU's School of Civil and Environmental Engineering, will serve as director of the Oklahoma Transportation Center for the first two years. Gilbert came to OSU to initiate groundwork on the center. He previously headed North Carolina's transportation center, a self-supporting endeavor that he advanced from a \$2 million-a-year into a \$10 million-a-year operation between 1992 and 2000.

The new partners' game plan, which they have aggressively pursued, is to give the state an economic boost through an improved statewide transportation system.

Each contributed \$200,000 in seed funding to kick off the center. They enlisted partners in the Oklahoma Department of Transportation and the Oklahoma Transportation Authority and then successfully reached out to all facets of the transportation industry. When the center's policy-shaping committee met last spring in Stillwater, more than 30 individuals representing the interests of railroads, waterways and trucking groups as well as contractors and materials providers signed on to assist the endeavor.

The center is addressing the state's immediate transportation problems through research, education, technical assistance, training and technology transfer and is working to formulate sound transportation policy to support Oklahoma's competitiveness and economic development, according to Gorman Gilbert, professor and head of OSU's School of Civil and Environmental Engineering and one of the center's chief architects and its first director.

"States and cities compete in the market to attract new businesses, and when any firm chooses among Oklahoma, California, New Jersey or New Mexico, the state's transportation system is an important consideration," Gilbert says.

"We need to provide a better transportation system to attract companies that will offer better jobs, and subsequently, better income for Oklahoma citizens."

Center co-director Tom Landers, associate dean for research at the University of Oklahoma, sees the center as a basis for expanded

cooperation on a broad range of transportation needs, from the routing of school buses and rural trucking lines to professional training opportunities to specialized research projects for improving the longevity and safety of roadways.

"With our central location and access to road, rail, air and waterways, the development and use of inter-modal transportation options will be another area of paramount importance to the state of Oklahoma," Landers says. "The center will be involved not only in the construction and maintenance of our transportation infrastructure, but also in its efficient use."

Ike Glass Jr., owner and operator of Glass Trucking Co. Inc. in Newkirk and an Oklahoma State Regent for Higher Education, serves as chairman of the Oklahoma Transportation Center policy committee.

"Oklahoma faces many certain issues, and we should be looking for ways to build our infrastructure to handle the volume of urban traffic we can expect in the future," he says. "But transportation is equally important to rural Oklahoma; every community relies on the highways for access and shipping.

"Companies are not only concerned about how employees get to and from work but also how efficiently materials flow in and out of operations, and transportation is the key," he adds. "To get new businesses to locate here and to sustain existing ones, we have to address these issues."

Glass calls the universities' efforts to involve the private sector in the center "tremendously successful" and attributes the enthusiasm to the leadership of OSU and the University of Oklahoma. "The cooperative effort between the universities is significant," he says.

ADAM HUFFER



## Architecture Exercise Study in Engineering, Traditions

Since the 1960s, the Trail of Tears drama depicting the forced relocation of Native Americans from the coastal Southeast to Oklahoma has been presented in the beautiful outdoor setting of the Tsa La Gi Amphitheater in Tahlequah, Okla.

The show attracts visitors from around the world, yet the Cherokee Heritage Center realizes the summer heat keeps many people from attending the outdoor presentations. Enhancement of the amphitheater is part of an overarching endeavor to renew interest in tourism and recreation activities near Tahlequah.

Now, thanks to OSU architecture students and professors, the Cherokee Heritage Center is considering a variety of innovative designs for enclosing the amphitheater. The models are currently on view in Tahlequah, and the center may eventually seek funding for the actual project.

OSU Applications Engineer Win Adams was assisting the Cherokee Heritage Center in a venture to manufacture re-creations of its Sequoyah Pottery, when he learned about the center's interest in cooling the amphitheater to attract more visitors to the Cherokee Heritage Center, which also includes a museum and American Indian village.

He first approached Professor Jeff Spittle, the C.M. Leonard Professor in OSU's School of Mechanical and Aerospace Engineering about adding air-conditioning.

"We concluded that the best idea was to get some candidate architectural solutions, after which the mechanical engineers could better help with the HVAC (heating, ventilating, air conditioning) system design," Spittle says.

So Adams discussed the idea with architecture faculty Eric Connell, John Phillips, John Womack and Mohammed Bilbeisi. Soon Womack and Bilbeisi assigned a 10-day, team project for students in their third-year design studio.

"After students assembled into teams, we told them to select one of four materials - wood, fabric, concrete and steel - before telling them about the project," Womack says. "Each material presented its own challenge."

Each design had to be functional as both a roof and enclosure and also support mechanical building systems, and each also had to blend with the amphitheater's aesthetic style.

"Function, material and the aesthetics of the client must come together in any architectural solution, but in this exercise, the material typically dictated the solution," Womack says. The designs included subtleties such as natural lighting to preserve the theater's original ambience. One fabric enclosure took the shape of an eagle with outspread wings.

"From a learning standpoint, the real emphasis was on how the task of engineering this structure is also an architectural problem," Womack says. "While concrete shells presented acoustics problems, the fabric

enclosures made interior climate control more difficult. And blending a steel structure into the wooded surroundings was no small task."

In learning Cherokee traditions and culture and attempting to incorporate them in the designs, students were also nudged closer to understanding the philosophical and artistic characteristics of architecture, Bilbeisi says.

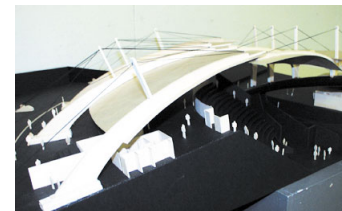
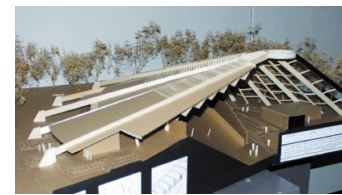
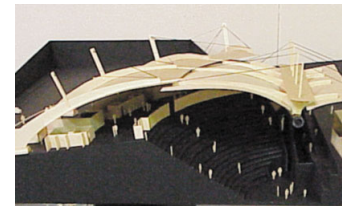
"We asked them to consider the perfect use of wood, steel, concrete and fabric in this project, but to approach it poetically," Bilbeisi says. "The belief of seven coordinates - north, south, east, west, up, down and location of self - as opposed to the Western tradition of four is a manifestation of truth as it manifests to Cherokees, and the students' design schemes explore it."

"In seeking truth, architecture is philosophical in nature, and its study distinguishes us from, simply, providers of shelter."

Adams, who is of Cherokee descent, provided the students with measurements and old drawings of the facility. "The students did an excellent job," he says. "I'm very impressed with the level of research they put into this project."

Spittle says the project is now ripe for the implementation of building mechanical systems, and the OSU Physical Plant has offered to provide advice for the project, as well. "Now that the architectural designs are complete, it's possible that it may soon become a student design project for our mechanical engineering students."

ADAM HUFFER & JANET VARNUM



A design by OSU architecture students conceptualizes an enclosure for the Tsa La Gi Amphitheater near Tahlequah. The hypothetical project was assigned in the third-year studio after OSU Applications Engineer Win Adams, who is assisting the Cherokee Heritage Center in a manufacturing venture, approached the school on the center's behalf. The center plans to garner ideas from the models and use them for cost estimation purposes.

## New Software Revolutionizes Energy Consumption

Last spring, while environmentalists, utility companies and their pundits and rhetoricians debated the national energy crisis, the release of the most innovative software ever developed by the Department of Energy to minimize energy use and cost and improve indoor air quality registered nary a blip on the national consciousness.

The Department of Energy released EnergyPlus, the next generation of building energy analysis software for universal use in the design of heating, ventilation and air-conditioning systems.

Dan Fisher, associate professor in the School of Mechanical and Aerospace Engineering, is a member of the research group that developed the computational program – a complex set of algorithms – in all, more than 100,000 lines of computer code.

Other members of the team are researchers from Lawrence Berkeley National Laboratory in California, the University of Illinois, the U.S. Army Construction Engineering Research Laboratory, Penn State University, the University of Wisconsin at Madison and the Florida Solar Energy Center.

As a replacement to Department of Energy programs developed in the 1970s, the new software allows designers and builders to accurately simulate new and alternative innovations in heating, ventilation and air-conditioning system technologies when planning a structure.

“OSU researchers are contributing expertise in the modeling of heating, ventilation and air-conditioning systems and extensive experience in the design, development and use of electricity-conserving alternatives to traditional systems,” Fisher says.

One innovation of EnergyPlus is that the program allows builders to simulate low-energy options to traditional heating and cooling systems, including passive solar and day lighting options, natural ventilation and ground source heat pumps, whereas pre-existing Department of Energy software did not.

“The Department of Energy believes the new software will significantly reduce building and home energy consumption, which accounts for one-third of all energy consumption in the United States,” Fisher says.

ADAM HUFFER



DAN FISHER

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## Memorial Design Broadens Architectural Experience

Few settings evoke reactions from people like memorial sites, making their design an excellent exercise for architecture students. Cooperating with veterans and the City of Sand Springs, third-year studio instructors Bob Wright and Eric Connell last fall presented students with the unique and daunting task of conceptualizing the Oklahoma Vietnam Veterans Memorial.

The project called for an easily accessible and contemplative statuary surrounding a watch fire, a continually burning light symbolic of a homing device to guide POW/MIA's home and employed today to keep the plight of the thousands of American POW/MIA's foremost in thoughts, prayers, and repatriation efforts.

In developing the renditions of a plaza and adjacent building, students were asked to incorporate a broad range of themes and emotions, acknowledging the men and women who died or were lost in the Vietnam War as well as survivors who visit the memorial, according to Connell.

“Most of our students were born after the end of the Vietnam War,” Connell says. “We had to give them an historical and cultural lesson as well as a design lesson.”

In their research, the students visited the Oklahoma City Memorial and met with its designers. Following a conversation with Veterans Administration representatives in Washington, D.C., who identified OSU's Peter Rollins as one of their consultants, Wright and Connell enlisted the Regents Professor of English, Vietnam veteran and internationally acclaimed war documentarian to interact with the class during the three-week project.



Adam Huffer

SANDE FRISEN

Adam Huffer



Third-year architecture students were asked to conceive an Oklahoma Vietnam Veteran's Memorial with the same simplicity, timelessness and power in evoking emotions as the national memorial on the Mall in Washington, D.C. The City of Sand Springs and Oklahoma Vietnam Veteran's Memorial Inc. sponsored the project with \$500 in prize money. Pictured are Gary Osburn, president of Oklahoma Vietnam Veteran's Memorial Inc., contest runner-up Andrew McCready and Mike Burdge, mayor of Sand Springs.

“We left it to them to interpret history in their own way, but we encouraged them to realize the breadth of the American experience during the Vietnam era ... that this was a long, drawn out war with a myriad of emotions and experiences for everyone at the time,” Connell says. “The challenge in designing a project like this is the difficulty in embracing everyone in a memorial.”

A jury including representatives from Oklahoma Vietnam Veterans Memorial Inc. and the City of Sand Springs; School of Architecture faculty; Rollins; and Max Wells of Little Associates of Tulsa – the firm charged with designing the permanent memorial – evaluated the students' works at the outcome as part of an in-house competition. Models and boards by Sande Frisen and Andrew McCready were selected as the prizewinners and were displayed at the memorial's November groundbreaking in Sand Springs. According to Wells, some of their concepts may be used in the final memorial.

ADAM HUFFER



Professor Tom Woodford; CEAT Dean Karl Reid; Jim Bose, professor and head of the Division of Engineering Technology; John Houck, assistant vice president of OSU Physical Plant Services; and Arlene Lanman, project architect for OSU Physical Plant Services, break ground on the site of the School of Fire Protection and Safety Engineering Technology's new laboratory. The project, designed by Lanman with input from the school, is the first major infrastructure development endeavor specifically for the fire protection program since the 1939 construction of Stillwater Fire Station No. 2.

## A Fiery Addition

On May 11, the School of Fire Protection and Safety Engineering Technology broke ground on a sprawling, almost 10,000-square-foot laboratory building on the corner of McElroy and McDonald Streets northwest of campus near the OSU Fire Service Training and Fire Protection Publications. Since the last major infrastructure development endeavor to augment the fire protection program was the 1939 construction of Stillwater Fire Station No. 2 (033), the parties in attendance were noticeably elated.

"This is something that our students, alumni and faculty have been hearing about for a while now, so they are all pretty excited that we're getting started," says Thomas Woodford, professor and head of the school.

The laboratory will allow the school to expand existing courses, initiate additional classes and eventually establish a research program. Its rooms are designed to accommodate labs for fire detection and alarms, automatic sprinkler systems and industrial hygiene. Other features include a fire behavior lab, a wet lab and a multipurpose lab.

The addition of the facilities will allow the CEAT to better supplement one of the university's most unique and esteemed programs, says Karl Reid, dean of the college.

"Since 1939, this program has grown from a half dozen students in firemanship to more than 200 in the current fire protection and safety engineering technology curriculum," Reid says.

"No university program is more unique than fire protection and safety engineering technology; it draws students from around the world to OSU, which is why for so many years the university has enjoyed the distinction of being called 'the West Point' of fire service," he says. "We want to continue to improve the program to increase the quality and value of their degrees and, in turn, better serve this nation."

Woodford says construction of the building will take approximately a year, and another 12 months will probably be required to fully equip it. He expects test-teaching to begin by Fall 2003. Although Woodford spearheaded the effort to get the building designed and built, tapping his employment experience at Western Fire Center in Washington prior to joining the CEAT faculty, its completion shall include group participation, he says.

"Putting the labs together is a project that will involve all of our students and faculty," Woodford says. "It will be an excellent learning experience for all of us."

ADAM HUFFER

## OSU Awarded Record Defense Contract

This summer the U.S. Department of Defense awarded OSU a major allocation to retain its services as production contractor for the agency's Joint Technical Coordinating Group for Munitions Effectiveness.

The contract, potentially valued at \$22.9 million over five years, renews funding of the OSU Engineering Research Field Offices at Eglin Air Force Base, Fla., and Aberdeen Proving Grounds, Md., that provide research, analysis and computational support to the group in the production of the Joint Munitions Effectiveness Manuals. Bound at Tinker Air Force Base in OSU orange, the manuals address the deployment of nonnuclear weapons and are used throughout Department of Defense agencies around the world including all branches of the U.S. military.

"OSU has always been very supportive of the Department of Defense and its numerous agencies, and through them we have had many contracts over the years," says Karl Reid, dean of the College of Engineering, Architecture and Technology. "The renewal of this contract, the single largest in the history of the college and one of the largest in the university's history, is a major acknowledgement of OSU's meaningful contribution to the nation's defense and, undoubtedly, peace in the world."

OSU's 50 full-time field office employees conduct research and develop, document and maintain sophisticated computer programs designed to produce classified conventional weapons effectiveness data in support of the Joint Technical Coordinating Group for Munitions Effectiveness. Field office staffers also provide technical editing, graphics composition and document design/layout support in

the publishing of all Joint Munitions Effectiveness Manuals and the group's special reports.

Department of Defense targeteers, weaponeers and planners, operational commanders, weapon system designers and logisticians are among the beneficiaries of the program. Information provided to them includes damage/kill probabilities for specific weapons and targets, physical and functional characteristics of munitions and weapon systems, target vulnerability and analytical techniques and procedures for assessing munitions effectiveness.

The endeavor has resulted in a library of classified and unclassified Joint Munitions Effectiveness Manuals and standardized methods for determining effectiveness for a wide array of delivery parameters for air-to-surface, surface-to-surface, anti-air and Special Forces weapons.

Used in planning strikes during the Vietnam War, campaigns in Libya, Lebanon and Panama, Desert Storm and in Operation Southern Watch in the Balkans, Joint Munitions Effectiveness Manuals are also widely employed to train targeteers and weaponeers at service schools, to conduct exercises and to support deployment contingency planning.

"The work we've been doing has played a vital role in every major U.S. military campaign in the last 30 years, including Desert Storm and, more recently, the Balkans," says Alan Tree, associate dean for research of the College of Engineering, Architecture and Technology. "Our product allows military strategists to more effectively prepare men in the field for the situations they're going to encounter. We believe it not only saves taxpayers' money, but more importantly, the lives of American soldiers."

ADAM HUFFER



## Next Generation Communications

By demonstrating proficiency and exceeding demands in the early stages of two major research undertakings sponsored by the Department of Defense, School of Electrical and Computer Engineering faculty, Keith Teague and Jong-Moon Chung, secured competitive contracts in subsequent phases. As a result, they and scholars under their tutelage are furthering the CEAT's contributions to multidimensional, technology development projects certain to affect the way government employees and, eventually, all people will communicate.

Teague, director of the Speech and Audio Processing Lab, and his students are assisting the development of Future Narrow-Band Digital Terminal (FNBDT), a concept for the next generation of secure communications. The combination of adaptive new software and hardware will replace secure telephone units currently used by the government that have become impractical to upgrade and costly to replace. The new system offers the capability of providing secure communications including voice, video and data.

"The need exists for people to conduct secure communications, and the DOD wants to reduce costs while increasing capability by leveraging hardware and networks commonly available," Teague says. "FNBDT could be implemented as part of compatible hardware such as appropriate wireless phones or other instruments or it could be software systems adaptable to devices like laptops with a headset and microphone.

"With the appropriate implementation of FNBDT, you could, from the computer in your office, communicate securely over the Internet or any available connection with someone in the field."

Teague was contracted to evaluate the CODEC (coder-decoder) created at the onset of the project to compress and decompress speech in FNBDT-capable devices and to develop additional multimedia capabilities such as compressed video for an FNBDT proof-of-concept system.

"This particular CODEC, MELP (Mixed Excitation Linear Prediction), was developed by Texas Instruments and Georgia Tech and is becoming the government and military standard for speech compression at low bit rates," Teague says. "It operates at a rate of only 2,400 bits per second with a higher quality and intelligibility than the secure telephones.

"We are developing tools to demonstrate how the CODEC can be used as part of FNBDT and predict how errors that occur in communications networks will affect the system's performance."

Teague led the school's participation a few years ago in the competition to develop the CODEC device now used for the FNBDT project. Although the CODEC developed by Texas Instruments and Georgia Tech was selected, the interaction with the Defense Department helped him land several subsequent contracts.

"Thanks to our involvement with DOD and others, we've developed a lot of expertise in low rate speech coding, CODEC development and voice-over-IP applications," Teague says. "This gives us a competitive edge in the field."

Partnering with engineers at the Stillwater engineering firm, Nomadics Inc., Chung last year was initially awarded a contract from the U.S. Office of Naval Research for Phase I development of a communications badge for sailors. The Nomadics researchers and Chung overachieved on the feasibility study and actually built a prototype. For their efforts, they were selected for the Phase II contract through the Defense Department's Small Business Technology Transfer (STTR) program and charged with fabricating the multipurpose device now nicknamed the "Star Trek" badge.

"Phase II funding for a project like this is very difficult to get," Chung says, "but we demonstrated our capability by going ahead and building a prototype and testing it over an ATM (Asynchronous Transfer Mode) optical network when we had been asked only to explore feasibility."

The badge is part of the Navy's Information Technology Initiative for the 21st century, a plan involving implementation of optical networks on shipboards and providing every sailor a versatile communications device that works over Local Area Network (LAN) ports throughout the vessel. The optical networks and devices will replace wireless phones and cumbersome and expensive hand-held radios the Navy currently uses and wants to scrap for a number of reasons, according to Chung.

"Cell phones and walky-talkies do not work well below deck and require wiring throughout the vessel because the steel walls do not allow radio waves to propagate," he says. "They are also expensive, bulky, almost impossible to repair and have limited functions."

He is contributing to the development of a device that combines radio and wireless cellular phone capabilities. It resembles the communications badges depicted on the eponymous science fiction television series but will include many more features.

"In terms of versatility, it will be touch-activated, submersible in water and include conveniences such as voice-dialing, health-monitoring and, possibly, data interface ports to link up to an imaging device or bar code reader," Chung says.

And the capability to specially assign frequency codes will assist shipboard operations.

"Because of their expense, not everyone can be given a walky-talky, so to do head counts, they must assemble on deck several times a day," Chung says. "The Star Trek badge will enable you to know the exact location of every sailor.

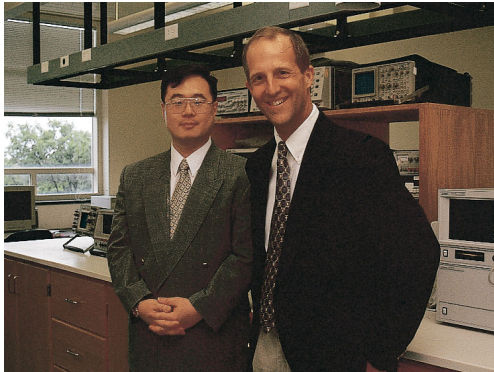
"Also, the appropriate frequency code would allow you to call and command a particular group of sailors when the need arises."

Chung and the Nomadics engineers began Phase II of the research just this summer, but he foresees a time when the finished device will find wide application outside the military and in everyday operations of large facilities such as hospitals.

"Our challenge is to make the badge not only lighter than a pager and with a lot more capabilities, but also make it inexpensive."

ADAM HUFFER

Robin Herrod



Electrical and computer engineering students under the tutelage of Professors Jong-Moon Chung and Keith Teague are exploring the future of wireless communications and speech and audio processing. With funding from various Department of Defense agencies, Chung and Teague are contributing to the government's development of new technologies that will revolutionize modern telecommunications.

redefining  
**EXCELLENCE**  
in OUTREACH

## Architecture Students 'Bring Home the Gold'



Robin Herrod

School of Architecture



Emphatically reasserting their worldwide dominance, OSU architecture students once again captured top honors, including first place, in the "Olympics" of international design contests, the Association of Collegiate Schools of Architecture DuPont Benedictus Student Design Competition.

The contest, sponsored by DuPont and administered for the past nine years in cooperation with the American Institute of Architects, featured individual and team entries from more than 300 students in 72 schools worldwide. With individual, seven-week projects, OSU fifth-year seniors Daniel Ralls, Andrew Klare and Robbie Forslund took first place and two honorable mentions.

Ralls, Klare and Forslund repeated a feat recorded by OSU students in the contest last year when, as fourth-year scholars, Forslund won first and Scott Sondrup and Corey Graham grabbed honorable mentions.

"This event, which features the world's top architecture schools, is the Olympics of architecture student design contests," says faculty sponsor and Professor Emeritus John Bryant, FAIA. "Only six entries are honored with awards each year, and our students have taken three of the six places, including first place, two years in a row.

"To have a person from your school win it twice could be attributed to a fluke or rogue genius, but to dominate like this in consecutive years speaks volumes about the quality of our students, faculty and overall program."

The competition annually involves innovative use of laminated glass. This year, it sought designs for a 250,000-square-foot multipurpose entertainment retail facility on a 10,000-foot urban square. Participants were challenged to explore the practical uses and applications of laminated glass as a build-

ing material, while simultaneously investigating the building type as a new and emerging typology in architecture and the retail industry.

The design problem welcomed radical conceptualizations of a glass building with many different form and functional qualities, Ralls says. "Not even cost was a limitation, but a quarter-of-a-million-square-foot facility on a 10,000-square-foot base would almost certainly require a skyscraper," he says. "The problem was a 50-story skyscraper overpowers a neighborhood where the tallest building is nine stories."

Another concern was the facility's adaptability to any major city, according to Klare. "The building site was open-ended, so we took an international approach to locating it anywhere, whether New York, L.A. or Hong Kong," he says. "One reason Daniel's project appealed to the jury was that he designed a facility entirely below ground that would conform to any neighborhood, and it really stood out from the others."

Bryant says Ralls' design was a concept judges typically love or hate.

"Daniel showed a great deal of fortitude on a seven-week project like this because we knew his idea was the kind that either places first or dead last," Bryant says. "In use of glass, its interior space and form, the design is radical and beautiful, but locating it underground was quite a gamble."

The students gained international recognition, which includes displays of their projects at the 2001 AIA Expo in Denver, the ACSA Annual Meeting in New Orleans in 2002 and publication in a competition summary catalog, from participating in the contest.

ADAM HUFFER

Robbie Forslund, John Bryant, Daniel Ralls and Andrew Klare

## redefining EXCELLENCE in STUDENT ACHIEVEMENT

### An All-Around Stellar Year

This past year, OSU School of Architecture students' individual and team entries won seven of eleven "places" given in the competition categories they entered for a tally of \$14,250 in prize money for themselves, the school and their faculty advisors.

Two fourth-year architecture students were named winners in the national 2000-01 Association of Collegiate Schools of Architecture/Wood Products Council Student Design competition. Jeremy Gardner received third place and Ted Slate received an honorable mention. Jeff Williams and Richard Baronins served as faculty critics. The prize-winning entries will be exhibited at the 2002 ACSA Annual Meeting in New Orleans and the 2002 AIA Expo in Charlotte, N.C.

OSU architecture students dominated the Oklahoma Centennial Projects Collage 2001 contest this year at the State Capitol Park. Daniel Ralls, Mark Seibold and Arthur Castillo were named grand champions and received the \$2,000 prize. Andrew Klare and David Wright won second place and \$750. The contest, sponsored by Hideaway Pizza and the Oklahoma Historical Society, featured the theme, "Indians and Pioneers, The First People of the Land."

Following their huge win at the DuPont Benedictus in April, Andrew Klare and Daniel Ralls took two of three awards presented in the Metal Construction Association Student Design competition. The contest centered on designing Chicago beach houses. Fifth-year seniors Klare and Ralls took first and third places in the event open to third-year through graduate students at accredited schools of architecture in the United States and Canada. Bob Wright served as studio critic.

## Aerospace Teams Soar Above Competition

### AIChE Chapter Earns Top Honors

Student members in the OSU chapter of the American Institute of Chemical Engineers (AIChE) continue to distinguish themselves and their school among the nation's best. For the third time in four years, the national AIChE organization presented the local chapter the "Outstanding" award, a rank as one of the top nine student chapters in the country. Student Poorya Fazel and faculty adviser Randy Lewis also received individual honors, making the School of Chemical Engineering's haul of AIChE awards in recognition of academic year 2000 a clean-sweep.

Fazel, a senior from Stillwater, became the fourth OSU student in as many years to receive AIChE's national scholarship. Just 15 students, about the top 10 percent of members nationwide, receive the prize each year.

Lewis was named AIChE student chapter Adviser of the Year, a singular honor.

"The 'Outstanding' award recognizes strong student leadership, multiple activities and a strong student participation," says Russ Rhinehart, Bartlett chair and head of the school. "We have received this recognition for three of the past four years, indicating a sustained, high level of student contribution, dedication and professional activity."

In addition to its ever-growing agenda that has included charitable work, a newsletter, social activities and a speaker series, the local chapter hosted last year's national conference for AIChE students in Dallas. Almost every chapter across the country attended the annual meeting, and although OSU made a strong impression, Fazel attributes the repeat, "Outstanding" awards to the caliber of his fellow students in the School of Chemical Engineering.

"Our awards are reflections of the quality of membership we have, and that's largely due to the caliber of the chemical engineering program at OSU," Fazel says. "Without a strong undergraduate program, we wouldn't have the kind of members we have."

As adviser of the year, Lewis was selected from faculty members who counsel approximately 150 AIChE student chapters.

"While the students have done the work resulting in the outstanding chapter recognitions, Randy has been their leader of leaders, sustaining commitment and dedication for the past seven years," Rhinehart says.

Fazel says Lewis distinguishes himself by quietly encouraging students in the chapter to be their best.

"Dr. Lewis doesn't run everything, but he helps us organize and gives us the direction we need," Fazel says. "He's a driving force behind everything we do, and he's a reason we have been so successful in winning these awards."

Awards and national recognition aside, the chapter serves as a vital complement to the mission of the School of Chemical Engineering, according to Rhinehart.



Randy Lewis and Poorya Fazel

"In providing a sense of family among students and informal interaction with faculty, the student chapter supports retention," Rhinehart says. "By offering programs and encouraging high attendance, it promotes professionalism and career awareness in the students."

"By sponsoring many activities, it provides many student leadership opportunities and valuable services to the school."

ADAM HUFFER

Two teams of students representing OSU's School of Mechanical and Aerospace Engineering winged into Pax River, Md., this spring swooping up first and third places in the American Institute of Aeronautics and Astronautics (AIAA) International Design/Build/Fly competition, North America's largest aerospace engineering design contest.

For the last two years OSU has challenged the top contenders in this annual dogfight featuring top schools from Canada, Europe and the United States. An OSU team finished second in the 1999 contest. And in 2000, both teams landed in the top five, including another second-place finish. In this year's contest, Cowboy engineers competed against 37 teams, including three from abroad.

Students build OSU's entries in MAE 4374, the aerospace systems design class and capstone course of the aerospace engineering curriculum. They have eight weeks to employ everything they have learned in school and successfully design and construct a remotely piloted air-

plane. For the past few years, course instructor Andrew Arena Jr., Maciula Teaching Professor of mechanical and aerospace engineering, has used criteria for the AIAA competition in making the semester-long assignment.

Contest guidelines, which change every year to prevent resubmissions, include building an aircraft that can carry the largest payload around a closed flight course while adhering to real-world expense considerations.

"The emphasis of this course is the transition from school to industry," Arena says. "We try to simulate the industrial atmosphere as closely as we can by having the students approach the design problem as two competing companies."

Arena divides the class into two 14- to 16-member teams headed respectively by a chief engineer. Each team is comprised of propulsion, aerodynamics and structures groups that interact with their group leaders and the chief engineer.

*Shamu's* team beat second-place Cal Polytechnic by about 100 points. OSU's *Raven* crashed on Saturday during a flight into worsening weather; however, students worked through the night for 12 hours, made repairs and re-entered the competition on Sunday when a strong performance raised the *Raven* to third place.

Teamwork is not only essential for successful design but also the eventual construction and performance of the airplanes, says Amanda Ciskowski, chief engineer for the OSU-Orange team and its entry, *Shamu*. "If the aerodynamics group came up with a design that the structures group said can't be built, then we had to go back and try again."

Learning to work within a team is vital to that transition from school to industry, and Arena is confident his students learned their lessons well. "I know the pressure these teams face," he says, "and although I'm very proud of their top placements in the competition, they had already proven themselves winners."

ADAM HUFFER

Both teams constructed their planes primarily of carbon fiber composite and employed AstroFlight electric motors powered by five pounds of nickel cadmium batteries. The OSU-Black team's *Raven* weighed just over 13 pounds. OSU-Orange team's *Shamu* weighed slightly more.



Adam Huffer

## Engineering Education Offers Versatility

Recognizing that even employers who historically have not recruited engineering graduates now regard them among the most sought-after prospective employees, the CEAT has joined other institutions across the country in augmenting its professional school curriculum with special options and in marketing engineering education as catchall preparation for achievement in just about any field.

"For the past two years, the firm Accenture has hired some of our top graduates – last year, four from the School of Industrial Engineering and Management alone – to consulting positions that not too long ago didn't exist for engineers," says Dr. Karl Reid, dean of the CEAT. "The emphasis on technology in today's economy certainly has a lot to do with the overwhelming demand for engineers, but we are seeing greater numbers of our graduates going to work in areas such as mergers and acquisitions and market speculation and trading.

"Before the modern technological age, a well-rounded, liberal arts education was considered ideal preparation for professional employment," Reid says. "It's not an original notion, but in terms of the flexibility, discipline and the work ethic it provides, engineering education has become the liberal arts of the 21st century."

Jim Holland and Chris Beall are two CEAT alumni who embody the notion that engineering education is ideal preparation for excellence in the business world. Beall, a 1996 graduate from the School of Mechanical and Aerospace Engineering, built an impressive resume including an outstanding academic record and campus-wide leadership. Chemical engineering student Holland, who did the same exactly 30 years earlier, could have been the model for the college's leadership and career development enrichment programs now touted as CEO training grounds.

### CHRIS BEALL

An engineering degree from OSU and an MBA from the Harvard School of Business armed Beall for success in the high-stakes world of investment banking. As an associate with Lehman Brothers Global Natural Resources Group, Beall assists primarily energy companies with their capital raising needs and brokers deals in the nine-figure range.

"My first six months here, I spent working exclusively on the IPO of Peabody Energy, a \$480 million deal," Beall says. "Our group handles transactions as small as \$300 million and as large as \$60 billion.

"Multi-billion dollar transactions are not a rarity."

Although Beall was not directly involved, the 1996 School of Mechanical and Aerospace Engineering graduate was on-hand when his fellow employees in the group advised Chevron on its \$60-billion acquisition of Texaco, an educational experience as enriching as his employment with Koch Industries Inc. Upon graduating from the CEAT, he spent almost two years in the field with the company, first at its Pine Bend, Minn., refinery and then at Gateway, Koch's natural gas pipeline regulator system in Longview, Texas.

"I soon learned that as an engineer, you don't always have the opportunity to have direct influence on the strategic decisions made by companies that you can in other positions," says the one-time CEAT student council president. "I thought a second degree would allow me to move into areas of business that really appealed to me such as finance and business development."

Beall landed an internship with Lehman Brothers' operations in Manhattan in the summer between 1998 and 1999 academic terms at Harvard. He subsequently joined the firm there in August 2000. The job entails 70- to 120-hour work weeks cultivating three to four deals at the same time, each with an average life span of six to 12 months. Providing insightful, valued consultation on mergers and acquisitions and executing capital market transactions such as issuing equity and borrowing money demands acute awareness of business cycles and extensive knowledge of client profiles.

"This is a business where we are required to interface with customers, and it's absolutely essential to know a company inside and out," Beall says. "A lot of our work is originating ideas, and you have to know the industry and clients well enough to determine the ideal time to approach them about a deal.

"As an engineer, there's a level of understanding that I have of my clients in the energy industry that other investment bankers would have to spend years to understand," he says. "I can spend my time figuring out how to solve their problems."

ADAM HUFFER



Andy Moxey



courtesy

### JIM HOLLAND

Near the end of his time at Carnegie Mellon University's Graduate School of Business, Holland began to attend on-campus job interviews fully aware that he would graduate at the top of his MBA class and certain that recruiters knew it as well.

"Once, I walked into the interview room and sat down with a recruiter from a major chemical company in the country," Holland says. "The gentleman leaned across the table and said, 'Son, I'm not here to measure your butt for the CEO's chair.'"

"I said, 'Sir, I'm the wrong guy,' and got up and left."

As an undergraduate, the president and CEO of Unity Hunt Inc. showed the same decisiveness and ambition. "Coming out of Duncan High School, I was set on being the best engineering student that I could, but late in my sophomore year, I recognized a greater opportunity existed," Holland says. "I realized the skills set engineering provided, the ability to analyze issues and solve problems, could be expanded and

the same thought processes could be applied to a whole company as opposed to a distillation tower."

Holland, a member of OSU's chapter of Pi Kappa Alpha fraternity, graduated in 1966 at the top of his chemical engineering class, earning the Hamilton Award as the outstanding engineering graduate, an OSU Top 10 Senior honor and two national engineering and science prizes including first place in the American Institute of Chemical Engineers' national student design competition.

He worked a year for Gulf Oil before entering graduate school at Carnegie Mellon. After graduation, he opted for a position with the international management consulting firm Booz Allen and Hamilton. At age 33, Holland accepted his first position as president of KSA Industries, a Houston-based, international holding company. He subsequently headed Western Services International, a Fort Worth firm with oil service and chemical industry interests, before serving as president of NEDINCO Inc., a diversified international holding company.

Holland then became president and CEO of Unity Hunt Inc. where he still serves today, overseeing the company's worldwide operations from the fortieth floor of the Thanksgiving Tower in downtown Dallas. Unity Hunt, a massive, diversified and private holding company, has investments spread over as many as 80 companies around the globe in areas varying from mining and refining to sports franchises.

In moving to each company, Holland was sought out by professional headhunters, and he left the previous firm in better financial condition than he found it, increasing its size and profitability in multiples rather than percentages. He attributes his progression to that track record, the ability to build effective management teams and his engineering education.

"With engineering, you're not taught to rely on rote memory, but rather, how to think. Through time and experience, it allows you to adapt to any situation," he says.

## No Matter Where They Go, They'll Always Be Cowboys

Three CEAT graduates with different majors and backgrounds had one thing in common during their college careers – they each made a lasting impact on the college. And, now, as alumni they share something else – they'll always be Cowboys!

Recent OSU graduates Amanda Ciskowski, mechanical engineering, Robbie Forslund, architecture, and Ryan Bader, construction management technology, left an intangible legacy for future students. They were the top students in their fields, and they were leaders.

### RYAN BADER

Ryan Bader says the OSU experience was awesome.

Although he moved to Stillwater from St. Louis, Mo., without knowing anyone at OSU, he quickly got involved in everything from being a CEAT Ambassador to joining the Fellowship of Christian Athletes to being a weight trainer at the Wellness Center. "I even met one of my professors at the Wellness Center and became his personal trainer," he says.

Bader says he chose OSU because it has the best construction management program in the nation. "I was accepted by other colleges across the country, but I chose OSU because it has the best department and team of professors and curriculum," he says. "OSU also offered in-state tuition and other scholarships."

Bader says his degree allows him to do anything in the construction field. "I can do anything from general contractor to management." He currently works for McCarthy Construction Co. in St. Louis, Mo., a company he's been interested in since his first summer job there in 1996. "In my opinion, McCarthy is the best builder in St. Louis," he says.

He had another opportunity at OSU. During the summer of 2000 he interned with Manhattan Construction Co. during the construction of Gallagher-Iba arena. "I wanted to be a part of OSU history," he says. "Since I was going to be an OSU alum, I wanted to be able to say I worked on constructing the arena."

Although Bader's honors and activities are too numerous to list, some of his top ones include: 2001 CEAT Top 5 Graduate; St. Patrick's Award; Top Technology Graduate 2001; and National AGC Scholar. He was also the founding member of the engineering technology honor society, Tau Alpha Pi. His efforts led to OSU becoming chartered.

"I had a great time at OSU," Bader says. "I even recruited my brother to attend OSU this fall as a mechanical engineering technology freshman."



Robbie Heard

### ROBBIE FORSLUND

"Robbie was a leader who could make things happen," says Randy Seitsinger, professor and head of the school of architecture. "He was an extraordinarily talented architecture student, and he was someone we could rely on to get things done."

"One of our goals in the school is to graduate students who can go anywhere in the world and make contributions. We have a good record in doing that, and I think Robbie will be someone who will uphold that record."

Forslund, who works for Michael Brendle Architects in Denver, Colo., built an impressive record at OSU. He may possibly be the only student in OSU architecture history to place twice in two international competitions. "This is unique because students usually enter one competition, and it's usually done in their last year," Seitsinger says.

In 2000, when Forslund was a fourth-year student, he won first place in the DuPont International Glass Competition, entered by more than 100 schools around the world. "Two fellow OSU students won honorable mention," Seitsinger says. "We were the only U.S. school who placed. The other three awards went to schools in the Far East – one in Hong Kong and two in China."

Again, in 2001, OSU placed in three of the six places in a field of 400-500 entries from around the world. One of his classmates won first place, and Forslund went on to win an honorable mention in the same competition during his fifth year.

In addition to placing in two international competitions, Forslund received the 2001 Dean's Award for the Most Outstanding Graduate in the School of Architecture. He also received first place in the Federal Home Loan Bank of Topeka Affordable Housing competition, fourth place in the Pella Prize, the Eason Leonard Traveling Fellowship, Harrill Scholarship, C.S.I. Scholarship and honorable mention in European Travel.

"He will do great things wherever he goes," Seitsinger says.

## redefining EXCELLENCE in ALUMNI OPPORTUNITIES



Courtesy

### AMANDA CISKOWSKI

"My OSU experience was amazing," says Amanda Ciskowski. "I had opportunities during my five years that I never even dreamed of ... like traveling to Japan and Singapore and heading a team to build an airplane for international competition."

Opportunities were never lacking, she says. "In fact one of my problems was learning how to say 'no.'" She joined a number of student organizations and held several offices in those organizations that resulted in travel to places like Washington, D.C., Chicago, Tampa, Orlando, Cincinnati, Tokyo and Singapore.

"I also had many opportunities to get to know the faculty better," Ciskowski says. "The best way to get to know faculty is to work on an extra paper or project through the honors contracts to complete an Honors College degree. It gave me a chance to get to know them better than I would have just sitting in a lecture."

Ciskowski also had trusted counselors in Jean Shoemaker, her mentor in the Phillips Scholars Program, and Jennifer Hamby, CEAT student services who helped her with applications and encouragement.

"There were so many possibilities for me at OSU," she says, "but the chance to be chief engineer for the aerospace capstone orange team is the experience that I think I will remember most. To be in charge of a team of 16 (students), to design, build and fly an aircraft, to see that team come together and the plane develop, and then to see that plane win the contest for which it was designed, was an awesome experience and responsibility, and nothing will ever quite measure up to it," she says.

"In the same way, nothing will ever quite measure up to my experience at OSU, no matter where I get my graduate degrees. In my heart I will always be a Cowboy."

Ciskowski, who interned with Phillips Petroleum Company in Sweeny, Texas, this summer, is working on a master's in mechanical engineering at Clemson University.

DEBRA BASORE



Courtesy

**Dr. Rob:  
A Class Act**

Regents Professor of Chemical Engineering and Amoco Chair holder Robert Robinson is looking forward to the extra time his retirement this fall will give him for personal activities. High on his list is spending more time with his family, especially his wife, Gayle, and their new grandson, Jack Glenn. He also hopes to perfect his golf game and catch up on “fun” reading. But, he will miss interacting with his colleagues and students on a daily basis, and they will miss him.

“Professor Robinson is a class act in every respect,” says Khaled Gasem, professor of chemical engineering. “He is literally the teacher’s teacher, a highly respected world-class researcher, a dedicated mentor and a top-notch administrator. Beyond his technical prowess and scholarship, Professor Robinson is a gentleman whose caring and friendship extends generously to all his colleagues, students and co-workers.”

“OSU has been exceedingly fortunate to have ‘Dr. Rob’ as part of the faculty. He is a people-oriented teacher and leader who prepares both lectures and plans so that others will be successful,” says Russ Rhinehart, head of the School of Chemical Engineering. “His personal accomplishments in teaching, research and service have been many, characterized by quality and have been sustained throughout his 36-year career as a faculty member.”

Robinson served as head of the School of Chemical Engineering from 1987-1996. He says his proudest accomplishment at the helm was the school’s hiring of six of its current faculty members: Gasem, Alan Tree, Marty High, Karen High, Rob Whiteley and Randy Lewis, who make up more than half of the present faculty. Collectively, the group has received almost every award available at the college and university levels, and several of them are now nationally recognized.

From a legacy standpoint, his tenure saw the establishment of several endowments, including the Edward E. Bartlett chair, the R.N. Maddox Professorship by the Gas Processors Suppliers Association, the Don Cox Endowed Faculty Development Program and two endowed graduate fellowship supplements, the Lyman Yarborough and John B. West endowments.

“We are grateful for the excellent school that developed in his nine years as head; students, faculty and staff alike share the pride in his legacy,” Rhinehart says. Colleagues also say the quality of the undergraduate program continued to improve throughout Robinson’s tenure and that he led the school in aggressively recruiting the very best students.



Heath Shelton

Robinson says working with students as a teacher was probably the highlight of his career. “Classroom instruction is very exciting, since it allows you to see students making rapid progress in developing their abilities. It’s a great feeling to be a part of that process.”

In addition to his reputation as a fine teacher and administrator, Robinson’s research in various areas of thermodynamics and phase behavior has earned him wide recognition. He has focused on studying the way in which mixtures of chemicals, such as oil, behave and how to best use those properties to produce the most valuable products and how to design and optimize processes to produce chemicals and energy sources for society’s consumption.

A registered professional engineer and a Fellow of AIChE, Robinson has secured approximately \$4 million in research funding during his career.

In retirement, Robinson plans to continue his 20-year association with BPA-moco by occasionally teaching in-house courses on petroleum fluid behavior. In addition, he will continue to serve as chairman of the chemical engineering program at the National Technological University, which offers distance delivery of master’s degrees in engineering. He also hopes to continue to contribute to the high quality of OSU’s chemical engineering instruction by teaching a course or two, as requested.

CAROLYN GONZALES

Robert Hughes’ 17-and-a-half-year term at the helm of the School of Civil and Environmental Engineering was preceded by a career as an officer in the U.S. Army and is the single longest he has served in one place. The U.S. Army Corps of Engineers recognized his military service, marked by 26 moves in 25 years, and his work at OSU with the presentation of its Silver de Fleury Medal. The award, the Corps’ second highest honor, acknowledged “exceptional meritorious service” and “excellence in helping mold committed and dedicated engineers in the Tulsa District.”

On October 1, 2000, Hughes stepped down as department head and retired in June 2001 after helping dramatically improve the caliber of incoming scholars and bringing online the department’s first computer laboratories. In personally cultivating relationships, he instilled a sense of pride and belonging pervasive throughout the department. Loyalties become particularly apparent every September when the school’s alumni and benefactors attend the American Society of Civil Engineers first student chapter meeting of the year to present more than two dozen departmental scholarships. And, under his direction, OSU’s concrete canoe teams have brought the school national prominence.

All are notable achievements in service of the CEAT and to its students, and during the de Fleury Medal presentation ceremony last October, an emotional Hughes said none gave him more pride, indicative of the selflessness that has defined the man fellow faculty member and friend Don Snethen calls, “a gentleman.”

Snethen says, “He’s someone who doesn’t compromise his integrity and who does what he has to do for a friend. When he gives his word, he keeps it.”

The Citadel graduate began his service to country – a globetrotting, historic journey veritably mapping latter 20th century international conflict – with an Army commission in 1958. Following airborne training and atomic demolitions and explosives school, he joined a combat engineer battalion in Hoeschst, Germany. Afterwards Hughes entered graduate school at OSU and obtained his master’s in 1963.

His stints included the Greenland icecap to maintain Defense Early Warning (DEW) system radar installations; Djakarta, where he used Indonesian language training for overt military intelligence gathering – a skill he later used as adviser to the Indonesian Student Association at OSU; and Vietnam, where Hughes merited three Bronze Stars, five Air medals, the Vietnamese Cross of Gallantry and an Army Commendation ribbon.

After Vietnam, Hughes earned his Ph.D. in civil engineering at OSU and then served as deputy commander of the Waterways Experiment State in Vicksburg and as the 101st Airborne Battalion commander at Fort Campbell, Kentucky. A subsequent post in the Chief of Engineers office working on the MX missile program led to an assignment to help Israel rebuild in the Negev desert two high-tech airbases built in the occupied Sinai. Years later, when he was working as the district engineer for North Carolina, the Reagan administration tapped Hughes to travel with a small group of military officers to Beirut and assess the prospects for rebuilding.

Unable to divulge his mission, Hughes’ wife had to deflect questions about his whereabouts when OSU initially called about an interview for the position of CIVEN department head.

Hughes shies away from encouraging or discouraging students from following his career path. “The military is not a career. It’s a way of life, and if you don’t get goose-bumps when you hear a bugle call or see a flag go up, it’s not for you. You’re not going to be rich. You are going to be away from home a lot, and you’ve got to get a sense of satisfaction from serving people,” he says.

“But this has not been a job for me either, because if it were, I would have gone into industry long ago and made a lot of money,” Hughes says. “I put in just as much as effort I would have in industry and was paid less, but the fulfillment was far greater because I get a charge out of just helping these people and seeing them succeed.”

ADAM HUFFER



Heath Shelton

# Note**worthy**

## Faculty Successes

Heath Shelton



Kolarik

**William J. Kolarik**, professor and head of the School of Industrial Engineering and Management since 1991, has been elected a Fellow in the 17,000-member Institute of Industrial Engineers. Kolarik, an OSU alumnus, is internationally known in the quality control field. He is the author of the textbook, *Creating Quality: Concepts, Systems, Strategies, and Tools*, which is used around the world.

**Ranga Komanduri**, Regents Professor of Mechanical and Aerospace engineering and director of the Engineering Energy Lab, has been named the Albert H. Nelson Jr. Endowed Chair in Engineering. One of the college's most decorated and internationally distinguished researchers, Komanduri holds Fellow status with the American Society of Mechanical Engineers and the Society of Manufacturing Engineers. Since 1989, he has developed research facilities in the Advanced Technology Research Center for ultraprecision machining and grinding, finishing of advanced ceramics and glasses, modeling of high-speed machining, low-pressure diamond synthesis for coatings on cutting tools and other parts, simulation of metal cutting and laser-assisted machining.



Heath Shelton

**R. Russell Rhinehart**, the Edward E. and Helen Turner Bartlett Chair and head of the School of Chemical Engineering since 1997, has been elected a Fellow of ISA, the Instrumentation, Systems, and Automation Society, a professional affiliation with 39,000 members worldwide. He serves as editor-in-chief of *ISA Transactions* and during the past three years has more than doubled the contributions to the scientific journal of measurement and control. He was also instrumental in creating a new master's degree program at OSU in Control Systems Engineering, an interdisciplinary program offered on-campus and electronically to full-time engineers who can pursue their master's degree on a part-time basis.



Heath Shelton

**Andy Arena**, associate professor in the School of Mechanical and Aerospace Engineering, holds the L. Andrew Maciula Teaching Professorship in Engineering. Maciula, a 1938 alumnus of the school and former associate director of the OSU Center for Local Government Technology, served as director of the School of Mechanical and Aerospace Engineering's laboratories for 12 years prior to retiring in 1981. This professorship recognizes excellence in teaching. In 1997, Arena was one of six recipients in the world of the Ralph R. Teetor Educational Award for distinguished work as an aerospace engineering educator. He is credited with enhancing the OSU aerospace engineering program to the point that it has been recognized by the Oklahoma State Regents for Higher Education as a stand-alone program.



Andy Maxey

**Jeff Spitler**, professor of mechanical and aerospace engineering and head of the OSU Building and Environmental Thermal Systems Research Group, has been named to the Carroll M. Leonard Professorship. During his 11-year tenure at OSU, Spitler has served as principal or co-principal investigator on research contract totaling more than \$7 million. He also heads OSU's development of the Smart Bridge. ▲



Spitler

DOTTIE WITTER

Heath Shelton



The National Institute of Standards and Technology has named William Kolarik, professor and head of the School of Industrial Engineering and Management, Camille DeYong, assistant professor of industrial engineering, and Jim Henderson, applications engineer, as examiners to review the practices of firms nominated for the Malcolm Baldrige National Quality Award, the country's most prestigious award for manufacturing excellence. The institute selected only seven examiners from Oklahoma, three from OSU and four from Oklahoma industry.

## Who What When Why

# Studentdigest

## Curbing the Brain Drain

Two College of Engineering, Architecture and Technology alumni are using their experience as members of the American Indian Science and Engineering Society (AISES) to influence the perceptions of Oklahoma students.



Cowan

Cara Cowan accepted a position with Hewlett-Packard in Colorado Springs when she graduated from the School of Mechanical and Aerospace Engineering in 1997. During her two-year stay with the company, the former OSU Multicultural Engineering Student of the Year helped found an AISES student chapter at the University of Colorado, Colorado Springs, and a professional chapter for southern Colorado. Armed with the experience, Cowan returned home to do the same thing in Oklahoma.

“We hear about a brain drain in Oklahoma in general, and in going to Hewlett-Packard, I was one of them,” Cowan says. “I realized there was a need for professional Indian people in Oklahoma to network, and I needed to be here at home. That’s when I realized that Williams existed here, a company that offered just as competitive compensation and benefits as well as a challenging work environment.”



Knight

Upon joining Williams Communications, Cowan enlisted her friend, civil engineering graduate Dawn Knight, a fellow, former officer in the OSU AISES student chapter, and Cletis Mark, formerly a specialist in the Center for Local Government Technology, in founding Oklahoma’s professional AISES chapter. The organization, recognized last summer as an official statewide chapter by the national organization, boasts more than 80 members who meet monthly and daily communicate networking opportunities via an Internet list-server and website.

“We hope to showcase what corporations and employers have to offer professional Indian people here and bring awareness to how many Indian professionals are in Oklahoma and what they have to offer,” Cowan says.

The group is also focused on encouraging more native Indian students to explore and pursue higher education. Convincing many young Oklahomans that they have the potential to succeed is a key obstacle, according to Knight. “Many don’t know that they have the capability to attend and succeed at a four-year school,” she says. “Most are not pushed to try, and, as a result, limit their aspirations.”

ADAM HUFFER

## Talkin’ About A Revolution

After capturing the Mid-Continent Conference title for the fifth consecutive year, OSU students headed to the finals of the American Society of Civil Engineers National Concrete Canoe competition in San Diego only to have their hopes dampened by a third-place finish. Although not the results she had hoped for, Jennifer Prichard, project manager for the team, is nonetheless proud of the canoe’s innovative construction.

Unlike previously handcrafted entries, the 21-foot canoe built by team “Revolution” was cast, a method that no other team in the competition has successfully used, Prichard says. “In the past, we would apply the concrete over a male mold entirely by hand, and although the surface next to the mold was smooth, the outer surface required hundreds of hours of sanding,” she says. “We used a female cap this year, and between it and the male mold, injected the concrete exactly where we wanted it.”

Prichard says the team first attempted the fabrication technique last year but due to time constraints resorted to proven methods for their national runner-up canoe. To successfully cast a boat this year, the team comprised a number of performance factors. The hull is approximately three times thicker than the handcrafted hull, an increase in material the team compensated for by reducing concrete weight from 52.9 pounds to 28 pounds per cubic foot. Nevertheless, at 140 pounds, the canoe tips the scales nearly 50 pounds heavier than last year’s entry.

“We can show a reduction from 300 to 30 man-hours spent on sanding for a labor savings of \$4,000,” she says. “And we can show that we can build ten canoes in the same amount of time it took to build one the old way.”

“OSU’s first concrete canoe in the ’70s used chicken wire as reinforcement and weighed more than 400 pounds,” Prichard says. “Any time you try something new, it’s not going to be perfect, but we’ve done something no one else in the country has been able to do. And we’re proud of that.”

Participation, and success, in the American Society of Civil Engineers National Concrete Canoe competition has been a tradition at OSU since the mid 1970s. Beginning preliminary design work during the fall and constructing the concrete canoe in the spring, approximately 20 students volunteer their time in this enrichment endeavor.





# Wise Receives Premier Award A Scholarly Celebration

“The most attractive thing about OSU is the emphasis on getting undergraduates involved in research,” says Scott Wise, OSU electrical and computer engineering junior. “At other universities I visited, research is reserved for graduate and Ph.D. students, and undergraduates are limited to a helper role. Here, if you’re willing to motivate yourself and put the time in, you can work alongside them.”

Wise is a 2001 recipient of a Goldwater scholarship, the country’s premier undergraduate award created to encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences and engineering. The scholarship, worth as much as \$7,500 a year for two years, recognizes Wise’s academic performance, work experience and interest in research.

“His experience and his natural abilities and abundant drive have advanced Wise beyond his two years at OSU,” says Keith Teague, associate professor of electrical and computer engineering. “He is the kind of student who can accept a difficult task and get it done.”

Wise graduated from Oklahoma School of Science and Math and has worked for Lucent Technologies, where he explored his interest in image processing and segmentation, Nomadics Inc., a Stillwater technology firm with a highly successful record in sensor technol-

ogy, and Site Specific Technology Development in software development.

He further developed his aptitude as a Freshman Research Scholar under mentor Scott Acton, former associate professor of electrical and computer engineering, and was later welcomed aboard the team of graduate and Ph.D. students that comprise Teague’s signal processing and analysis research group. Under Teague’s tutelage, Wise also began work on a project of his own with a Lew Wentz Research Scholarship.

Wise based his application for the Goldwater Scholarship on his ongoing Wentz project, a study of algorithms related to JPEG 2000, the recently adopted ISO international standard for delivery of images and video over the Internet. The standardization endeavor involves researchers around the globe developing various aspects of a new system that will allow computer users to download graphics at the highest quality and resolution their processors can support, all from one code stream.



The College of Engineering, Architecture and Technology hosted a celebratory banquet this spring to recognize the achievement of the fourth- and fifth-year seniors who were among the Phillips Engineering Scholars program’s first students and their mentors.

“We titled the ceremony, ‘Celebrating Success,’” says Karl Reid, dean of the college, “not only to pay tribute to the success of the company and the success of the scholars, but also to celebrate the relationship established between Phillips and OSU.”

In 1997, thanks to retired Phillips CEO Wayne Allen, Phillips entered an unprecedented agreement with OSU to fund student outreach, minority recruitment and development in the CEAT. The Phillips Engineering Scholars program combines full-scholarship aid for four years and a variety of activities to promote leadership excellence and professional development, including travel to explore the business, political and cultural climates of several national and international destinations.

Mark Kelley, a 1987 graduate of OSU’s School of Mechanical and Aerospace Engineering and a member of Phillips’ Planning and Strategic Transactions Group, told the gathering that more Phillips’ employees come from OSU than any other school. “And we want to keep OSU the No. 1 university at Phillips,” he said. ▲



Adam Huffer

Inaugural Phillips Scholars who were recognized for successfully completing the four-year leadership and career development program included: Those pictured in the lower group are John Burnett, Meghan Gosnell, Steven Purdue, Erika Snider and Michael Neuschafer. Pictured in the upper group are Kenneth Fulwood, Amanda Aker, Melissa Caldwell, Amanda Ciskowski and Jamie Talley.



Heath Shelton

Jeff Moreno, Araceli Anguiano, Stephanie Legere and Laura Gordon were among a number of CEAT students who won nationally competitive scholarships for 2000–2001. They were named National Action Council for Minorities in Engineering Scholars, receiving up to \$5,000 a year for two years and spots in NACME’s corporate summer internship program.

ADAM HUFFER

# CEAT Inducts Bruza, Smith and Wallace

Former department head Don Hamilton performed a great service for Oklahomans when he convinced student **Jim W. Bruza** to remain in OSU's School of Architecture. During his career, Bruza, a 2000 CEAT Hall of Fame inductee, has left his personal and professional mark on the state.



Bruza

He became a partner in Frankfurt-Short-Bruza in 1977 and now, as managing partner, has helped establish an award-winning architecture and engineering firm associated with numerous high-profile architectural projects in the state and region. Two of Bruza's career highlights have been the once-in-a-lifetime design project of the dome for the Oklahoma State Capitol building and the design of the corporate headquarters building for Kerr-McGee Corporation, a 30-story tower in downtown Oklahoma City.

His most enduring contribution began immediately after the 1995 bombing of the Oklahoma City Murrah Federal Building when he and his firm worked tirelessly with Project Recovery, a national fundraising effort for victims and their families. Bruza also led efforts to provide in-kind services from damaged structures to help reinvigorate the bomb-affected areas.

He has implemented significant quality-of-life changes for Oklahoma City through his vision and architectural leadership with the Metropolitan Area Projects (MAPS), through participation in curriculum development programs for the public school system and through work with the Oklahoma Foundation for the Disabled and the Children's Convalescent Center, among others.

In 2000 **Sherman E. Smith** was inducted into the CEAT Hall of Fame; named a "Living Legend" by the Panhandle Producers and Royalty Owners Association in Amarillo, Texas; and paid tribute by the International Society of Energy Advocates in Tulsa. But Smith, chairman and president of SerDrilco Inc., an independent oil and gas drilling company with offices in Tulsa and Borger, Texas, wants to be remembered for his fair and respectful treatment of others.



Smith

He is known as a man of integrity with a generous heart, and he is also known as a leader in a cyclical industry through his steady, conservative management from "the boom to the bust." His reliance on strict fundamentals, good people and a desire to always do the right thing has allowed him to survive and his company to prosper.

Smith's father, Edward A. Smith, and two other shareholders founded SerDrilco Inc., then Service Drilling Co., in

1947. Sherman began his career with the company in 1949 as a field hand in Borger. After working his way through the ranks of middle and upper management, he became chief operating officer in 1962 and president in 1972. He succeeded his father as chairman of the company in 1982. As head of a 200-employee-base organization, Smith's devotion to his employees constantly focuses on improving their work environment and quality of life.

Preparation for his life's work began at OSU, where he completed his degree program in 1948. Although he never practiced engineering per se, the study of engineering provided him with a strong foundation to think and analyze, and his heart has always belonged to OSU.

As a student, **Thomas W. Wallace** spent an inordinate amount of time in the OSU sculpture studio working as lab assistant to Professor Arthur Benson. There, he learned about the construction of experimental structures that led to work with Spatial Structures Inc., a partnership between Benson and architecture professor George Beggs, involving the free-form building technique of using sprayed urethane foam and reinforced concrete.



Wallace

In the early 1970s avant-garde architecture was exciting to 19-year-old Wallace, but more importantly it prepared him to accept a leading role nearly 30 years later in the design of the most complex exterior skin systems ever devised for a building, the Experience Music Project in Seattle, Wash., a \$60 million, 140,000-square-foot museum and interactive music facility unlike any other in the world.

His career as a structural engineer began in 1975 with Snowden Engineering in his hometown, Tulsa. After completing a master's degree in 1980, he started Wallace Engineering, which currently employs a staff of over 100 and maintains branch offices in Kansas City, Mo. and Irvine, Calif. Today, as a registered professional engineer in all 50 states, Puerto Rico and the District of Columbia, Wallace is president and majority shareholder of this highly successful structural/civil engineering firm involved with national building programs for Wal-Mart, Pier 1 Imports, Circuit City and Residence Inn by Marriott, to name a few.

His most satisfying achievement, however, has been building Wallace Engineering and seeing the professional growth of his fellow shareholders and employees. Wallace's education, mentors, fellow shareholders (principals), friends and associates at OSU have been the structural support for the building of his business. ▲

VONDA EVANS & ADAM HUFFER



## Honoring Excellence

**Robert N. Braswell** is the 2001 recipient of the Melvin R. Lohmann Medal, an honor the CEAT reserves for an alumnus whose outstanding contributions to the profession and/or to education merit the highest recognition. Excelling in both spheres, Braswell has introduced innovations in engineering education and pioneered applications of industrial engineering concepts to computing, space exploration facilities and air-to-air missile development.

After earning a doctorate in industrial engineering and management at OSU in 1964, Braswell accepted a position as professor in the Department of Industrial and Systems Engineering at the University of Florida and became chairman of the department in 1965. He served as a NASA consultant at the height of the space race, from 1967 to 1972, as well as a consultant to VA Hospitals, the U.S. Post Office, and the U.S. Air Force Armament Laboratory. While a consultant with NASA at Huntsville, Ala., and Cape Canaveral, Braswell led the interdisciplinary team that established criteria for the space launch facilities at what is now the John F. Kennedy Space Center.

Braswell joined the Nixon administration as an engineering and scientific advisor in 1972. He continued for the next 14 years with the Department of Defense under appointments by presidents Ford, Carter and Reagan. He returned to Florida in 1986 to teach in the new Florida A&M University and Florida State University College of Engineering and to head up an International Supercomputing Consortium at

Florida State University. He has held posts with the University of Florida, the Florida Institute of Technology, the University of Alabama at Huntsville, the U.S. Department of Defense, the U.S. Air Force and Teledyne Brown Engineering.

He has made his mark on engineering education through the development of supercomputing facilities, research and graduate programs in manufacturing and design, as well as innovations in distance education and pedagogical aspects of teaching and learning. He has received more than 35 major awards for research and technical achievements and excellence in teaching, advisement and academic program development. Braswell has been named "outstanding teacher" 10 times and "outstanding adviser" five times in his career.

A pair of awards distinguishes him from virtually every other educator in the state of Florida, according to Karl Reid, dean of the CEAT. "Bob Braswell is proud to have been the first to be honored during halftime ceremonies at both University of Florida and Florida State University homecoming football games as their top professor," Reid says. "Could that happen in Oklahoma?" ▲

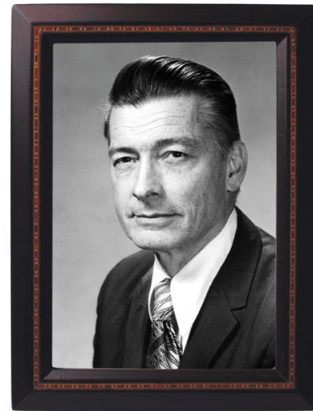
VONDA EVANS & ADAM HUFFER



*Braswell*

## Remembering an Old Friend

**BENNETT BASORE**  
1922 – 2001



The sudden death of **Bennett Lee Basore**, emeritus professor of engineering at OSU, in Stillwater on July 7, 2001, left friends and colleagues saddened. His contributions as teacher, administrator, mentor, alumnus and friend profoundly influenced the development of the College of Engineering, Architecture and Technology.

Professor Basore, a native of Oklahoma City, held degrees in electrical engineering and mathematics from OSU and a Sc.D. degree in electrical engineering from the Massachusetts Institute of Technology. He returned to OSU in 1967 to begin a 34-year career as an engineering professor. During his tenure, he served in many administrative posts, including interim associate dean of the CEAT and department head for General Engineering, but he always placed a priority on teaching and helping students.

His prior career included working as a weapons delivery systems engineer at Sandia National Laboratories, a nuclear weapons lab. From Sandia he went to Washington, D.C., to work for the Arms Control and Disarmament Agency in President Kennedy's state department where he was instrumental in designing the "Hot Line" communication system between the United States and the Soviet Union to prevent nuclear emergencies. He also worked on the ABM Treaty and participated in the Geneva negotiations as a specialist in treaty verification. He remained an active advocate of arms control and continued to consult with Sandia for many years.

He was a U.S. Navy veteran who served from 1942 to 1946 in the Pacific aboard an attack submarine that saw extensive combat. He twice received the Bronze Star.

He was an amateur radio operator who served his Stillwater community as a weather watcher and a traffic manager at public events. He sometimes coordinated international communications during natural disasters. He was a longtime leader at his church, and he served on the board of the Stillwater United Way.

"Bennett was a close personal friend of mine and many others," says Karl Reid, dean of the college. "He was a modest man with an enormous impact on students, the university, the community and his church. He touched and helped many and will be deeply missed by all those who knew him." ▲

# A Road Well Traveled

Andy Maxey

**Wayne Allen has come a long way since his days at Stillwater High School when he dreamed of becoming an engineer ...**

**Global executive,  
Phillips Petroleum CEO,  
Chairman, OSU's first comprehensive fundraising campaign,  
Major OSU donor.**

Busy as his professional life has been, Wayne Allen never left his alma mater behind. He remained involved with both the college and the university. Today, as Allen enjoys a more leisurely lifestyle, OSU remains an important part of his focus.

After the highly successful "Bringing Dreams to Life" Campaign was completed, Allen retired from Phillips Petroleum where he had influenced much support for OSU. But at that time, he took his support of OSU a step further – he made a personal commitment of \$1 million. It will fund the "W.W. Allen Scholars Endowment," as well as leave a legacy of support for the OSU Campus Beautification Fund, a special interest of Allen's wife.

*Why – after creating a venue of tremendous financial support for OSU – did Allen feel compelled to give more?*

"The greatest impact of the 'Bringing Dreams to Life' Campaign is not measured in the money it raised during the six years," Allen explains. "The campaign's effect is much longer term. It has established a 'culture of private support' at OSU. When I saw the great results of gifts we secured for OSU during the campaign, I wanted to do something, personally, to see that even more of this good work would continue, even after I'm no longer directly involved."

Wayne Allen's contributions of time and leadership have made a tremendous impact on OSU. Many would have felt they had given enough. Not Allen. "OSU is moving in the right direction," he adds. "In the future, alumni will be inspired to do far greater things for OSU than I ever dreamed possible."

The road that Allen walks is for one who has experienced a lifetime of fulfilling dreams. For himself – and for OSU. ▲

BARBARA SWIGGART

For more information about how you can help the College of Engineering, Architecture and Technology, call Marc Thompson, senior director for development, at (405) 744-3734.



WAYNE ALLEN