



SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE
SCHOOL OF ENGINEERING

Engineering Community

DEAN'S REPORT

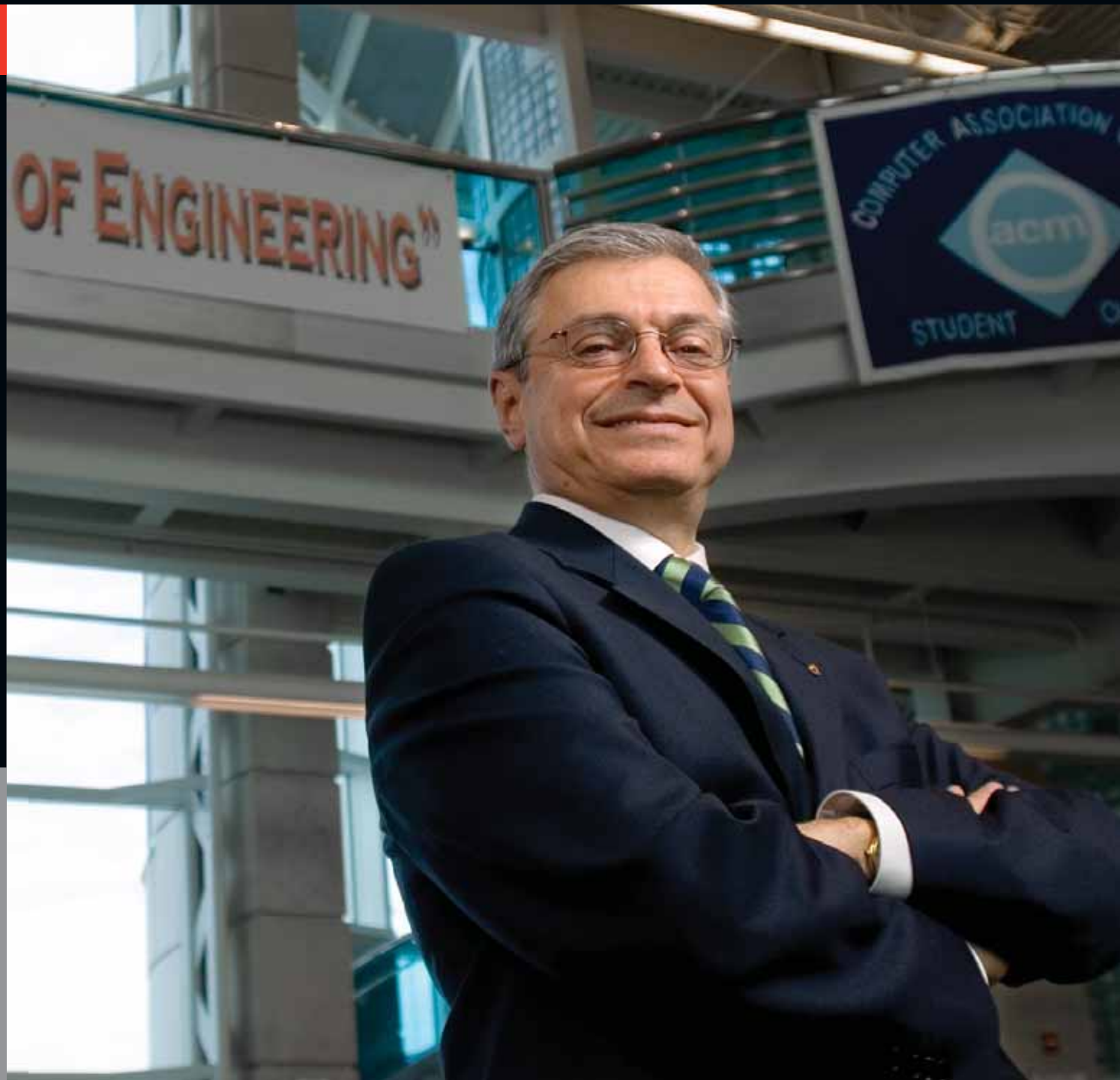
2006



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The vision of the School of Engineering is to be a partnership of faculty, students, staff, alumni and other professionals who work together to provide the highest quality education, and maintain innovative resources that support the technical growth and economic development of the region.



Message from the Dean

I am very pleased to write this message as the new Dean of the School of Engineering. I assumed the Dean's position at a school with accredited programs, dedicated faculty and staff, and motivated students, all housed within an award-winning building. The enrollment, graduation and placement rates are excellent, and demand for our programs continues to increase.

Now is the time for the School of Engineering to contribute even more toward SIUE's vision of a premier metropolitan University. In the coming months, we will focus on forming an *engineering community* whose members will be area high schools, community colleges, and engineering, manufacturing, information technology and construction companies, added to our alumni, students, faculty, staff and advisory boards.

Once the foundation of the engineering community is complete, we will build upon it by:

- Continuing to recruit, mentor and graduate the highest quality undergraduate and graduate students, and after graduation, helping to place them in companies that have supported them through scholarships, mentoring, internships and co-ops.
- Becoming the center of engineering education for the region by expanding our outreach activities to include workshops, seminars and career development courses for industry professionals, as well as summer programs for high school students.
- Working with members of the Industrial and Professional Advisory Councils, which represent each department, and with the members of the newly formed School of Engineering Advisory Board. Their feedback will be critical as we continue to produce engineers who will effectively and responsibly address the needs of our contemporary society.

We have an exciting year ahead as we plan, build, sustain and develop our engineering community. I hope you will join us in living our vision.

Sincerely,



Hasan Sevim, Ph.D.,
Dean

Message from the Chancellor



Vaughn
Vandegrift, Ph.D.,
SIUE Chancellor

The field of engineering impacts virtually every aspect of our daily lives. The SIUE School of Engineering prepares students to meet today's challenges with creativity and innovation.

Students learn in a state-of-the-art facility from highly qualified faculty. Active partnerships with area industry and agencies prepare students for exciting and rewarding careers.

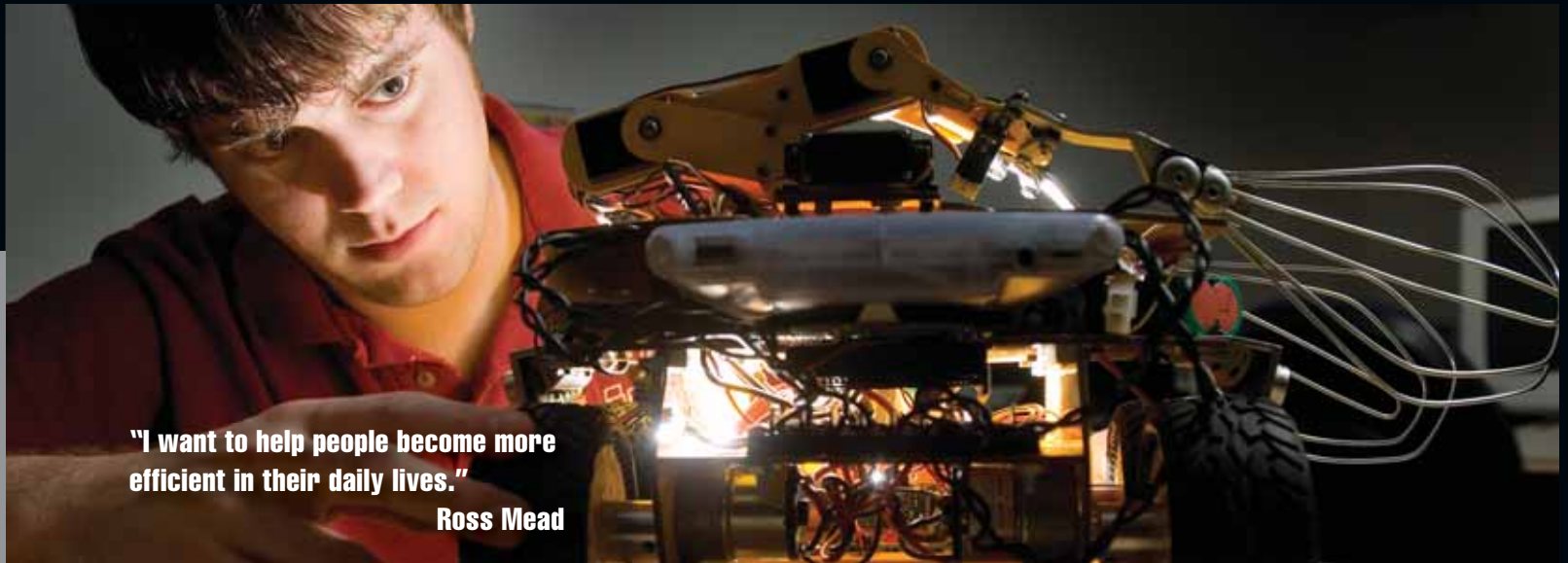
This report provides a brief overview of SIUE's Engineering initiatives designed to promote and enhance the development of students and programs, as well as the economic development of the metropolitan region, through innovative teaching methods.

The School of Engineering plays an important role in pursuit of the University's vision to be recognized nationally for the excellence of its programs and development of professional and community leaders. More importantly, we are committed to engineering the success of our students and our region.



Vaughn Vandegrift, Ph.D.,
SIUE Chancellor

Ross Mead was introduced to robotics during a high school robotics competition sponsored by SIUE. The School of Engineering hosts numerous robotics competitions throughout the year.



**"I want to help people become more efficient in their daily lives."
Ross Mead**

Building a better future

Ross Mead, a senior computer science major, could talk all day about robotics.

He'll talk about the thrill of building a complex robot out of simple LEGO® bricks and a refurbished Game Boy®. "Building and programming a robot really makes you think," says Mead. "Translating what a human does intuitively—walking in a straight line for example—to a robotic task is quite a challenge."

He'll tell you how he was introduced to the field of robotics by Dr. Jerry Weinberg, chair of the Department of Computer Science at SIUE. Mead was a junior at Edwardsville High School when Weinberg recruited Mead for a robotics competition.

According to Weinberg, the School of Engineering plays host to robotics competitions to get middle school and high school students interested in science, technology and engineering. "Students learn how these tools are used creatively in the real world," he said.

Once Mead was introduced to robotics, he was hooked. "Robotics is a gateway into many fields of engineering," Mead explains.

Now a senior engineering student, Mead talks about the future with great enthusiasm. He hopes to pursue a doctorate and eventually own his own business working in practical robotics.

Mead envisions a day when robots will take care of our daily, mundane household chores. (Remember Rosie, the Jetsons' robot maid?) "We tend to act more like robots ourselves in our seemingly automated daily routines," explains Mead. "There is so much we miss out on because there is so much we have to do."

He may not see changes as drastic as Rosie in his lifetime, but "I want to contribute...to take the burden off people and give them the chance to enjoy being human."

On the road to success

Michael Ewersmann has travel plans. Ewersmann, a senior in civil engineering from St. Paul, Mo, intends to pursue a career in transportation planning and highway design. Knowledgeable professors and hands-on learning opportunities are helping him chart his course.

“One of my transportation professors has experience as a city traffic engineer,” he said. “I am learning so much from the real-world applications he brings from the field to the classroom.”

Student organizations offer Ewersmann the teaming opportunities he needs to prepare for his career. He is an active member of the student chapter of the American Society of Civil Engineers (ASCE) and co-captain of the concrete canoe team, two of the many opportunities available to SIUE School of Engineering students.

The concrete canoe race, sponsored by the ASCE, consists of designing,

constructing and racing a canoe made of concrete with thin layers of mesh for reinforcement. Last year’s concrete canoe team had its first trophy finish ever, and this year’s team has the potential to compete well. As co-captain, Ewersmann supervises and motivates the team.

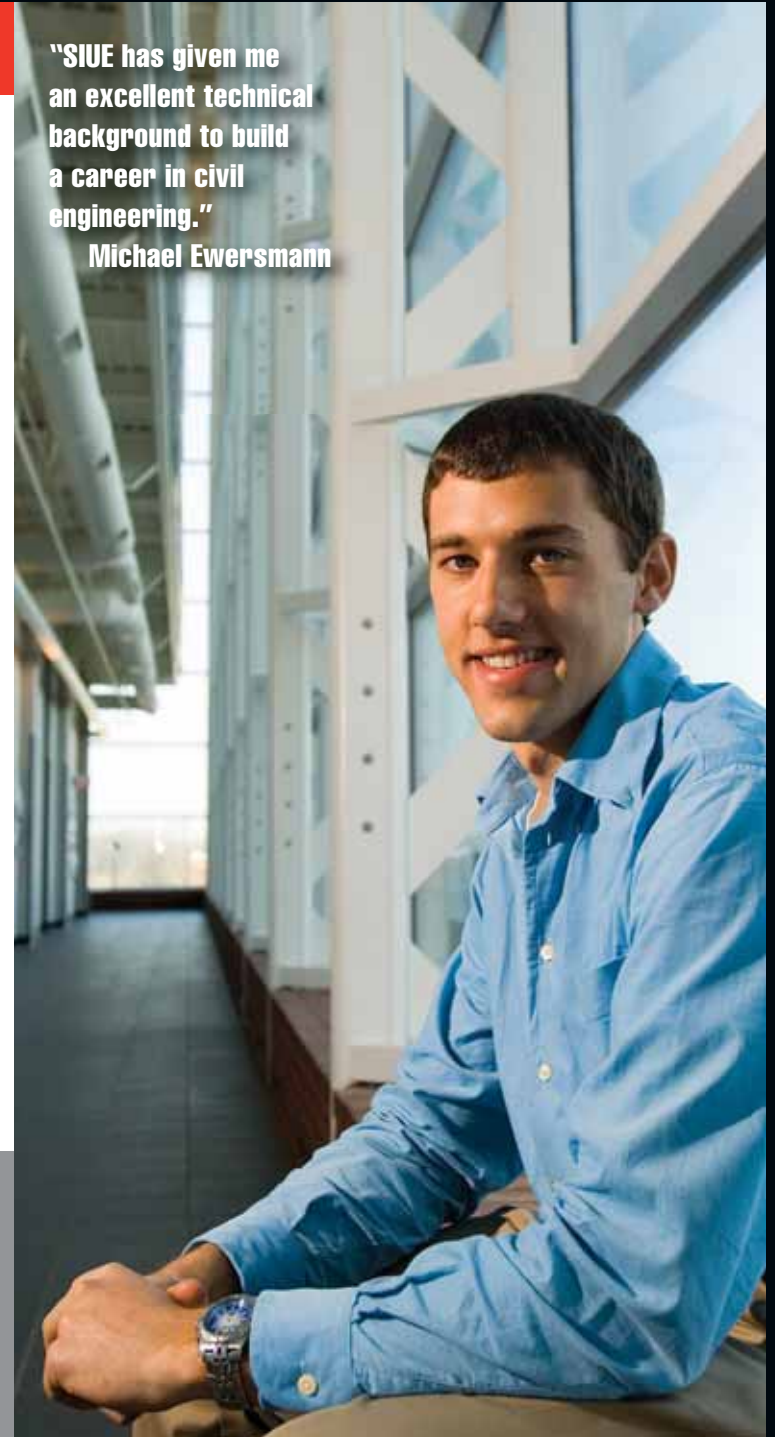
Ewersmann again put his project management skills into practice and coordinated the construction of a brick patio on campus. Members of the SIUE ASCE student chapter are selling the bricks with personalized inscriptions to fund travel and construction expenses for competitions such as the concrete canoe race.

“I’m enhancing my project management skills and learning what it takes to lead a successful team,” Ewersmann said. “I look forward to further developing these skills through on-the-job training and experiences.”

Civil Engineering student Michael Ewersmann participates in student competitions and organizations to complement what he’s learning in the classroom.

“SIUE has given me an excellent technical background to build a career in civil engineering.”

Michael Ewersmann



SIUE offers a comprehensive collection of professionally-accredited engineering degrees:

Civil Engineering – BS, MS

Computer Science – Minor, BA, BS, MS

Construction Management – Minor, BS

Computer Engineering – BS

Electrical Engineering – Minor, BS, MS

Industrial Engineering – Minor, BS

Manufacturing Engineering – Minor, BS

Mechanical Engineering – Minor, BS, MS



Department News

Civil Engineering

Professor Brad Cross and his colleagues completed an IDOT highway bridge project which consisted of mounting strain gauges on 12 interstate highway bridges and measuring the largest strains the bridges experienced in a given time span. A computerized structural analysis was performed to compare the measured strains with those predicted indirectly by recently proposed changes in design criteria. A number of publications have featured this work.

Professor Susan Morgan and Assistant Professor Jim Zhou received a \$94,000 grant from the Waste Management and Research Center in Champaign to increase the use of its technical assistance among companies in downstate Illinois. The work involves developing contacts

with organizations and industries in the area, and designing and evaluating models for effective industrial engagement.

The American Society of Civil Engineers Structures Congress was held in St. Louis for the first time. Professor Cross served as co-chair of the conference and co-editor of the published proceedings, and was the lead person coordinating the technical program. He recruited many SIUE civil engineering students to be involved in tasks and displays at the Congress. ASCE leaders were so impressed by the students' participation that they created a new national committee, the ASCE National Committee for Student Involvement, and invited Cross to serve as chair.

Computer Science

Associate Professor Jerry Weinberg began data collection for his National Science Foundation grant to study the impact of robotics competitions on girls' interest in science and engineering. The grant allowed 286 middle school students to participate in a six-week robotics program.

Professor Bryon Ehlmann received a best paper award at the International Conference on Software and Data Technologies.

Professor Trong Wu received a best paper award at the MultiConference of Engineers and Computer Scientists.

Construction Management

Through the support of the Construction Advisory Committee, several adjunct faculty members who are experienced professionals in the industry have been recruited to teach both required courses and electives. These highly-qualified faculty members bring state-of-the-art engineering practices and expertise to the department.

A new 3-D laser scanning device is being used to introduce students to cutting-edge construction technology. Faculty members are using the 3-D laser in research related to the integration of this technology into pre-construction planning, jobsite monitoring, creation of as-built drawings, quantity measurement and other functions. Construction Management faculty members are developing new electives and offering seminars to industry professionals on Building Information Modeling, the integration of 3-D building models with attributes such as specifications, product model numbers, maintenance and operation schedules, as well as construction costs and schedules.





Electrical and Computer Engineering

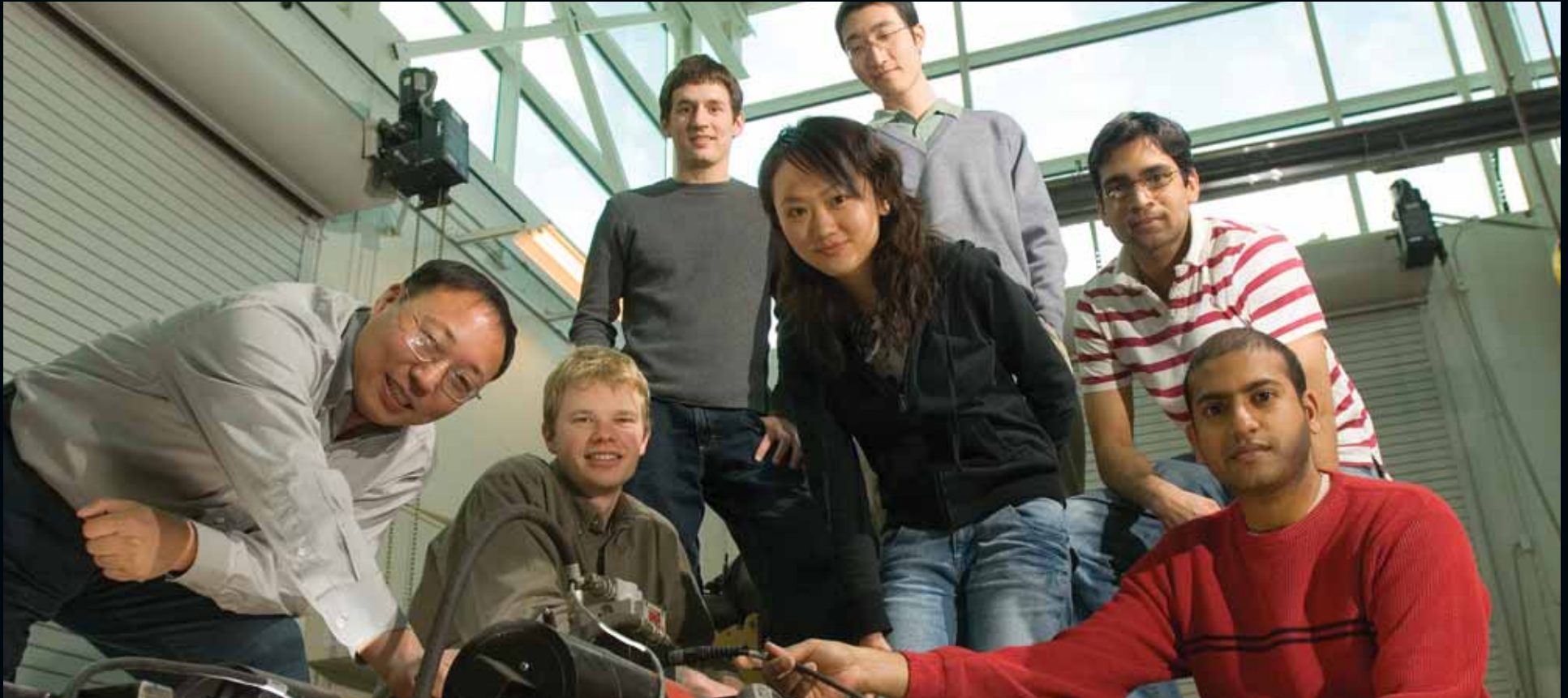
Professor Oktay Alkin and lab manager Steve Muren worked with representatives from Anheuser-Busch Cos. to establish a Programmable Logic Controllers (PLC) laboratory with equipment donated by Anheuser-Busch.

Professor Jen-Shiun Chen completed two research grants with Systems and Electronics Inc. of St. Louis: “Ultrawide Band Radar Measurement” and “Ultrawide Band Radar Investigation.”

Professor George Engel, along with Jerome C. Cox and David M. Zar, applied for a U.S. patent, “Design and Use of Restartable Clocks Including Crystal-Based Restartable Clocks.” Engel is the recipient of a \$192,754 National Science Foundation grant, “Development of Pulse Shape Discrimination CMOS ASIC.”

Assistant Professor Robert LeAnder received a \$50,000 SIUE Multidisciplinary Urban Research Project Grant for “Analysis of Impacts of the No Child Left Behind Act on Teacher Effectiveness and Student Motivation and Achievement in the Urban Environment.”

Professor Scott Umbaugh, co-investigator, with principal investigator Julian Spallholz of Texas Tech University, received a \$329,625 grant from the National Institutes of Health for, “Selenium against arsenic toxicity and skin lesions.” Umbaugh published the textbook, *Computer Imaging: Digital Image Analysis and Processing*.



Mechanical Engineering

Albert Luo, associate professor of mechanical engineering, received a research grant in the amount of \$159,000 from Caterpillar to investigate dynamical endurance of mechanical systems. This research will provide Caterpillar with proprietary information to continually improve its products and maintain its position as a global leader.

Albert Luo was appointed as a member of the advisory panel in the Ph.D. School in High Mechanics and Automotive Design and Technology, *Universia Degli Studi de Modena e Reggio Emilia*.

Xiaojun (Terry) Yan, professor of mechanical engineering, visited Xian Jiaotong University in China, a prominent engineering university, to conduct joint research and present a seminar during summer 2006. Yan is also a guest professor at the university.

Keqin Gu, professor and chair of mechanical engineering, was appointed as a guest professor in Shanghai Jiaotong University. Gu also was appointed guest professor of Nanjing Normal University in China.



Industrial and Manufacturing Engineering

In 2006, the Industrial and Manufacturing Engineering (IME) Program observed a significant increase in enrollment. The IME Alumni Night in November brought together some recent graduates with current students and provided an excellent platform for interaction.

The IME student team was invited to participate in the PLM World CAD/CAM/CAE University Student Competition.

Our teams placed in the top three each of the last three years. This year's team captured second place at the contest held in Long Beach, Calif. Congratulations to members of the 2004, 2005 and 2006 teams.

This national team competition is for students interested in 3-D product design/analysis/manufacturing using Unigraphics, Ideas or Solid Edge PLM Tools. Projects for the student competition may be drawn from real or hypothetical case studies, promoting effective and efficient usage of CAD/CAM/CAE for product life-cycle management.



SIAM Center

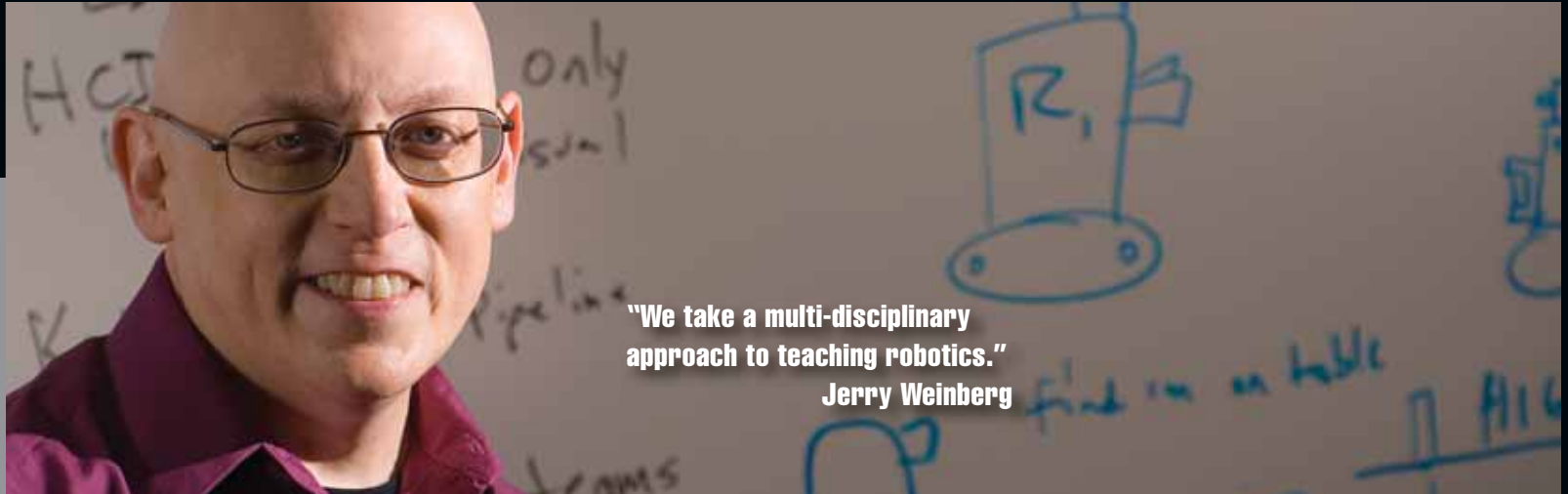
The School of Engineering's Southwest Illinois Advanced Manufacturing (SIAM) Center performs both basic and applied research, targeting the region's equipment, defense and bio-processing economic superclusters. The Center is funded by the U.S. Department of Commerce Economic Development Administration. Recent successfully completed projects include:

- development of a magnetostrictive fluid-based active vibration damping system for industrial turning operations;
- development of a next generation engine air filter for the military HMMWV (HumVee);
- development of an automated system for shot peen production of metallic workparts;
- computational fluid dynamics optimization of a TCP drying system; and
- design of a lightweight, multi-fuel diesel engine for unmanned aerial vehicle applications.

Environmental Resources Training Center

The Environmental Resources Training Center (ERTC) specializes in providing the technical training for drinking water treatment and wastewater treatment operators. ERTC offers a program in Water Quality Control Operations for full-time students and provides continuing education opportunities to working professionals throughout the state. In fiscal year 2006, the ERTC trained 933 students in both Illinois and Missouri and awarded 1,244 Continuing Education Units (CEUs).

Jerry Weinberg has been teaching robotics at SIUE since 1999. He uses robotics as one way to teach SIUE engineering students to communicate more effectively and improve their problem-solving skills.



**"We take a multi-disciplinary approach to teaching robotics."
Jerry Weinberg**

Removing the gender barrier

The National Science Foundation would like to see more women study engineering and the sciences, and Jerry Weinberg is trying to help. Weinberg, department chair and associate professor in the Department of Computer Science, is part of a team working on the \$360,000 grant, "The Effects of Robotics Projects on Girls' Perceptions of Achievement in Science, Technology, Engineering and Mathematics (STEM)."

"Diversity in STEM areas is important because it brings new and fresh perspectives into these fields, resulting in new ideas and solutions," said Weinberg.

The grant funded 32 Botball teams across the nation. Created by the KISS (Keep It Simple Stupid) Institute for Practical Robotics, Botball is a team-based robotics competition which incorporates principles of mathematics, science, engineering, project management and technology.

A total of 286 seventh-grade girls used robot kits to design, build and program a team of small mobile robots. Students learned how the

tools of math and science are used in creative projects, and about their application in the everyday world.

The grant also funded a study to gain an understanding of how such programs affect girls' perception of their achievement in the STEM areas, and whether these attitudes translate into long-term choices in study and career options.

"Initial findings tell us that if an effective teacher was involved in the competition, the girls developed a higher interest in engineering and science," Weinberg explained.

The team will continue to study the results and determine how to structure classes and activities to most effectively impact girls' interests.

Female students enrolled in:

- Undergraduate level physics, mathematics and computer science classes...35%
- Undergraduate engineering classes...16%
- Graduate level physics and engineering classes... less than 10%

Source: National Science Foundation

An accidental academic

“There is virtually no physical aspect of human existence that engineers and scientists do not affect,” said Brad Noble, associate professor in the Department of Electrical and Computer Engineering.

“Someone once said that unlike a medical doctor whose worst mistake usually kills only one person, an error in judgment or reason on the part of an engineer can be fatal to thousands of people,” said Noble.

Noble believes that engineering students should instinctively challenge new ideas, take them apart, and inspect them for their merit and workability. If this inherent skepticism does not already exist, “It is my obligation to instill it in them,” he said.

Noble calls himself an accidental academic. He has taught electrical and computer engineering at SIUE since 1996, even though his childhood dream was to become a project engineer for an electrical contractor. It was his professors and fellow students who changed his mind.

Several of Noble’s undergraduate engineering professors encouraged him to continue his studies in graduate

school. “The faculty saw in me what I didn’t see in myself,” he said.

As a graduate student and laboratory assistant, Noble often found himself explaining engineering concepts to undergraduate students. After several students told him he should teach engineering for a living, Noble decided to pursue his doctorate, which he completed in 2000 at Washington University in St. Louis.

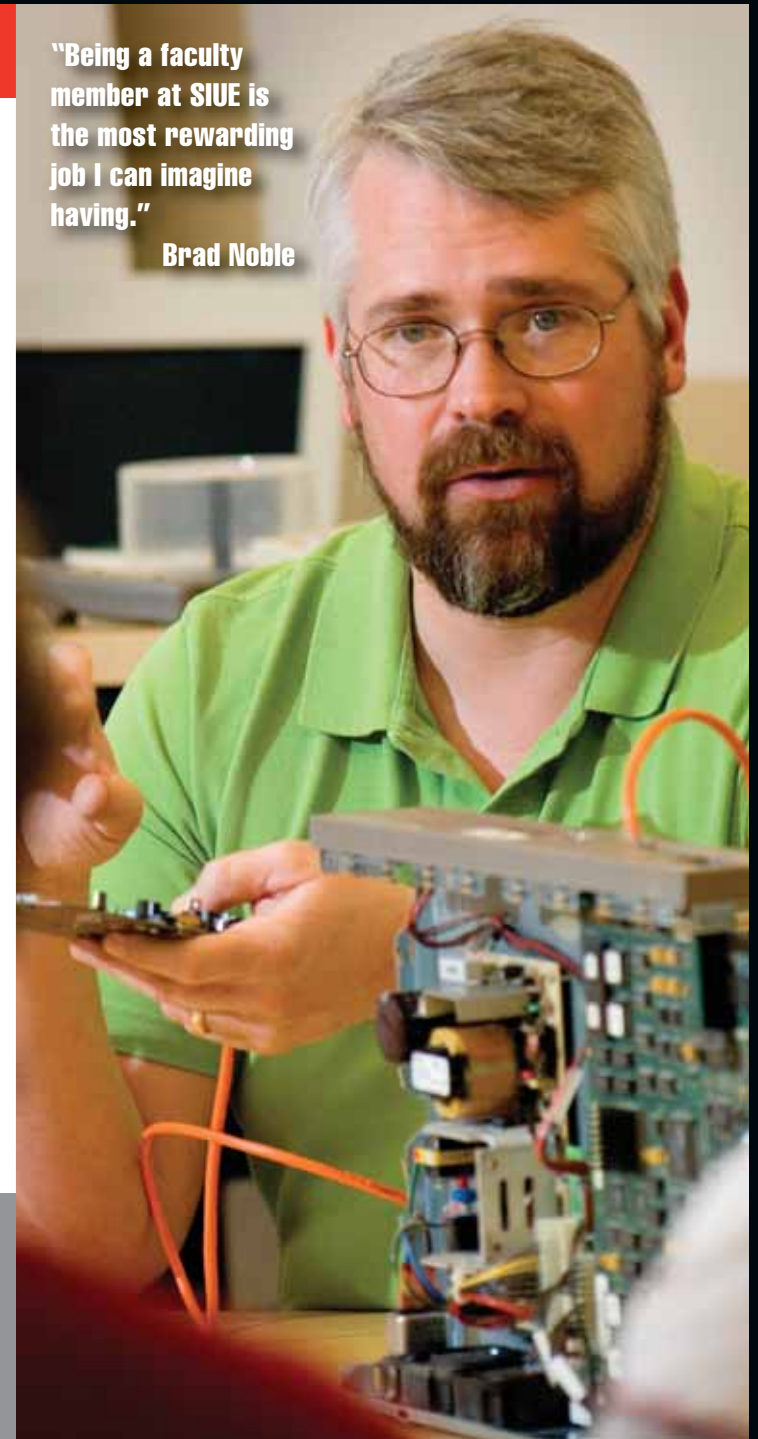
During his time at SIUE, Noble has taught 17 different subjects and created three new classes in network engineering. His success in the classroom led him to become director of the University Honors Program, where he deals with academic issues at the program level. Noble also serves as an academic advisor in the School of Engineering. He was recently named the 2007 Teaching Excellence Award winner at SIUE.

“I have great respect for the engineering faculty and appreciate the opportunities for personal growth,” said Noble.

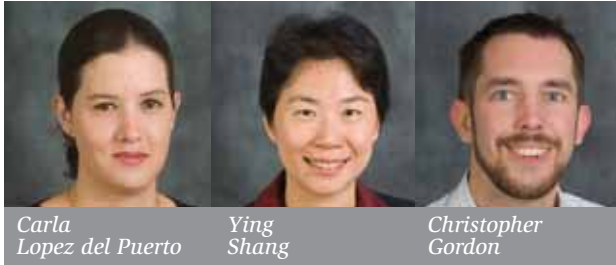
Engineering Professor Brad Noble exemplifies the enthusiasm and commitment that is reflected in the SIUE School of Engineering’s Community.

“Being a faculty member at SIUE is the most rewarding job I can imagine having.”

Brad Noble



New Faculty for 2006



Carla Lopez del Puerto, instructor, joined the Department of Construction in August 2006. She is currently working on a doctorate at the University of Oklahoma. Her expertise is in construction cost estimation and scheduling. In addition to holding a BS in architecture from the *Universidad de las Americas*, in Mexico, Lopez Del Puerto has an MS in construction management from the University of Oklahoma. While earning her master's, she worked as a cost estimator and architectural designer for Benham Companies in Oklahoma City and St. Louis. In 2003, she received the Construction Science Leadership Award. Her current teaching interests include cost estimating, project controls, design build and Spanish for construction.

Ying Shang, assistant professor in the Department of Electrical and Computer Engineering, received a doctorate and a master of science from the University of Notre Dame. Prior to joining SIUE, Shang pursued research in modeling and analysis of hybrid and discrete event systems. The applications of her research are path planning of biped and hexapod walking robots, analysis of service delays in queuing systems, and traffic regulations in communication networks. She is currently collaborating with researchers at Notre Dame. Shang's teaching interests include systems and controls, statistics and graduate seminars.

Christopher Gordon graduated from Carnegie Mellon University and Stanford with degrees in civil and environmental engineering. He joined the Department of Construction in January 2007 as assistant professor. Gordon is heavily involved in researching, developing and managing applications of emerging technologies to the construction industry. He has worked in construction management on projects ranging from \$25 million to \$2.5 billion in St. Louis, San Francisco and Berlin.

Dennis Bouvier received a doctorate in computer science from the University of Louisiana at Lafayette with expertise in computer graphics. His dissertation topic is "Algorithms for Scientific Visualization of Medical Volume Studies." In addition to teaching computer science at various universities over the past 10 years, Bouvier has been a software engineer, technical trainer and technical writer for Hewlett Packard, SUN Microsystems and SGI. He is the author of SUN's Java 3D API Tutorial. Bouvier's teaching interests include software engineering, human-computer interactions and computer graphics. His interests are in the psychology of programming, information visualization and bioinformatics.

Ryan Krauss joined the Department of Mechanical Engineering with expertise in control of flexible structures. He received a doctorate in mechanical engineering from the Georgia Institute of Technology in 2006. His dissertation topic is "Control of Flexible Systems." Before pursuing his doctorate, Krauss worked as a safety test engineer for Johnson Controls. His teaching interests include controls, vibrations and computer programming.

David Wesselmann, assistant coordinator for water quality control, is a 10-year Air Force veteran with experience in water quality control, hazardous material control, waste sampling, radiological hazard control and industrial hygiene assessments at Vandenberg Air Force Base in California, Kunsan Air Base in Korea and Anderson Air Base in Guam. Wesselmann also performed duties as an instructor at Sheppard AFB in Texas, training medical, public health and environmental personnel for field deployments. Wesselmann oversees training and operations at the School of Engineering's Environmental Resources Training Center on New Poag Road.



SELECTED FACULTY PUBLICATIONS

Books and Book Chapters Published

Gu, K. and Niculescu, S.I., “Stability Analysis of Time-Delay Systems: A Lyapunov Approach,” A. Loria, F. Lamnabhi-Lagarrigue, and E. Panteley (editors), In *Advanced Topics in Control Systems Theory: lecture notes from FAP 2005*, lecture notes in *Control and Information Sciences*, Vol. 328, Springer-Verlag, Berlin, 2006, pp. 139-170.

Lee, H. and Fulton, D., *Computer Aided Design with Unigraphics NX3: Engineering Design in Computer Integrated Design and Manufacturing*, 5th Edition, Kendall/Hunt Publishing Company, Dubuque, Iowa, 2005, 600 pages.

Luo, A., *Singularity and Dynamics on Discontinuous Vector Fields*, Monograph Book Series in *Nonlinear Science and Complexity*, 2006, Elsevier.

Sun, J. and **Luo, A.**, *Bifurcation and Chaos in Complex Nonlinear Dynamical Systems*, Edited Book Series in *Advances in Nonlinear Science and Complexity*, 2006, Elsevier.

Umbaugh, S., *Computer Imaging: Digital Image Analysis and Processing*, The CRC Press, Boca Raton, FL, January 2005, 659 pages, CVIPtools CD-ROM with book, ISBN: 0-84-932919-1.

Journal Articles

Chen, J., “Accurate computation of bit error probabilities of band-limited asynchronous DS-CDMA systems using higher order moments,” *IEEE Transactions on Wireless Communications*, Vol. 4, Issue 5, September, 2005, pp. 2001-2005.

Gu, K., Niculescu, S.-I. and Chen, J., “On stability crossing curves for general systems with two delays,” *Journal of Mathematical Analysis and Applications*, Vol. 311, No. 1, November 2005, pp. 231-253.

Hubbard, K. and Strong, S., “Computational methods for planning flexible manufacturing systems,” *Engineering Computations: The International Journal for Computer Aided Engineering and Software*, Vol. 22, No. 8, 2005, pp. 958-971.

Callahan, R., **Hubbard, K.**, and Bacoski, N., “The use of a simulation modeling and factorial analysis as a method for process flow improvement,” *The International Journal of Advanced Manufacturing Technology*, Vol.12, No.3, 2005, pp. 16-23.

Luo, A. and Chen, L. D., “Grazing phenomena and fragmented strange attractors in a harmonically forced piecewise, linear system with impacts,” *IMEch E Part K Journal of Multi-body Dynamics*, Vol. 220, 2006, pp. 35-51.

Luo, A. and Gegg, B., “Periodic motions in a periodically forced oscillator moving on the oscillating belt with dry friction,” *ASME Journal of Computational and Nonlinear Dynamics*, Vol. 1, 2006, pp. 212-220.

Albert Luo, associate professor of mechanical engineering, is internationally recognized in the area of non-linear vibration. Luo has published two books and more than 100 journal articles on the subject. He was the organizer of the International Conference on Nonlinear Science and Complexity held in Beijing, August 7-12, 2006.

Luo, A., “On grazing and strange attractors fragmentation in non-smooth dynamical systems,” *Communications in Nonlinear Science and Numerical Simulations*, Vol. 11, 2006, pp. 922-933.

Luo, A., “Chaos and quasi-periodic motions on the homoclinic surface of nonlinear Hamiltonian systems with two degrees of freedom,” *ASME Journal of Computational and Nonlinear Dynamics*, Vol.1, 2006, pp. 135-142.

Luo, A. and Gegg, B., “Grazing phenomena in a periodically forced, friction-induced, linear oscillator,” *Communications in Nonlinear Science and Numerical Simulation*, Vol. 11, 2006, pp. 777-802.

Luo, A. and Gegg, B., “On the mechanism of stick and non-stick, periodic motions in a forced linear oscillator including dry friction,” *ASME Journal of Vibration and Acoustics*, Vol.128, 2006, pp. 97-105.

Luo, A., “Grazing and chaos in a periodically forced, piecewise linear system,” *ASME Journal of Vibration and Acoustics*, Vol. 128, 2006, pp. 28-34.

Luo, A. and Gegg, B., “Stick and non-stick, periodic motions of a periodically forced, linear oscillator with dry friction,” *Journal of Sound and Vibration*, Vol. 291, 2006, pp. 132-168.

Luo, A., “Prediction of quasi-periodic and chaotic motions in nonlinear Hamiltonian systems,” *Chaos, Solitons and Fractals*, Vol. 28, 2006, pp. 627-649.

Molki, M., and Vengala, V., “Flow boiling patterns of refrigerant 134A in a minichannel with meandering flow passage,” *International Journal of Heat Exchangers*, Vol. 6, No. 2, 2006, pp. 277-292.

Molki, M., and Nagalla, M., “Flow characteristics of rotating disks simulating a computer hard drive,” *Numerical Heat Transfer, Part A: Applications*, Vol. 48, No. 8, 2006, pp. 745-761.

Molki, M., Damronglerd, P., “Electrohydrodynamic enhancement of heat transfer for developing air flow in square ducts,” *Heat Transfer Engineering*, Vol. 27, No. 1, 2006, pp. 35-45.

Molki, M., “Thermal management of computer hard drives,” *Heat Transfer Engineering*, Vol. 26, No. 6, 2005, pp. 1-2.

Rossow, M., “Trilateration computer program,” *Journal of Surveying Engineering*, 121(3), 2005, pp. 94-96.

Chen, T., **Tongele, T.**, and Liu, N., “Finite element evaluation of acoustic energy penetration of partially submerged tube bundles,” *Journal of Nondestructive Evaluation*, Vol. 24, No. 3, September, 2005, pp. 97-107.

Dodds, Z., Greenwald, L., Howard, A., Tejada, S. and **Weinberg, J.**, “Components, curriculum, and community: robots and robotics in undergraduate AI education,” *AI Magazine*, Vol. 27, No. 1, Spring 2006, pp. 11-22.



"My education at SIUE was the right foundation for a career of challenges and teamwork."

Kay Guse



SIUE School of Engineering Alumni

Kay Guse

Kay Guse serves as engineering manager of the Analysis and Integration IPT for Global Strike Systems (GSS) at The Boeing Company in St. Louis. She leads the implementation of requirements, change and data management, reliability/maintainability and system safety for GSS aircraft and weapons programs.

Guse earned a bachelor of science in industrial engineering at SIUE in 1988 and a master's in engineering management in 1993 from Washington University in St. Louis. She joined The Boeing Company in 1988 as an industrial engineer on the flight ramp.

Guse has worked on a variety of aircraft programs, projects, teams and initiatives at Boeing, including the introduction of variability reduction techniques to the F/A-18C/D production areas and subsequent successful certification; cellular manufacturing concept development for assembly operations in St. Louis; procurement and implementation of multi-million dollar capital acquisitions of leading-edge assembly technologies; and the successful third party ISO registration and customer certification of corrective and preventive action across the St. Louis site.

"The SIUE School of Engineering and its faculty were a significant positive influence in my current career," said Guse. "The education matched the requirements I needed to succeed from day one."

Kay is a member of the School of Engineering Industrial Advisory Board and is the Boeing Executive Focal for SIUE. "I continue to enjoy a professional network through the alumni and University," she said.



Victor V. Reznack

Vic Reznack earned a bachelor of science in electrical engineering in 1977 and an MBA in 1989, both from SIUE. He remains connected with the School of Engineering because “I want to help other students have the same opportunities I had as a result of the faculty’s close ties to local industrial partners.”

Reznack is a member of the School of Engineering Industrial Advisory Board, serving as chair since 2003. He has been instrumental in arranging opportunities for students to gain practical experience with design projects in the industry.

“I was able to pursue a childhood dream to be an electrical engineer because of the convenience, location and most importantly the affordability SIUE offered,” Reznack said. “This is just a small way to repay the University for the role it has played in my personal success.”

Reznack is currently vice president/general manager of the Defense Electronics Product Line of DRS Technologies-Sustainment Systems Inc. in St. Louis. He is responsible for Automatic Test Equipment, Integrated Security Systems, and Radar Systems for the U.S. Military and Automation Products for the U.S. Postal System.

Reznack is published and jointly holds a patent for a Pharmaceutical Pill Recognition and Verification System.

David M. Vazquez

“One of the most valuable lessons I learned at SIUE is the importance of relationships,” said David Vazquez.

Vazquez earned a bachelor of science in industrial engineering and an MBA from SIUE in 1988 and 1991, respectively.

“The Industrial Engineering Department was small and the student body was close,” Vazquez said. “We learned early on that by building relationships with one another and working together we significantly increased our potential for success.

“These are lessons that I continue to practice today as I develop networks and build relationships,” he said.

Vazquez is currently senior director of FCS Quality and Processes at Science Applications International Corporation (SAIC) in San Diego. The Future Combat Systems (FCS) Program is co-managed by The Boeing Company and SAIC as the Lead Systems Integrator. The \$20.76 billion program is the U.S. Army’s modernization program. Vazquez is responsible for quality and process improvement initiatives for SAIC Business Units supporting the FCS Program.

Vazquez is certified by the American Society for Quality as a certified quality manager.

Rich Oller

Rich Oller graduated from SIUE in 1976 with a bachelor of science in sanitation technology, a program that has evolved into today’s Department of Civil Engineering. Oller credits his mentors and former professors at SIUE, Dan Cote and Dr. Harlan Bengtson, with guiding and nurturing the educational beginnings of his career.

His career started at a civil engineering consulting firm in Granite City and eventually led him to a consulting firm in Lubbock, Texas. Oller completed his master’s in civil engineering water resources at Texas Tech University in 1986.

In 1989, Oller pursued his dream of owning his own engineering firm and opened Oller Engineering. In business for 17 successful years, Oller Engineering has grown from one employee (himself) to 17 employees.

Oller was inducted into the Texas Tech University Civil Engineering Academy in 1997. Members are selected by their peers and nominated based on their professional achievement, civic and humanitarian activities.

“SIUE prepared me for the engineering profession,” he said. “Without the coaching and encouragement I received from the engineering professors, none of this would have been possible.”

School of Engineering Industrial and Professional Advisory Councils (IPAC)

Engineering students, faculty and staff benefit from the committed Advisory Council members and the expertise and experience they bring to the School.

CIVIL ENGINEERING

Bruce Schopp, Oates Associates
Scott Miller, MiTek Industries
Garry Aronberg, Kuhlmann Design Group
Sue Mueller, Consultant
Ted Nemsky, IDOT
Charles Juneau, Juneau Associates

COMPUTER SCIENCE

Kathy Henely, Perficient
Edmond Abrahamian, Tripos
Ilyia Ibrahim, Computer Power Solutions of Illinois
Roger Germann, Gliacom Corp.
Mike McCoy, The Boeing Co.

CONSTRUCTION MANAGEMENT

Tonya Beesley, Baker Concrete Construction
Tom Buchheit, BRIC Partnership LLC
Ken Cates, Northstar Mgmt. Co. LLC
Ron Covarrubias, Northstar Mgmt. Co. LLC
Tim Docter, Maclair Asphalt Co., Inc.
Michael Dunda
Mark Grinter, The Korte Co.
Roger Haydon, Keeley & Sons
Jim Heinz, Heinz Corp.
Phillip Hocher, Pace Construction Co.
Tim Holland, Kay Bee Electric Co.
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