INDUSTRIAL AND ENTERPRISE SYSTEMS ENGINEERING

IESE News

www.iese.illinois.edu | University of Illinois at Urbana-Champaign | Fall 2009

Illinois researchers are developing new models that will contribute to the development of the smart grid, which will combine conventional energy with alternative energy sources such as wind farms.

DOE Awards Researchers $1.03 Million to Develop Next-Generation Energy Models

By Kim Gudeman, Coordinated Science Laboratory

Researchers from the University of Illinois at Urbana-Champaign, including three from the Coordinated Science Laboratory, recently received a three-year, $1.03 million grant from the U.S. Department of Energy to tackle complex questions regarding energy markets. The research will allow for a deeper understanding of the competitive interplay between firms, power marketers, and consumers in the face of uncertainty in both demand and resource availability.

Ultimately, the work will contribute toward the development of the smart grid—a system that is expected to lead to increased efficiency, lower power costs, and greater reliability.

"A major challenge offered by the power market is that pricing is the result of a complex bidding framework," said Uday Shanbhag, a professor of industrial and enterprise systems engineering and principal investigator on the project. "Together with the uncertainty in electricity usage and fuel costs, this leaves consumers with unpredictable energy supplies and prices. As the smart grid evolves, existing market designs are inadequate."

In the markets of tomorrow, utilities will have access to a broad power portfolio including wind power and other renewable energy sources. Generation will no longer be restricted to conventional power plants but will be distributed in nature and include residential solar panels and small wind farms. Additionally, consumers will play an important role in the market by responding to prices. For example, "smart" refrigerators and air conditioners will dynamically curtail usage in response to increasing prices.

The Illinois team plans to develop the next generation of models that seamlessly accommodate new energy sources, distributed generation, and the activities of consumers. These models will be the basis for research on electricity markets of tomorrow.

continued, page 5

Alumnus Innovation Featured on The History Channel

By Kimberly Beals, Ambient

"I was 16 years old, skateboarding. While I was in the air I lost consciousness. I woke up on the ground, not remembering what happened. I knew then that I wanted a way to preserve events."

In a recent interview for a program being produced for The History Channel, **Michael Callahan** explained that he wanted to create something that could hold memory, so people could remember what happened if or when they couldn't do it themselves. He didn't think that one idea would morph into his company, Ambient.

continued, page 3

In this Issue

From the **Department Head**

Dear Alumni and Friends,

Since my last letter, the dramatic downturn of the economy has become a global crisis that has affected everyone. Undeterred by this turn of events, the Department of Industrial and Enterprise Systems Engineering (IESE) continues to maintain a strong upward momentum, striving to become a top-notch, world-renowned unit in its field. We have been exceptionally fortunate to witness many positive developments in the past year that support our aspirations for excellence. Our faculty have received prestigious honors and awards, have been very successful on the national front for highly competitive research grants, and have been invited to lecture at major national and international conferences. Our undergraduate programs remain very popular, with the undergraduate majors exceeding 550 students, and our seniors continue to be placed well in jobs and remain in high demand. Our graduate enrollment is rising steadily. In 2009, the department welcomed two new junior faculty members: Professor Negar Kivayash joined us in January and was featured in our previous newsletter; Professor Enlu Zhou began in mid-August and we are pleased to introduce her herein.

On July 22, the University of Illinois Board of Trustees approved the Master of Science in Financial Engineering, a graduate program jointly sponsored by our department and the Department of Finance in the College of Business. The Illinois Board of Higher Education approved the Master of Science in Financial Engineering on Tuesday, December 8, 2009. At this difficult time in the financial sector, this program is needed now more urgently than ever to prepare future leaders in financial service and quantitative finance-related fields with the fundamental knowledge of investment principles and methods, as well as risk concepts and management. We have formed a distinguished Industrial Advisory Board consisting of dedicated alumni and friends of the two departments. We plan to admit the first class for this program in the fall of 2010.

The department has benefited greatly from the generous support of our alumni, and for this I thank you. We continue to need your help. We would like to hear from you; please keep in touch—drop us a line, call to chat, or visit us. If you still haven't seen the new Senior Engineering Project Laboratory, we would welcome the opportunity to give you a tour.

Yours sincerely,

Jong-Shi Pang
Department Head and Caterpillar Professor
Industrial and Enterprise Systems Engineering
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Alumnus

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In 2006, while he was still on campus, Callahan took the technology he had developed for his senior class project and founded Ambient, he said, "to create technology for those who need it most." While the technology produced and sold at Ambient doesn't record memory, it does give users the ability to express themselves. The first product coming from the company is the Audeo.

Michael Callahan (r) explains how the Audeo system can pick up signals from the sender – in this case, Thomas Coleman (foreground) – and display the response via computer.

Thomas Coleman demonstrates how the Audeo interface can be used to control an electric wheelchair.

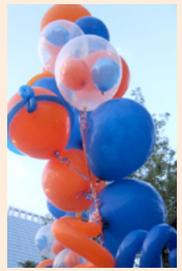
Callahan leveraged his work on the Audeo technology to get admitted to the graduate program in Industrial and Enterprise Systems Engineering at Illinois. While pursuing his master's degree, he worked with the faculty in the university's Technology Entrepreneur Center (TEC) to further develop his technology and prepare to launch a venture around it. He entered and won the V. Dale Cozad New Venture Competition, as well as the first-ever $30,000 Lemelson-Illinois Student Prize, and was later recognized as "Student of the Year" by EE Times magazine.

"Michael was one of the first students that I've had the pleasure to work with in my time at the Technology Entrepreneur Center. He's been an inspiration to other students in our program, and I'm excited to see the company starting to take off," said TEC Assistant Director Rhiannon Clifton.

Since completing his master's degree, Callahan has spent the bulk of his time preparing the technology for market and cultivating investor interest. His business model and constant innovation for the Audeo caught the eye of producers at The History Channel. The most impressive feature in their view was the ability for the Audeo to make a "voiceless" cell phone call. Callahan and Ambient team member, Ethan Berl, held a two-minute conversation with only one end physically talking. The team also demonstrated how the Audeo can move a wheelchair without the user having to move physically.

"[Taping the program] was an exciting experience. We've done a lot of demos and conferences with other media exposure; but to be part of a show with such a global and public reach is a huge accomplishment," Callahan said during a wrap-up meeting about the 13-hour taping at the Krannert Center for the Performing Arts. The one-hour special aired this summer on "Science Impossible: Mind Control."

Ambient took its first purchase order for their voiceless communication device shortly after The History Channel taping. The first product is designed and tested for patients with ALS (Lou Gehrig's Disease). The company hopes to expand to markets with those affected by stroke, cerebral palsy, and other conditions that affect the ability to speak.To learn more, visit www.theaudeo.com.



Save the Date
Alumni Social Hour in Chicago and St. Louis

Sister City Social

January 21, 6-8 p.m.

Chicago: Elephant and Castle
St. Louis: The Old Rock House

Locations and registration info online at:
www.iese.illinois.edu

Congratulations to Richard Henneman, PhD, who received the Alpha Pi Mu Distinguished Alumnus Award from president Jessica Wood.

IE Alumni, Andy Elsbury presented Jessica Wood with the 2009 IE Distinguished Service Award.

Chelsey Walker, president of Gamma Epsilon presented James Christensen the Gamma Epsilon Distinguished Alumnus Award.

GE Alumnus, Michael Brunetto, presented Chelsey Walker with the 2009 GE Distinguished Service Award.

Ali Abbas received the 2009 Teaching Excellence Award. Jessica Wood, President of Alpha Pi Mu and Chelsey Walker, President of Gamma Epsilon, presented him with the award.

Adam Senalik received the Outstanding Teaching Assistant Award from Chelsey Walker and Jessica Wood.

Distinguished Alumni and Students Honored at Awards Ceremony

The Society of Women in Engineering (SWE) has named **Jessica Wood** (BSIE 2009) the Outstanding Collegiate Member for enthusiastic, energetic, and positive leadership of her collegiate section and for recruiting women to join the Society of Women Engineers. During her undergraduate career, Jessica was a member of the Institute of Industrial Engineers and Alpha Phi Social Sorority, where she served as the career development director. During her junior year, Jessica was vice president of the Alpha Pi Mu Honor Society, and served as its president in her senior year. After graduating from the Industrial Engineering program in May, she joined General Mills as an operations management associate in Lodi, California.

Congratulations to PhD candidate, **Douglas King**, who was named one of the recipients of this year's MAVIS Memorial Fund Scholarships. These Awards are targeted toward doctoral students in the College of Engineering. Nomination criteria include academic performance; demonstrated interest in engineering education, including teaching experience in the classroom, laboratory, as a tutor, or extracurricular teaching, service to the community which promotes technical awareness, research, or other activities promoting engineering education; research accomplishments or potential; and assessment of the student's commitment to and potential for contributing to engineering education. The program is possible thanks to a generous bequest of Frederic T. and Edith F. Mavis.

Alumni of the department, along with family, friends, and students, gathered for Venetian Night at Chicago's Millennium Park. The Alumni Board's Committee on Alumni Relations is planning a Social Hour on January 21, 2010.

Check the online calendar at www.iese.illinois.edu for the date, time, and location. We hope you'll join the fun!

DOE Award *continued from cover*

The research will draw on the team's significant interdisciplinary strengths, including dynamical systems and control, numerical and stochastic optimization and game theory, stochastic networks and probability theory, and machine learning. Other team members include Prashant Mehta, a professor of mechanical science and engineering and Tamer Basar, Swanlund Chair and professor of electrical and computer engineering.

While the Illinois team will primarily focus on electricity markets, their work could apply to many complex economic systems, including communication networks, health care, air and ground transportation, and more.

"In addressing the challenges associated with electricity markets, we will also draw upon the knowledge base we have developed in connection with our recent work on pricing and incentive issues that arise in other areas, particularly communication networks," said Basar. "In the same vein, we expect the new methodologies to be developed within the scope of this project to find immediate applications in other complex economic systems as well."

Couple celebrates 60th Wedding Anniversary Illini-style

Sam and Judy (Zuckerman) Stein are shown in the foreground with children **Barbara Stein Hibnick**, **Roger Stein** (BSGE 1981, JD 1984), **Andrea Stein**, and **Peter Stein**. All six are graduates of the University of Illinois. Our thanks to Roger who submitted this photo in honor of his parents on the occasion of their 60th anniversary.

What's Your Story?

We'd welcome the opportunity to publish your success stories. Please send them via email to Lynnell Lacy at lynnell@illinois.edu.

JF Lincoln Foundation 2009 Undergraduate Competition

Our students dominated at this year's JF Lincoln Foundation Undergraduate Competition. With the help of their corporate sponsors and exceptional advisors, these outstanding young engineers took ten of fifteen awards given. We're very proud of them, and congratulate them on their commitment to excellence.

Silver (second place)

Carbon Fiber Heating Element Production Improvement

Christopher Joyce
Maria Lupo
Jordan Schwartz
Advisor: Professor James Carnahan

Universal Base Frame Design

Jacob Babu
Jonathan Homan
David Kubicki
Advisor: Professor Henrique dos Reis

Bronze (third place)

Tin Silver Root Cause and Elimination in Progressive Stamping

Christopher Knowlton
Brian Matesic
Laura Hubley
Advisor: Professor Louis Wozniak

Gourmet Ice Liquidless Refrigeration Testing

Saiswaroop Boddupalli
Kyle Hanstad
Eric Lisle
Advisor: Professor Scott Burns

Merit (fourth place)

Extruder Quill Design Analysis

Megan McGovern
Jeremy Mink
Jordan Van Loon
Advisor: Professor Henrique dos Reis

Tortilla Die-Cutting Process Scrap Reduction

Jonathan Cisek
Tracy Groholski
Katherine Ropiak
Advisor: Professor David Goldberg

Spray Drying Flavor Retention Improvement

Brenden Danielson
John Noble
Emmalyn Riley
Advisor: Professor James Carnahan

Rotary Brush and Pad Comparison Testing

Elliott Cho
Bhavik Patel
Jessica Wood
Advisor: Professor Brian Lilly

Cooler Door Redesign

Ishan Khaitan
Kevin Malone
Peter Matteucci
Advisor: Professor W. Brenton Hall

Heads-Up Display Calibration Time Reduction

Mark Michelotti
Izaak Neveln
Gregory Tiffany
Advisor: Professor Ramavarapu Sreenivas

Meet Michael Traverso, BSIE 2008

Currently MSIE under Professor Ali Abbas

Publications

Traverso, M. and Abbas, A. (2009) Demand curve prediction via probability assignment over a functional space, Proceedings of the Winter Simulation Conference 2009, December 13-16, 2009, Austin, TX, Paper No. 27034.

Traverso, M., Zapata, R., Schmitz, T., and Abbas, A. (2009) Optimal experimentation for selecting stable milling parameters: A Bayesian approach, Proceedings of the ASME 2009 International Manufacturing Science and Engineering Conference (MSEC2009), October 4-7, 2009, West Lafayette, IN, Paper No. MSEC-84032.

Zapata, R., Traverso, M., Schmitz, T., and Abbas, A. (2009) Value of information and experimentation in milling profit optimization, International Journal of Mechatronics and Manufacturing Systems (At press).

Traverso, M. and Abbas, A. (2009) Prediction, inference, and optimal information gathering for price demand curves: A Bayesian approach, Target Journal: Journal of Marketing Research. (In progress.)

Tim Barnett (BSIE 2009) and Katherine Ropiak (BSGE 2009) posed for a post-graduation photo. Congratulations to all IEs and GEs of the Class of 2009!

Amazing Grace!

Since the day **Grace Wellman**, an IE junior, arrived on campus, she's always wanted to play the bells at Altgeld Hall. This fall, we arranged for her to tour the bell tower, and after a short lesson from Altgeld's chime master, Mary Wood, she played for all of campus at the 12:50 p.m. chime. What song did she play? "Amazing Grace," of course!

Student Projects Supplying Successful Solutions

Engineering Seniors Help Packaging Manufacturer Reduce Costs, Improve Plant Safety

Imagine $80K per year. What could your company do with that kind of savings each year? And what if you could save your company the expenses directly related to issues of manufacturing safety? With the guidance of faculty advisor Jiming Peng, three students from the Department of Industrial and Enterprise Systems (IESE) at the University of Illinois did just that in the fall 2008 semester of their senior year.

Like all seniors in the General Engineering and Industrial Engineering programs, Casey Roth, Cecilia Ostberg, and Jeff Thomas spent the semester attacking a production challenge that would implement a safer yet cost-effective way to improve upon the cutting process of thicker laminates at Pregis, Inc.

According to plant manager, Dennis Hughes, this particular line used an automatic knife to cut thicker air cushioning/foil laminates. As a result, employees would manually cut these laminates using a foot-long knife with a razor-sharp edge. Although the workers tried their best to ensure specifications were met, as much as six feet of scrap was being added to each roll of laminates as a result of the manual cutting process. Clearly, this process presented challenges for materials management, productivity, and safety.

The students' solution included a redesign of the teeth on the knife, which deepened the valleys and raised the peaks. The students also suggested modifications to the manner by which the web of material advanced through the cutting process. By modifying the curvature and length of the "fingers" that advance the laminate through the line, Pregis was able to automate the process, which has significantly increased safety while dramatically decreasing downtime and waste from scrap material. According to Hughes, Pregis is very pleased with the results of this collaborative effort.

Pregis funded this project with an honorarium to IESE as part of its ongoing commitment to providing engineering students with real-world business and engineering challenges. To explore the possibilities for collaboration, contact Harry Wildblood, Coordinator of the Senior Engineering Project Program, via email at wildblod@illinois.edu.

Best Paper Award

The department congratulates **Yuan Zhao**, **Deborah Thurston**, **Vijitashwa Pandey**, and **Harrison Kim** as recipients of the Best Paper Award at the ASME Design for Manufacturing and the Lifecycle Conference in San Diego.

First Departmental Optim-A Conference a Success

Congratulations are in order for Professors **Xin Chen**, **Angelia Nedich**, and **Uday Shanbhag**, who successfully planned and deployed the department's first conference in March. The two-and-a-half day conference, called Optim-A, was packed with sessions that focused on applications of optimization in engineering, economics, and the applied sciences. The goal of the conference was to promote interest in traditional and emerging non-traditional applications of optimization, including economics, markets, and bio- and socio-inspired applications, including mechanical; game-theoretic and auction-theoretic models; operations research including supply chain, pricing and revenue management, health diagnosis and health management; and computational optimization and software.

Abbas Receives NSF CAREER Award

Ali Abbas, assistant professor and director of the Information Systems and Decision Analysis Lab (ISDAL), recently received a Faculty Early Career Development (CAREER) Award from the National Science Foundation (NSF) recognizing his promising research and teaching. CAREER awards are a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organizations. The awards are highly competitive. Qualified candidates must effectively integrate research and education into their proposals, which, if accepted, allow them the opportunity to receive as much as $400,000 in research funding over a five-year period.

Additionally, the department learned that Abbas has accepted an appointment as an associate editor to the editorial board of the journal, *Decision Analysis*, effective January 1, 2010. "*Decision Analysis* is a quarterly

continued, page 8

Abbas *continued from page 7*

journal dedicated to advancing the theory, application, and teaching of all aspects of decision analysis. The primary focus of the journal is to develop and study operational decision-making methods, drawing on all aspects of decision theory and decision analysis, with the ultimate objective of providing practical guidance for decision makers. As such, the journal aims to bridge the theory and practice of decision analysis, facilitating communication and the exchange of knowledge among decision analysts in academia, business, industry, and government." (Source: http://www.informs.org/site/DA/)

Chen Receives NSF Award for Coordinated Pricing and Inventory Management

Xin Chen, Assistant Professor, has been awarded an NSF grant, effective July 1, 2009, for his work in coordinated pricing and inventory management. "Successful research will greatly advance our knowledge base of important and challenging supply chain models. Equally important, the research has the potential to provide new tools and methodologies to effectively manage supply chains and thus improve companies' competitive advantage," said Chen.

Chen and Simchi-Levi Awarded Revenue Management and Pricing Section Prize

The Revenue Management and Pricing Section Prize was awarded to **Xin Chen** and David Simchi-Levi (MIT) for the best contribution to the science of pricing and revenue management published in English. The award recognizes their three joint papers on coordinating inventory control and pricing strategies. According to the citation, "these works are in the best tradition of the practice of operations research and management science… and make a fundamental contribution and advancement of our understanding of the integration of inventory control and dynamic pricing decisions…."

Kiyavash Collaborates to Create New Network Traffic Analysis Testbed

Assistant Professor **Negar Kiyavash** is working collaboratively with ECE Assistant Professor and Project PI, Todd P. Coleman, on a project at the cutting edge of information theory and statistical signal processing. The U.S. Air Force is providing their research team with equipment to build a testbed that they and other faculty can utilize to generate traffic in order to address a broad range of problems related to traffic analysis. The new award from the Air Force Office of Scientific Research (AFOSR) will permit the creation of the Traffic Timing Analysis Testbed, or TTAT. The TTAT will be used to generate realistic network traffic, which will enable both derivation of accurate analytical models for traffic and validation of robustness of practical schemes to be developed by the researchers.

The award was provided by the Defense University Research Instrumentation Program (DURIP), a Department of Defense program administered through AFOSR. DURIP was designed specifically to fund the acquisition of research equipment by U.S. institutions of higher education for the purpose of supporting scientific research and education in areas important to national defense.

Goldberg Named Pioneer in Evolutionary Computation

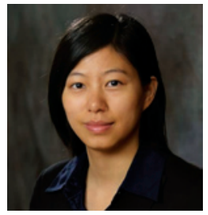
The Dobrovolny Distinguished Professor, **David E. Goldberg**, will receive the Evolutionary Computation Pioneer Award. The IEEE Computational Intelligence Society (CIS) recognizes significant contributions to early concepts and developments in the evolutionary computation field through its Evolutionary Computation Pioneer Award, established in 1998. The prize includes an honorarium, a medallion, and travel support for the recipient and a companion to attend the award presentation in Barcelona in the summer of 2010.

NSF Sponsorship Awarded to Feng

Liming Feng received notification of sponsorship from National Science Foundation (NSF) Division of Civil, Mechanical, and Manufacturing Innovation for his Hilbert Transform Methods in Financial Engineering research. He has been awarded $288,811 for three years beginning July 1, 2009.

Kim Receives NSF Research Award

Harrison Kim, PI, was given a research award in the amount of $279,862 from the National Science Foundation (NSF) under the Engineering Design and Innovation Program in Civil, Mechanical and Manufacturing Innovation (CMMI), CMMI 0900196, on the topic, Dynamic Multi-Mode Design Methodology for Efficient Energy Conversion System Design.



NSF Grant Funded for Stochastic Control and Optimization

Assistant Professor **Enlu Zhou** is co-principle investigator with Professors Steven Marcus and Michael Fu for the newly funded NSF grant ($390,000) effective September 1, 2009: Particle Filtering for Stochastic Control and Global Optimization. Stochastic control and optimization can be applied to many problems of critical concern in U.S. industry, so the resulting algorithms will have broad and transformative applicability.

Pang Inducted as Fellow of SIAM

Jong-Shi Pang, Caterpillar Professor and Department Head, was selected as a distinguished member in the inaugural 2009 class of Fellows of the Society for Industrial and Applied Mathematics. Fellowship honors SIAM members who have made outstanding contributions to the fields served by SIAM.

Peng Receives NSF Research Grant

Jiming Peng has received confirmation of a $225,000 NSF research grant for 0-1 Semi-definite Programming: Modeling, Theoretical Foundation, Resolution, and Applications. This award is being funded under the American Recovery and Reinvestment Act (ARRA) and is effective from July 2009 through June 2012.

Reis Replaces Hall on Faculty Senate

Henrique Reis

W. Brenton Hall

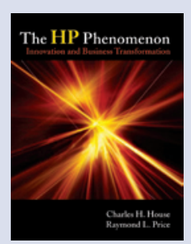
Professor **Henrique Reis** has been elected to fill the expired Faculty Senate term of our department representative, Professor **W. Brenton Hall**. Reis will serve a two-year term until 2011. Our many thanks to Hall for serving on behalf of the department and our congratulations to Reis!

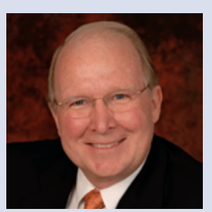
Shanbhag Principle Investigator for $1.03M DOE Grant

As featured on the front page of this publication, The U.S. Department of Energy has awarded a $1.03 million grant to University of Illinois researchers to develop next-generation energy models that will contribute toward the development of the smart grid – a system that is expected to lead to increased efficiency, lower power costs, and greater reliability. **Uday Shanbhag** is the principle investigator for this project.

Price Authors New Book

Congratulations to Professor and Severns Chair in Human Behavior in Engineering, **Raymond Price**, whose new book is now available.





Collaborative Research

Applying Bayesian Predictive Modeling and Decision Theory to Milling Profit Optimization Under Uncertainty

Co-Principle Investigator: Ali Abbas

Collaborator: Tony Schmitz, University of Florida, with Mike Traverso, graduate student, Industrial and Enterprise Systems Engineering

The research objective of this proposal is to establish a new paradigm for the selection of optimal milling parameters under uncertainty. The research plan includes two fundamental components: developing a Bayesian predictive model, and implementing a decision-making framework for maximizing profit.

The research will culminate in two significant outcomes. First, validation tests will be performed that compare production costs using cutting tool manufacturer-based recommendations for milling parameters to the new optimized result. Then a software platform will be developed that guides users through the new approach to determine parameters for maximized profit and optimal selection of experiments for new data collection.

By maximizing profit under uncertainty for discrete part production in milling, this research will positively influence the nation's economy and defense capabilities.

DOE Awards Researchers $1.03 Million to Develop Next-Generation Energy Models

Principle Investigator: Uday Shanbhag

Project Team: Tamer Basar, Swanlund Chair and Electrical and Computer Engineering Professor; and Prashant Mehta, Professor of Mechanical Science and Engineering.

Read more about their research on the front cover.

Stipanović Receives Xerox Award for Outstanding Research

Professor **Dušan Stipanović** was one of four recipients of the 2009 Xerox Awards for Faculty Research, recognizing outstanding research achievements during the past year. Stipanović's research interests include decentralized control and estimation of interconnected systems with application to control formations of vehicles and sensor networks, stability of discontinuous dynamic systems, differential game theory, and avoidance control with application to systems safety verification. College of Engineering Dean Ilesanmi Adesida said, "Among your accomplishments is the significance and transformative nature of your research findings on control and coordination of multiple agent systems, as well as your many publications resulting from your research." The award was presented at the first annual Engineering Faculty Awards ceremony and reception in April 2009.

Wang and Stipanović Earn Beckman Award

Dušan Stipanović and **Ranxiao "Frances" Wang** received funding and earn the Arnold O. Beckman Research Award for their research titled, Autonomous and Semi-Autonomous Control of Unmanned Vehicles. Arnold O. Beckman Awards go to projects deemed of special distinction, special promise, or special resource value.

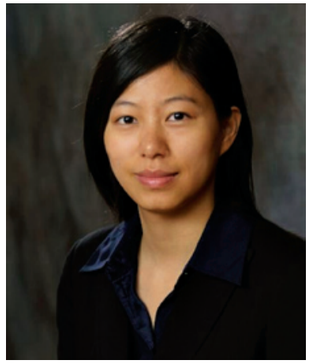
Burns Retires

This summer, Professor **Scott Burns** bid his retirement farewell to the Department of Industrial and Enterprise Systems Engineering. Widely respected as a student favorite, Burns will be greatly missed. We thank him for his dedicated service and wish him all the best in retirement.

Wozniak Appointed Chair

The IEEE 2009 Power and Energy Society Technical Council appointed Professor **Louis Wozniak** as chair of its Energy Development and Power Generation Committee.

Department News



Welcome Newcomers

Chad Rohlfs joined the department in July as Associate Director of Advancement. In this role, Rohlfs facilitates connections between alumni and the department and provides opportunities for engagement in charitable giving and volunteer service. He comes to us with more than 15 years of experience in development, having devoted his career to service in the non-profit sector. Most recently, Chad served as Director of Development for Meriter Hospital in Madison, WI, where he successfully completed a capital campaign to build a new, state-of-the-art Newborn Intensive Care Unit. Chad earned a BA in communications from the University of Northern Iowa and has started work on an MBA. He resides in Savoy, IL, with his wife and daughter.

Enlu Zhou joined the department in August 2009. Zhou received a BS with highest honors in electrical engineering from Zhejiang University, China, in 2004, and a PhD in electrical engineering from the University of Maryland, College Park, in 2009. She was a recipient of the NSF Award for Cyberinfrastructure Experiences for Graduate Students in 2007, a finalist of the Best Student Paper Award at the Winter Simulation Conference in 2008, and received the ECE Distinguished Dissertation Fellowship and the Dean's Doctoral Research Award from Maryland in 2009.

Her research interests include decision making under uncertainty and/or partial observation, optimization, and simulation, with applications in supply chain management and financial engineering. Her dissertation, Particle Filtering for Stochastic Control and Global Optimization, explores new theories and computational methods in the areas of stochastic control and global optimization that are central for many applications.

Lacy Honored by ACM SIGUCCS; Receives Distinguished Graduate Student Award

On October 12, **Lynnell Lacy**, Coordinator of Development and Alumni and Student Relations, was inducted into the Association for Computing Machinery (ACM) Special Interest Group on Universities and Colleges Computing Services (SIGUCCS) Hall of Fame. Each year, ACM SIGUCCS recognizes individuals who have contributed their time and energies to one or more areas that have materially benefited SIGUCCS members in some way.

Also this year, Lacy was awarded the Eastern Illinois University School of Technology's Distinguished Graduate Student Award. In May, she graduated with distinction from EIU with a Master of Science in Technology Training and Development.

Congratulations!

Congratulations to **Holly Tipsword**, office manager of undergraduate programs, who earned her bachelor's degree in general studies from Eastern Illinois University in December 2008. We're proud of you, Holly!

Heidi Craddock

James Leake

Manssour Moeinzadeh

Three Advisors Receive Award for Excellence

Congratulations to **Heidi Craddock**, **James Leake**, and **Manssour Moeinzadeh**, who were selected as the recipients of the College of Engineering 2009 Engineering Council Award for Excellence in Advising. These outstanding advisors were recognized at the College of Engineering Faculty Awards Ceremony on April 28.

In Memoriam

Edward D. Ebert (February 4, 2009)
Ebert received his bachelor's and master's degrees from the University of Illinois Department of Civil Engineering in 1939 and 1949. Following his undergraduate studies, he joined Bethlehem Steel Co. as a civil engineer until military service took him to the Corps of Engineers at Fort Belvoir, Virginia.

In 1946, he returned to the University of Illinois in the General Engineering Department as an instructor and in 1964, he was promoted to professor. In addition to teaching the graphics courses in General Engineering, he also taught surveying in the summer camps conducted by the Department of Civil Engineering. In the early 1960s, Ebert assumed the responsibility as chief advisor for general engineering students. He retired in May 1978.

Established less than one year before his death, the Department of Industrial and Enterprise Systems Engineering Department is extremely fortunate to honor his memory each year with the awarding of the Edward D. Ebert Scholarship, which recognizes the outstanding academic accomplishments of a general engineering freshman.

Howard W. Knoebel (November 19, 2008)
Knoebel began his career as a research associate in the Control Systems Laboratories in 1950, and worked there until 1957, when he transferred to the Coordinated Science Laboratory as a research associate professor and was promoted to research professor in 1964. Knoebel worked on various electronics instrumentation projects, including the development of the electrostatic gyroscope, a high-precision inertial navigation instrument now used in aircraft and nautical guidance systems.

In 1964, he had a joint appointment with the Department of Aeronautical and Astronautical Engineering and the Coordinated Science Laboratory. His research group developed a radio propagation system using sounding rockets to measure upper atmosphere electron density and collision frequency. His work in control systems brought him in contact with a GE 242, Project Design, in applying fluidic devices in developing a highway vehicle system for severely handicapped individuals.

In 1975, he joined the Department of General Engineering, where he was a key member of the project design faculty as well as teaching a variety of GE courses. He retired in May 1979, but continued as professor emeritus on a part-time basis until May 1989, teaching in the project design course.

Knoebel was "one of the finest engineers to ever walk these halls," according to Harry Wildblood, coordinator of the department's Senior Engineering Project Program.

Thomas R. Woodley (March 15, 2009)
Colonel Woodley was born on November 28, 1926, in Detroit. He is survived by wife Patricia McKenzie; six children, Thomas (Anna) of Denver, Patricia (Dennis Elkins) of Venice, Florida, Mary of Daytona Beach, Florida, Stephen of San Francisco, Michael of Champaign, and Andrew (Kelly) of Los Angeles. Woodley has nine grandchildren and two brothers.

Colonel Woodley enlisted in the U.S. Army in 1944. He graduated from West Point Military Academy in 1951 and honorably served in the Army for 32 years.

He continued his formal education upon retirement, earning his PhD in Theoretical and Applied Mechanics from the University of Illinois in 1979. He served as a teaching assistant, visiting MIE lecturer, GE lecturer, visiting assistant MIE professor, and associate GE professor. His teaching covered a wide range of courses, including TAM, ME and GE and he consistently was recognized for teaching excellence by his students. He and Michael Pleck adapted the instruction of GE103, Engineering Design Graphics, to include the use of microcomputers, and received national recognition for the adaptation and use of Auto-CAD in the teaching of engineering graphics. Woodley retired from the University in January 1994.

He was a parishioner at St. Matthew Catholic Church, a member of the Champaign Rotary, American Legion Post 24 Champaign, Phi Kappa Phi National Honor Society and Sigma Xi Honorary Engineering Fraternity.

Giving

Alumni Gifts are Vital to the Prosperity of the Department

Dear Friends,

Here's an interesting fact: a mere 2.3% of Industrial and Enterprise Systems Engineering (IESE) alumni currently support our nationally recognized department. This astonishes me – particularly when I consider our recent achievements! From the launch of our new department, ranked #18 in 2007, we've risen in the rankings each year (currently #13, undergraduate) while attracting the attention of peer institutions and numerous federal grants to support our research areas.

Alumni donations provide a vital lifeline to support our department, including our aspiring students, acclaimed faculty, and our campus home. Your gifts provide scholarships and fellowships for students, help us attract and retain the best faculty, and ensure the maintenance and improvement of our facilities. Additionally, your gifts enable students to attend national and international conferences and competitions (ensuring that the academic community is well aware of our talent) and they enable us to fund campus seminars and lectures from internationally recognized scholars. Simply stated, alumni support allows our students and faculty to continue the research and scholarly endeavors that define the excellence associated with the Department of IESE at Illinois.

Excellence is demonstrated in how we prepare students to handle modern challenges as well as how we anticipate the fundamental shifts in thinking that define the evolution of business, technology, and the global environment. For example, there is an evident shift toward business analytics and optimization – an area in which IESE is poised to lead the way. To quote IBM executive Steve LaValle, "… Smart business leaders are reconsidering their approach to information and decision-making. Instead of 'checking their gut,' they're checking the facts by tapping advanced mathematics expertise for strategic analysis and optimization. Complex algorithms, previously the domain of academics, are now being used to solve formerly intractable business challenges." This is just one example of how our department is prepared to advise business and government leaders, helping pave the way for our collective growth and prosperity.

When you receive a request to support our annual fund, I urge you to consider all the ways your department, our future generations of students, and the continued excellence of our program could benefit from your gift. And, be sure to consider the importance of designating your donation – whether you want to support the University, the College of Engineering, or the Department of Industrial and Enterprise Systems Engineering. Especially in these difficult economic times, IESE cannot strengthen the esteem your degree deserves without continued and significant financial support.

Sincerely,

Deanne DeWitt
BSGE 1994
Alumni Board and Chair, Advancement Committee
Deanne.DeWitt@us.ibm.com
216-246-4008

YES

I send my support!

Please accept my donation to the (IESE) Annual Fund, payable to the **UI Foundation.**

$30 ____ $50____ $100____ Other amount $_____

❑ Facilities Fund ❑ Unrestricted Use ❑ Class of 2010 Student Gift Campaign

Or make your gift online: **www.uif.uillinois.edu**

I'd like to explore leaving a legacy gift. Please call me at _____

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61826-9916

Reflections on Future Opportunities

Dear Alumni and Friends,

Involvement with your University has more benefits than most people think. As alumni, we spent four or more years of our lives on campus during our formidable years. Now you have the opportunity to really get involved. I have benefited as much in the past six years from my involvement on the Alumni Board and participating in many student and faculty activities as I have from my days of study and research as a student. Originally, I got involved to give back; now, I have a whole new network of contacts and I'm commercializing technology researched by the University. I encourage you to get involved to heighten your spirit and professional development. Below are some of the ways you can do this.

First, maybe start with a trip to campus. The excitement of a football game will bring back your youthful energy and rekindle your Fighting Illini spirit. Walk the Quad to witness students' energy level. If you haven't visited in years, you will be amazed at all the new engineering buildings and renovation of the existing buildings. It's no wonder the College of Engineering ranks so high perennially given the wonderful facilities, leading professors, and bright students.

Consider a few networking options. AlwaysIllinois.org is an online networking tool for everything from social events to career management. Our department has a group in which you can communicate with others within the department. You can participate in networking events hosted in numerous cities throughout the Midwest and across the country.

Opportunities such as the Engineer in Residence (EIR) Program, in which you spend a day on campus and share your experiences with young engineers, pave the way for direct interaction with students. Similarly, you can volunteer to mentor an engineer for a day in the job-shadowing program. Every spring the College hosts Engineering Open House, where your involvement as a judge offers great personal satisfaction while getting a glimpse of student research. Mock interviews allow students to benefit from your guidance while you gain insight into today's students. Student societies are always looking for guest speakers and hosting of plant tours to further gain insight into the professional world. A new mentoring program is just getting started where current undergraduates can benefit from your experience and wisdom.

If you have not yet read the article in this issue about our department's students saving Pregis $80,000 annually, do not miss it! There is a wealth of technology and knowledge into which you can tap on campus. If your company has a problem to solve, a Senior Engineering Project may provide an inexpensive answer solved by world-class students. You can get involved with research being conducted by professors and graduate students. Not long ago I spent three hours discussing research breakthroughs beneficial to me in areas critical to our company's future products, and I was to able to steer their direction and supply materials very beneficial to the research team. The Technology Transfer office can guide and assist you in finding areas of interest to you and providing a path to commercialization. I encourage you and your company to interview on campus and participate in career fairs, as this helps our students as well as our rankings and reflects upon your degree.

If you are so moved, there are many ways to offer financial support, including student or faculty awards, scholarships, facilities funds, and donations that can be made for use at the department's discretion. The department benefits most when your donations are made directly to it.

Volunteer your time to serve on the Alumni Board. Board members serve a four-year term and attend semi-annual meetings on campus during the fall and spring semesters. The Board serves as a conduit between academia and industry and strives to facilitate the connections among the classroom, research, faculty, alumni, companies, commerce, and life fulfillment. Sub-committees include Alumni Relations, Advancement, Business Perspective, and Student Enrichment.

Please be encouraged to get involved with the Department of Industrial and Enterprise Systems Engineering; to do so is incredibly beneficial to the students, department, college—and to you. You may contact me at AElsbury@NexxtSpine.com; or Lynnell Lacy, Coordinator of Development and Alumni and Student Relations, at lynnell@Illinois.edu, to find out more about getting involved in the coming year.

Sincerely,

Andy Elsbury
Alumni Board, Immediate Past President

New Members Join Alumni Board

Todd L. Antonelli works for Computer Sciences Corporation and has 24 years of experience in strategy development and implementation, organizational design and change management, and total rewards working with global companies. He has extensive experience consulting with the teams at the top of companies on complex mergers and acquisitions, joint ventures/strategic alliances, business restructurings, spinouts, and privatizations. He has also held various interim management positions. Antonelli received his BS in industrial engineering at the University of Illinois in 1983 and earned his MBA in 1989 from New York University's Leonard N. Stern School of Business. He has published articles on organizational transformation and executive pay and performance, and is a frequent speaker at industry seminars, workshops, and conferences.

Craig Bridell graduated in December of 1991 with a BS in general engineering with a secondary focus in business administration. Bridell joined ARCO in 1993 and serves as President of ARCO Holdings and ARCO/Murray National Construction. He is also a shareholder and officer for MERCO mechanical, a nationwide full-service mechanical contractor, based in Chicago and specializing in the installation of auxiliary systems and process piping and for Power Design, LLC, a nationwide design/build electrical contracting firm based in Indianapolis.

David Eitel graduated from the University of Illinois general engineering program in 1977 and is currently the owner of Eitel Heinemann Mechanical Services (EHMS Inc.) in Buffalo Grove, Illinois. Prior to EHMS, he was employed by VA Smith since 1980, most recently as president. Eitel has 28 years of experience in the industry.

Michael Kilkenny completed his BSGE degree in 1981. He began his career with Ingersoll-Rand as an application engineer in the large gas compressor division and later worked as a sales engineer in the pump and compressor division in their Kansas City branch. In 1986, Mike moved to Taylor Forge Engineered Systems where he has worked as a sales engineer, sales manager, plant operations manager, and vice president, and currently serves as the company's president and CEO as well as the majority owner. Kilkenny currently serves on numerous industry, community, and charity boards and committees.

Michael Loquercio, BSIE 1983, left the University of Illinois campus to work at Griffith Laboratories in Alsip, Illinois, as an Industrial/Project engineer. While at Griffith, Loquercio earned an MBA from DePaul University with a concentration in operations management. He then moved to Packaging Corporation of America (PCA), a division of Tenneco, where he worked as a Senior Industrial Engineer in 1989. He has held various positions in operations and business systems management with Pactiv, the public spinoff of the packing group within PCA. Pactiv is best known for its Hefty brand of packaging products. He is currently the manager of Consumer Supply Chain planning, where he is responsible for the Hefty Waste Bag, Hefty One Zip, Hefty Zoo Pals, and several other consumer product lines. Outside of work, he is an active member of the local PTO and is involved in coaching youth sports and plays softball and bowls. He is also actively engaged in the University of Illinois and DePaul University mentorship programs.

Brian Nation grew up on a family farm near Barry, Illinois, raising hogs and growing corn, beans, and wheat. A visit to an engineering firm started and owned by a family acquaintance in St. Louis sparked his interest in engineering late in high school. This visit led him to Illinois in pursuit of an IE degree. While at Illinois, Nation was a member of IIE and the Pi Kappa Alpha fraternity. After graduation in 2005, Brian accepted a position at Innoventor, the same firm that influenced his college decision from the start. At Innoventor, he was on the team that designed and installed the first-ever moving assembly line for a fighter jet. He also gained experience in managing several million dollars in projects as a supplier to a large government contractor. Nation is currently participating in a rotation program in the company's New Business Development department where he focuses on interfacing with potential customers and finding new design and development projects. He also goes to school part-time and will finish his MBA from Washington University in St. Louis by the end of 2009.

Industrial and Enterprise Systems Engineering (IESE) News

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www.iese.illinois.edu

For more information or to submit news items or articles of interest, contact:

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Photo of Grace Wellman on page 6 courtesy of Kalev Leetaru.

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We're going green!

In an effort to reduce our carbon footprint and reduce costs, Industrial and Enterprise Systems Engineering (IESE) News will be moving into the digital world. To join us in this effort, please consider signing up to receive the electronic version of future issues of our newsletter. It's easy! Visit go.illinois.edu/IESEgoesgreen to sign up, or contact Lynnell at 217-333-0140 or lynnell@illinois.edu.

We also encourage you to consider supporting our sustainability initiative with a gift by going to www.iese.illinois.edu/alumni/makeagift.html