

College of ENGINEERING

San José State University

Newsletter for Alumni, Friends and Silicon Valley Industry ■ Spring 2006

Computer Engineering Students Participate in Microsoft Competition

A team of SJSU computer engineering students was among 30 product teams worldwide selected to participate in the 2005 International Microsoft Windows Embedded Student Challenge held last spring at Microsoft headquarters in Redmond, WA. Student team members included Stephen Yu, Agnes Lui, Ragu Kantamaneni and Arash Shokouh.

The Windows Embedded Student Challenge invites undergraduate teams of four students each, with a faculty mentor, to design a computer-based system that solves a real-world problem. Microsoft organizes the competition in association with the IEEE's Computer Society International Design Competition. Only 30 of the 300 teams that applied to participate were selected for the final competition.

The students' project, Interactive Freedom, nicknamed iFree, demonstrated how an embedded system could be used to monitor and transmit vital functions of wheelchair-bound patients via wireless communication. The iFree, which operates from hardware mounted on a base underneath the wheelchair, consists of a heartbeat sensor, an audio amplifier, a power supply unit, an LCD screen and an e-Box II advanced embedded software system.

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Computer Engineering students Agnes Lui, Arash Shokouh, Ragu Kantamaneni and Stephen Yu with their iFree wheelchair that monitors a patient's vital signs. iFree was one of 30 projects accepted for presentation at the Microsoft Windows Embedded Challenge in Redmond, WA, last spring.

Celebrating 60 Years of Engineering Excellence — First in a Series Profiling Distinguished Alumni

David A. Brown, Co-Founder and Former President of Quantum Corporation

As a young boy growing up in the city of Oakland, David Brown (B.S. '68 ME) recalls education as his family's highest priority. "Neither of my parents went to college and there was no way that my sister and I were not going to graduate."

What Brown and his family didn't know was that he would find his way to San José State University to prepare for a career in engineering. Later, he would

become co-founder and president of Quantum Corporation, one of the leading disk drive manufacturing companies of the 1980s.

As many engineers of Brown's generation will tell you, as children they were tinkerers who enjoyed taking things apart and putting them back together again. For Brown, it was model airplanes, and by the time he was in high school,

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Message from the Dean



Dear Friends of the College,

This year marks the 60th anniversary of the College of Engineering. Since our doors first opened to aspiring young engineering students in 1946, the College has been the institution of choice and opportunity for diverse and promising students who otherwise would not be able to pursue an engineering education.

We are proud that generations of our graduates have contributed to the growth and development of Silicon Valley's technology industry and to the construction of the region's infrastructure. The College remains the number one workforce provider for Silicon Valley's technology industry.

Over the past year, the College's faculty and I have worked together to articulate the College's vision: To be a learning community that empowers its students to **better the world** through **innovative applications** of **engineering knowledge and skills**.

Although much has changed in the College over the last 60 years, our fundamental vision has not. I know this because the achievements of so many of our successful

alumni reflect these same values—knowledge, innovation and the desire to improve the quality of life of those living in our region and beyond.

No celebration of our 60th anniversary would be complete without celebrating the successes of our alumni. To that end, we are planning to publish in this newsletter and on our web site a series of profiles of some of the College's most accomplished alumni. While each of the graduates to be profiled has achieved success in his or her own unique way, all have demonstrated the technical skills, the ability to innovate and the commitment to our community that make up the foundation of the College's programs. In the first of these profiles, published in this issue of the newsletter, you will have an opportunity to meet David A. Brown (B.S. '68 ME), co-founder and former president of Quantum.

As always, I thank each of you for your support of the College and look forward to greeting you at many of the anniversary events that will be on our calendar over the coming months.

Sincerely,

Belle Wei
Dean, College of Engineering

Microsoft Competition *continued from page 1*

Through a sensor on the patient's wrist, the patient's vital signs can be transmitted via the Internet to other locations such as a medical facility.

According to CMPE Professor and iFree team advisor Weider Yu, the competition's major criterion for evaluating each project was originality. The project's relevance, substance, systems approach, teamwork, quality, creativity, planning and feasibility were also taken into consideration. Students participating in the competition not only learned how to develop a product but also how to successfully work as a team to get the results they were after.

"This was a very rigorous competition that required not only engineering problem-solving skills but also the skills necessary to present their work and answer questions from a team of very discriminating judges from Microsoft," said Prof. Yu. This year's student team committed hundreds of hours to this project.

"For me, the main focus of our project was team work," said student Stephen Yu. "Each student was responsible for his or her individual unit and technical product organization, as well as preparing for and participating in interviews with Microsoft representatives and visitors. The presentation was 20 minutes long. Every minute counted."

"This was a competition in which I was able to prove myself and also use my imagination and technical skills in both software and hardware on a project that might benefit others in the future," said team member Agnes Lui. "The most exciting part for me was being able to compete among top engineering students and teams from around the world."

A team from Australia took home first place with a product that could evenly distribute water among the continent's drought-affected areas. ■

College Hosts Mexican-American Engineering Society Symposium

Last November the College joined Lockheed Martin in co-hosting the 31st Annual Society of Mexican American Engineers and Scientists (MAES) Symposium. The three-day event, held in San Jose's McEnery Convention Center, offered hundreds of Hispanic students and professionals a series of academic, professional and technical workshops as well as recruitment opportunities in a career and graduate school fair. MAES is a national professional organization dedicated to increasing the number of Mexican-American and other Hispanic students in the fields of engineering, science and mathematics. Through more than 50 student, professional

and high school chapters in the U.S. and Mexico, MAES provides aspiring and professional Hispanic engineers with networking and mentoring opportunities to help them succeed.

"The rich cultural diversity of the Bay Area constantly reminds us of how Hispanics, especially those of Mexican descent, can bring new perspectives, ideas and strength to a workforce," said Ping Hsu, associate dean of the College. "For engineering educators, that means finding a way to encourage young people from Hispanic and other backgrounds that are not typically represented in technology and science

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Associate Dean and Professor of Computer Engineering Ahmed Hambaba receives an award of recognition from MAES national president, Esther Moreno.

David Brown *continued from page 1*

he had his heart set on a career as a design engineer. "When I graduated from high school I headed to Cal where my sister was in school," said Brown. "But I don't think I was as good a student as she was, and I ran into some trouble there." From Cal, Brown transferred to San José State where the smaller, faculty-taught classes were a better match for his academic needs.

"At the time, there were only three alternatives for college in the valley: Cal, Stanford and San José State. What attracted me to San José State was the smaller class sizes and that it was far away from home," said Brown. "Back in the '60s when you drove from Oakland to San José, there was nothing on the freeway when you left Oakland but farmland until you hit San José. We all thought it was a great place to establish some independence."

As a young graduate of the mechanical engineering program specializing in gas dynamics, Brown was interested in designing and building jet engines.



Success for Brown was landing his first job at Pratt & Whitney Aircraft in East Hartford, Connecticut.

"San José State enabled me early on to become an independent thinker and really got me my first job out of school. Those really launched me on my career," said Brown.

Within five years Brown had made his way from design engineering positions at Peripheral Data Machines and Memorex Corporation to a position with OEM floppy disk drive manufacturer Shugart

Associates where he held his first management job.

"I got to a point in my maturity and had enough time-in-the-seat as a manager that I thought I could start a much better company," said Brown. "I knew the other fellows that were co-founders at Quantum and we all had the same vision. We wanted to build a company much like HP at the

time, where people were treated fairly and with respect, and everybody dealt with the same information in making decisions."

Among the professional accomplishments Brown is most proud of are the leadership and management capabilities he brought to Quantum that positioned the company for growth. "Quantum is not in the disk drive business today," said Brown. "But it's still a healthy and growing business 26 years later because of the things we did to establish values and processes early on."

Brown served as President of Quantum from 1987 to 1990; Vice Chairman and COO from 1990 to 1992; and consultant and member of the Board of Directors from 1987 to 2004. From 1993 to 1996 Brown also served as Interim CEO and member of the Board of Directors of Visioneer Communications, Inc.

At 60, Brown is enjoying his retirement and sharing his strategic management expertise with local non-profit organizations. ■

College Establishes Nanotech Partnership

The College of Engineering has been awarded a \$500,000 grant from the U.S. Defense Advanced Research Projects Agency (DARPA) for the establishment of a government/industry/university research program in nanoscale materials and device characterization, including support of a Materials Characterization and Metrology Center. The award will support the work of six graduate students and six faculty members in collaboration with researchers at the IBM Almaden Research Center and the NASA Ames Center for Nanotechnology. Together they will investigate nanoscale materials for use in a wide range of computing, data storage and sensor applications.

Funds from the award will also be used to provide technical support and maintenance services for the nanomaterials research equipment located throughout the SJSU campus.

"Over time, there won't be a single market that is not in some way changed by what we are learning about how the molecular building blocks of existing materials can be combined and manipulated to produce and deliver new materials," says Emily Allen, project principal investigator and chair of SJSU's Department of Chemical and Materials Engineering. "Being able to support the work of our students and faculty members on campus, as well as in such prestigious laboratories, is part of our commitment to training the next generation of scientists and engineers who must be skilled in the use of tools and techniques to study

nanoscale materials." Allen added that leading Silicon Valley companies, such as Intel, Applied Materials, Novellus Systems and others have indicated their support for the project as a public/private initiative that would benefit local industry and the region.

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— Emily Allen

"We always have many more ideas than we have time and hands available to pursue," says J. Campbell Scott, manager of molecular electronics at IBM's Almaden Research Center. "Our relationship with SJSU on this project is a way for us to do things that we wouldn't otherwise be able to do. For the students, it means getting experience in a research environment that broadens their education and gives them background with the use of different equipment and scientific approaches."

"I see this first substantial grant in nanotechnology for San José State as an important beginning for their development of curricula and research opportunities for their students interested in nanotechnology," says Dr. Meyya Meyyappan, director of the Center for Nanotechnology at NASA Ames. "The funds will allow them to leverage public institutions like NASA Ames so that they can fairly quickly establish themselves as an important player in the field of nanotechnology. I am pleased to be part of this partnership and to be able to provide this sort of opportunity for SJSU faculty and students. It is a terrific institution."

According to Dean Belle Wei, though College and industry partnerships of this kind are not at all uncommon, funding for this project was endorsed by U.S. Congressman and Chairman of the House Appropriations Committee Jerry Lewis and local congressional representatives Mike Honda and Anna Eshoo. "Identifying key supporters for our work at the federal level is an important part of the College's research funding strategy," said Wei. ■

The San José State University
College of Engineering

Engineering Awards Banquet

Celebrating the 60th Anniversary
of the College of Engineering

Wednesday, April 19, 2006
San José Fairmont Hotel

6:00 p.m. Social Hour (No-Host Bar)
7:00 p.m. Awards Banquet

Please RSVP by April 10, 2006
408-924-3930 or COEevents@sjsu.edu

\$200 per person/\$2,000 per table of 10

NEW FACULTY

Triant Flouris

Associate Professor

Department of Aviation & Technology

The Department of Aviation & Technology welcomes its newest fulltime professor, Triant Flouris, who joins the College of Engineering as an associate professor.

Professor Flouris brings to us a breadth of international experience in the business of aviation. In addition, he is a commercial pilot and flight instructor with over 4,300 hours of total flight time, who still enjoys the wonder and exhilaration of flight. He is certified to teach in the U.S., Canada, the Joint Aviation Authorities (JAA) of the European Union (EU), and New Zealand.

His view of the aviation industry takes in its business, strategic and diplomatic/political aspects. "It is important that students and consumers understand that the airlines themselves are only part of the industry," he says. "Aviation is about airports, air navigation services, aerospace manufacturing and corporate aviation. The airlines are the glamorous part of the industry, not the only part," he says.

After earning his Ph.D. from the University of South Carolina, Professor Flouris became a management consultant working on international development projects. He then joined academia as visiting professor at the University of Barcelona, Spain; a lecturer at Victoria University of Wellington, New Zealand; and Assistant and Associate Professor at Auburn University in Alabama. Most recently he served as director of the International Aviation MBA Program at Concordia University in Montreal, Canada.

His research interests include low cost and legacy airline financial and strategic analysis, aviation economics, strategic management and operations strategy, aviation business modeling, and international aviation governance.



He serves on the editorial board of the *Journal of Air Transportation World Wide*. He has published three books on EU industrial policy and on aviation strategic management. Modestly, he reports that his new book on strategic management in aviation has just been released. "Air navigation itself is an intricate system of managing the sky," he says. "Our students need to learn to manage that system so that the customer receives an efficient flying experience, one that is affordable, accessible, of good quality, and most important—safe." Toward that end, Professor Flouris stresses the importance of managing aviation resources, from the aircraft to ground services. "Even the pilot—the pilot not only flies the aircraft; the pilot is also a resource manager."

His knowledge of aviation management is immediate and firsthand. Some of the most up to date models of managing the airline industry are happening in

Lebanon, Singapore and Holland. They design the industry around the airport, instead of around the airlines. Professor Flouris calls this design "airportcentric." "Centering on the airport rather than the airlines makes it easier to provide services to the customer and at the same time make more money for the industry," he explained.

Professor Flouris currently holds a diplomatic position in the United Nation's International Civil Aviation Organization (ICAO), representing the Republic of Cyprus. In this capacity he advises Cyprus on international air transportation issues. "I must recognize and put forth the political realities of Cyprus to the international aviation community."

Born and raised in Athens, Greece, Professor Flouris has piloted all over the world, from New Zealand to Canada, "most of that recreational flying, including aerobatics." His manner impresses one as forthright, pleasant, humorous and modest.

He says our students must meet the future challenges of the airline industry equipped with knowledge of both the most up to date technology and best management practices. "The airline industry is not in crisis. Some airlines are in crisis, but the industry as a whole is not. The industry is re-organizing toward a more efficient paradigm."

His choice to join the College of Engineering here at San José State University was quite deliberate. "I am here as much for the University and its Aviation program as for the wonderful location. We have a great program, and we can build it up to make it an even better one," he said. ■

Dean Wei Addresses Caucus in Washington, D.C.

At the invitation of Democratic Minority Leader Nancy Pelosi, College of Engineering Dean Belle Wei addressed the Democratic leadership in Washington, D.C., as the “Education Expert” in a forum January 19th about America’s stature in the global technological marketplace.

U.S. House Science Committee Ranking Member Rep. Bart Gordon (D-TN) convened “The Innovation Forum: A Commitment to Competitiveness to Keep America Number One,” as part of a bipartisan appeal to American leadership in the nation’s capital to give top priority to supporting science and technology enterprises in the United States. The goal of the effort is for the U.S. to “successfully compete, prosper and remain secure in the global community of the 21st century,” as recommended by a National Academies report entitled “Rising Above the Gathering Storm: Energizing and Employing Americans for a Brighter Economic Future.”

Worrisome indicators about the health of America’s technological competitiveness have spurred this effort. For instance, on a test of general knowledge in math and science, 12th grade students of the United States recently performed below the international average for 21 nations. And in 2003, of the top 10 recipients of patents granted by the United States Patent and Trademark Office, only three were American companies.

Dean Wei addressed these and other pressing issues from an educational point of view. “America’s future engineers need motivation and drive to meet the burning crisis of America’s stature in the global technological

marketplace,” she said, speaking to a packed house in the Democratic Caucus Chambers with about 500 people present and video cameras running.

In addition to Dean Wei as the education expert, one expert each in the fields of Research and Development, Broadband, Energy, and Small Business Entrepreneurship participated in the forum.

“Students must develop the ability to connect the dots, to stretch their ingenuity, to go beyond themselves, to reach something higher.”

— Dean Wei

The Dean focused on the question, “how do we teach innovation?” She said there are two kinds of innovation: That which creates technological breakthroughs and that which finds new applications for existing technologies. The founders of Google, for instance, did not invent the search engine, she pointed out. Rather, they applied it to advertising and thus revolutionized the coupling of technology to business revenue.

Both types of innovation challenge America’s educators. “Students must develop the ability to connect the dots, to stretch their ingenuity, to go beyond themselves, to reach something higher,” she said.

To instill students with the motivation and drive to innovate, the Dean suggested programs like SJSU’s Global Technology Initiative. This initiative,

now in its third year, takes the 25 best and brightest engineering students for a two-week study tour to China and Taiwan, where they witness top universities and high-tech companies in action.

“This program is transforming for the students,” Dean Wei told the Caucus, suggesting that Congress support similar programs all over the United States. “Once these student leaders witness global competition in a visceral way, they will come home transformed as my students did. They will know the crisis first-hand and more likely become inspired to invent new technologies and ingeniously apply current ones.”

Since the forum, Dean Wei has assumed an on-going role as consultant for legislators from both sides of the aisle. “I represent our College of Engineering in what is a major, bipartisan effort to support and promote technological innovation at the national, legislative level. There is a unique role for the College of Engineering of SJSU to play as these bills get written and introduced to the House and the Senate.”

In February the dean returned to Washington and met with members of congress to discuss the legislation.

“The representatives told me that they have been talking about these issues for 20 years, and that finally, they were doing something about them.” With Dean Wei’s influence, San José State University can become a part of making these changes happen. ■

Mexican-American Engineering Society Symposium

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fields to go after their dreams—to make it possible for them to achieve their highest potential. Partnering with organizations like MAES helps us to accomplish that.”

“The College of Engineering at SJSU demonstrates time and again its commitment at all levels to encourage and build a diverse student population that reflects the community it serves,” said Mark Perez, co-chair of MAES. “From the administration in the Dean’s Office and the staff in the Minority Engineering Program (MEP), to the student members of the Society of Latino Engineers and Scientists (SOLES), the university works with our MAES Bay Area student and professional members to encourage underrepresented groups to pursue careers in engineering and science. We are grateful for the College’s support.”

It was inspiring to be among so many people who share my interest in a career in engineering and are willing to take the time to network in this way,” said Brigitte Gomez, a senior in computer engineering and a member of SOLES.

Eleven percent of the students enrolled in the College of Engineering are of Hispanic descent. Nationally, enrollment of Hispanic students in undergraduate engineering programs is 7.8%. ■

Second Annual Asia Study Tour Brings New Meaning to Globalization

For the second year in a row, the College sent 25 of the University’s top students on an all-expenses-paid, two-week study tour of China and Taiwan. Part of the College’s Global Technology Initiative, the tour is designed to teach students firsthand, and in real time, the benefits and challenges of working in a global economy. The 2005 itinerary included industry and university campus tours in Taipei and Hsin-Chu in Taiwan, and Beijing, Shanghai and Kunshan in China. These cities were chosen because of their strong ties with Silicon Valley’s high-tech industry and the position of their companies in the global supply chain.

“For our students to succeed in the highly competitive world of the global economy, it is crucial for them to experience its effects firsthand,” said Dean Wei. “The tour provides a truly unique opportunity for our students to meet business leaders, learn about globalization, and develop international perspectives and knowledge.”

The tour program, that included a series of six on-campus pre-tour lectures, was organized around four themes: the high-tech supply chain, innovation and entrepreneurship, energy and the environment, and culture. “Having a deeper understanding of these areas helps the students to get a better sense of where and how their skills and interests can be translated into a successful career,” said

Jacob Tsao, Industrial and Systems Engineering professor and study tour director.

“The tour is a special opportunity for students to be introduced to important global business concepts that are not part of the traditional engineering curriculum.”

“Understanding how to collaborate with our counterparts in other parts of the world is an important lesson as we think about our options after college,” said Computer Engineering student Linda Nguyen. “The experience of traveling halfway around the world, visiting industry sites and meeting industry executives has opened my eyes to new choices in my life and career.”

“The more we understand about other countries and their role in developing and manufacturing high-tech equipment, the better prepared we will be to participate as team players in the global marketplace,” said Mechanical Engineering student Jerry Kwan.

Funding for the 2005 Asia Study Tour was made possible by the generous contributions from alumni and friends of the College. For more information about supporting the Global Technology Initiative Endowment, contact the Dean’s office at 408-924-3800. ■



2005 SJSU delegation visits Nuclear Power Plant #2 in Taiwan.

College Establishes Harry Wong Memorial Scholarship Fund

When Harry Wong (B.S. '51 Industrial Technology) attended the College of Engineering, he was among thousands of returning war veterans who attended college with the financial support of the GI bill. Without that support and his part-time job at a local butcher shop, his dream of getting a college degree and becoming an engineer could never have happened. When Wong died last year at the age of 80, his will provided for the establishment of an endowment that would make scholarships available for the next generation of engineering students who, like himself, could not afford to go to college. Through Wong's generous gift, the College has established the Harry Wong Memorial Scholarship Fund.

"My father's commitment to a university education was based on his strong belief that higher education was a fundamental path to a better future, opportunity and personal fulfillment," said Wong's son Arnold. "Like all good engineers, he believed learning the theory and being able to apply it in a real world were equally important."

"We are grateful to Harry Wong for his commitment to the College and to the education of our students," said Dean



Harry Wong 1924–2004

Belle Wei. "His gift helps provide scholarships to talented students who also demonstrate financial need." This year proceeds of Wong's endowment are providing support for two undergraduate engineering students.

Harry Wong immigrated to the Bay Area in 1937 at the age of 13. Like so many Chinese immigrants at the time, he worked as a houseboy to help support his family. He graduated from Sequoia High School in Redwood City in 1942.

After serving in the U.S. military during World War II, he attended San José State. In the tradition of so many of the College's graduates, Mr. Wong contributed his engineering talents to the region—27 years in the Public Works and Utilities departments of the City of Palo Alto.

For information about contributing to the Harry Wong Memorial Scholarship Fund or establishing other student scholarships, contact the Dean's Office at 408-924-3800. ■

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San José State University



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