

How the Other Half of the World Lives: Teaching English to People Living below the Poverty Line

"It is in the deprivation of the lives that people can lead that poverty manifests itself. Poverty can involve not only the lack of the necessities of material well-being, but the denial of opportunities for living a tolerable life."

— United Nations' *Human Development Report* of 1997

In July 2006, eight SJSU students participated in the Global Poverty Alleviation (GPA) program in China and learned for themselves the ways in which poverty is a "denial of opportunities."

To participate in GPA, a month-long service learning program, the students were responsible for their own travel expenses to and from China; however, once they arrived, the program provided for their housing and food. The Wang Foundation, in partnership with Tsinghua University and a consortium of other U.S. universities, hosted approximately



50 U.S. students and 400 students from Tsinghua University. The students met in Beijing for a one-week orientation focused on Chinese culture and general issues of poverty. Afterwards,

the students ventured out into student-teams to visit some of the most impoverished regions of China, living in the cities and villages and teaching English to children, students, and adults.

Trying to understand another culture always defies neat summarization, and the experiences the SJSU students had are varied and complex for several reasons. First, the eight students visited different regions in China, from the fairly urban city of Chongqing, where students lived in air-conditioned dormitories, to the mountainous desert of Pengyang County, where the farmers lived in caves.

Secondly, the SJSU students taught English to a plethora of different audiences, from grade school children to

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Raising the Bar for Web Video Conferencing

Last year when Dr. Xiao Su of the Computer Engineering Department tried to communicate via videoconference with her young daughter Jolie Wang, who was visiting grandparents in China, the video quality was terrible. "The image would freeze for a whole minute, then jump, and then start again. But the face would be garbled," she explained. In other words, the real time Quality of Service (QoS) was poor.

According to Dr. Su, while Voice over Internet Protocol (VoIP) providers, such as Skype, have made VoIP quality

excellent, in the world of video and multimedia streaming, QoS has lagged behind. Skype has been able to design a system that leverages peer-to-peer (P2P) networks created by a user base to deliver excellent voice quality. Dr. Su hopes to do the same for video and multimedia streaming through research sponsored by a five-year, \$400K 2006 National Science Foundation (NSF) CAREER award.

Dr. Su has been a productive scholar in her academic career and is the kind

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Message from the Dean



Dear Friends of the College,

We had much to be proud of during the College of Engineering's 60th Anniversary in 2006. For the past 60 years, the College of Engineering has provided affordable, accessible high-quality education to anyone who has the drive and ability to

pursue a rigorous course of study in engineering. Moreover, SJSU graduates have been instrumental in the development of Silicon Valley's technology industry and infrastructure as well as the Bay Area community.

Yet, as we enter the 21st century, the technology industry and Silicon Valley community face significant challenges brought forth by intense global competition. The vitality of Silicon Valley calls for a competitive technology industry and a larger pool of local talent with higher-level capabilities.

To meet this need, the College is seeking to develop its programs further and has created its "Engineering the Vision" initiative, which consists of strengthening five program areas: student success, faculty development, leading-edge engineering, multidisciplinary projects, and global experiential learning.

Our vision is ambitious, but it is necessary in order to provide Silicon Valley with the world-class talent it needs to remain a technology leader. It is also necessary in order for our future graduates to succeed in this competitive world as their predecessors did.

Please join me in supporting and making this vision a reality for our students and our community through our annual appeal. Best wishes in the new year!

Sincerely,

Belle Wei
Dean, College of Engineering

U.S. President and Senator Visit Silicon Valley

SJSU computer engineering major Arash Shokouh and electrical engineering major John Weinerth had the opportunity to meet former U.S. Senate Majority Leader Bill Frist and President George Bush, as both visited Silicon Valley this year to highlight the global competitiveness issue and to promote math and science education.

Frist (R-Tenn.) met with SJSU campus leaders and several engineering students to publicize his SMART Grant program, which provides financial assistance to low-income juniors and seniors pursuing degrees in math, science, and strategic foreign languages.

In April, Shokouh was invited to participate in President Bush's panel of politicians and industry professionals, including Governor Arnold Schwarzenegger and Cisco Systems CEO John Chambers, held at Cisco Systems headquarters. The panel discussed how the United States can improve its competitive edge in the areas of math and science. The president was specifically promoting the American Competitive Initiative, a program that aims to increase the number of students graduating with degrees in math and science. ■

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of faculty member the NSF CAREER award seeks to encourage. With her award she will study the QoS and security issues surrounding video and multimedia streaming over P2P networks. QoS (including video playback quality and continuity), for example, can be improved by designing more effective methods of video transmission that leverage the internal characteristics of video compression algorithms. At the same time, however, the integrity and security of the stream needs to be maintained.

“On a P2P network, video and voice go to other people’s computers—that’s the advantage and the disadvantage of a P2P network—packets can be dropped, held, modified or not forwarded. We don’t want this to happen,” explained Dr. Su.

The technical challenge is that both encryption and compression eat up computer cycles and compete for the same resources. Optimizing both QoS and security over P2P networks through an integrated investigative approach is the aim of Dr. Su’s project.

Dr. Su wasn’t always interested in computers. As a student in China, her first two years of undergraduate education were in the biomedical field. At this point, she was given an opportunity to change majors, a privilege accorded only to the highest achievers, and she settled on computer science as the most fundamental preparation for a career in technology.

Having built a solid foundation of math, English and computer education, she decided to strengthen this background with a major in computer science.

A decision made for practical reasons then became a passion. “I fell in love with computers,” Dr. Su laughs, as she recalls the choice that has brought her to this point. “With computers, you can see what works,” she says. She enjoys mathematical thinking, finding it critical to designing excellent computer algorithms. “A smart algorithm is easily tested,” she notes. “To see things working is rewarding.”

Dr. Su eventually came to the U.S. for graduate school. Not particularly troubled by being one of the few women in the computer engineering field, she spent a year at Rensselaer Polytechnic Institute and then transferred to the University of Illinois at Urbana-Champaign for doctoral work.

She joined her future husband who was also working on a doctoral degree in computer science. Her hard work eventually led her to San José State University where she joined the Computer Engineering faculty as Assistant Professor in 2002.

Dr. Su has translated her love of computers to improving what we see on the computer screen. Perhaps one day in the not-so-distant future when her daughter Jolie is visiting her grandparents in China, Dr. Su will be able to see and talk to her: jitter free, delay free and freeze free. ■



“I fell in love with computers,” Dr. Su laughs....

“With computers, you can see what works.”

Town & Gown: Silicon Valley Leaders Symposium Hosts Industry Executives

Since Fall 2002, the College of Engineering has hosted the Silicon Valley Leaders Symposium (SVLS). The Fall 2006 SVLS series, as in previous semesters, brought to campus six prominent leaders from the high-tech industry in Silicon Valley. Executives, such as Dr. Teresa Meng, co-founder of Atheros Communications, and James Bagley, Chairman of Lam Research Corporation, discussed with students, faculty, and staff their companies' cutting-edge research.

In addition, the industry leaders also emphasized other important skills, such as developing strong communication and interpersonal relationships and encouraging awareness of global economic and technological trends, which students must gain in order to be successful in the new global market. The SVLS series also included two SJSU student programs, the Global Technology Initiative and the Global Poverty Alleviation.

The main objective of the Symposium series is to solidify the link between Silicon Valley industries and the University in terms of the transfer of knowledge between both, including collaborating on industry projects and gaining input about curriculum development and enhancement.

The symposia take place every Thursday from 12:00pm to 1:00pm in the Engineering building auditorium, ENG 189. In Spring 2007, the series will be university wide in celebration of SJSU's 150th Anniversary.

For more information about the Spring 2007 symposium series, please contact Dr. Ahmed Hambaba, Associate Dean of Graduate and Extended Studies in the COE, at hambaba@sjsu.edu. ■



Norman Mineta
*First speaker
in Spring 2007
Symposium Series.*



SJSU'S 150th Anniversary Deans' Speaker Series: Silicon Valley Leaders Symposium

Spring 2007 Schedule

- | | |
|-------------|---|
| February 15 | Secretary Norman Mineta
Former Secretary of Transportation,
2001–2006 |
| February 22 | The Honorable Michael Honda
15 th District California |
| March 1 | Dr. Simon P. Worden
Center Director,
NASA Ames Research Center |
| March 8 | Dr. David P. López
President, National Hispanic University |
| March 15 | Dr. Kenneth Fong
Chairman, Kenson Ventures, LLC |
| April 5 | Mr. Rick Wallace
CEO, KLA-Tencor |
| April 12 | Dr. Myron Scholes
Nobel Laureate, Sveriges Riksbank
Prize in Economic Sciences
in Memory of Alfred Nobel 1997 |
| April 19 | Dr. Geoffrey Nunberg
School of Information,
University of California at Berkeley |
| April 26 | Mr. Bruce Chizen
CEO, Adobe |

Improving Classroom Pedagogy with Hands-on Experience

“What I thought was great ‘droning’ at the chalkboard — and I was really good at it — not only doesn’t match what students need today, but I’m not sure it’s what students needed when I went to college.”

—Dr. Kurt McMullin

After three summers of the Partnership for Student Success in Science (PS³), Dr. Kurt McMullin has special insight to teaching science: students learn better from experiences than from lectures and textbooks.

PS³ is a regional project to enhance the science knowledge and teaching skills of middle school teachers. It involves nine middle school districts, from Santa Clara to Foster City on the peninsula, and Newark Unified in the East Bay. The districts are partnered with San José State University, Agilent Technologies, and Synopsys, and funded by \$6.7 million from the National Science Foundation. SJSU education faculty provide most of PS³'s teaching talent while three College of Engineering faculty, in addition to Dr. McMullin, are expert providers of program content: Thalia Anagnos of General Engineering, Claire Komives of Chemical and Materials Engineering, and Nikos Mourtos of Mechanical & Aerospace Engineering.

Dr. McMullin says PS³ has exposed major challenges to effective science teaching. Among them is an odd mix of teacher skills and content knowledge. He describes teachers who majored in physics in college with the intent of

teaching high school-level physics; instead, they are teaching at an 8th grade level. He also notes that district budgets are driven by math and language arts while science is frequently de-emphasized.

Dr. McMullin says checks often reveal students are two years behind the curve in preparing for an engineering program. “I feel terrible when freshmen come into my office for advising. I talk with them and find out they’ve taken a bare minimum of science and math in high school.”

Agnes Kaiser, a chemistry teacher at Crittenden Middle School in Mountain View, is a former engineer who appreciates PS³'s focus on developing skills instead of rote learning. “PS³ lends a lot of inquiry rather than recipe-book chemistry science. It’s exploring the issues behind the experiments. Students need to know the why behind science.” Kaiser says students learn by seeing, hearing, and doing, and this training program has opened her eyes to using all three types of learning.

According to Dr. McMullin, PS³ is showing that traditional teaching methods such as pure lecture are ineffective in science and math education. “We’d rather provide students the chance to experience science than have them read every textbook and repeat it verbatim.”

Now past its midway point, PS³ has given Dr. McMullin a personal revelation: “I’ve seen that what I thought I was doing well and how I was trained as an engineer is not the best and most effective way. I’ve really tried to sharpen my teaching.” ■

Inspiring Young Women in Science and Math

About 800 young women, from 6th to 9th grade, and 200 interested adults attended the 2006 Expanding Your Horizons (EYH) in Science and Mathematics Conference at SJSU. This was the eleventh EYH conference hosted on campus.

Dr. Belle Wei, Dean of the College of Engineering, delivered the opening remarks, which were followed by a lively and interactive presentation from the Lawrence Hall of Science Brainiacs.

The rest of the day was devoted to workshops given by women with careers in math, science, or engineering. The girls had the opportunity to dissect a bovine eyeball, extract DNA from strawberries, observe fungi under the microscope, make and study a polymer, and write a computer program in BASIC, among many other activities.

The EYH Conference seeks to encourage and foster young women’s interest in science and math by providing opportunities to meet and form relationships with women in careers traditionally dominated by men.

Visit www.expandingyourhorizons.org for more general information and www.elstad.com/sjsueyh.html for specific information about the next conference at the SJSU campus on Saturday, March 17, 2007. ■

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college students, from teachers of English, themselves, to music teachers who wanted to learn the language because of the high demand. Some of the SJSU students had already traveled abroad, and for others it was their first experience outside the U.S.

Perhaps the best way to summarize this program and its effects on the students is to let some of the students speak for themselves.

GPA Participants

Michelle Amihan

B.S. Civil & Environmental Engineering '06
Su Yu County, Jiangsu Province

Michael Bayne

ISE and Business, Senior
Pengyang County, Ningxia Islamic People
Autonomy Region

Rodney Blaco, J.D.

Electrical Engineering & History, Sophomore
Hua County, Henan Province

Gavin Devries

B.S. Civil & Environmental Engineering '06
Lin County, Shanxi Province

Derrick Larson

MIS, Senior
Fu'an County, Fu-Jian Province

Brandon Luu

Chinese, Junior
Jianchang County, Liaoning Province

Evelyn Ng

ISE and Math, Senior
Longbao County, Chongqing City,
Si-Chuan Province

Sarah Ostrenga

Comparative Religious Studies, Junior
Lingqiu County, Shanxi Province

On poverty:

Michael Bayne: "I didn't understand how much of a ticket to going East English was. That's your ticket out of a lot of these situations that they're in in terms of lack of opportunity."

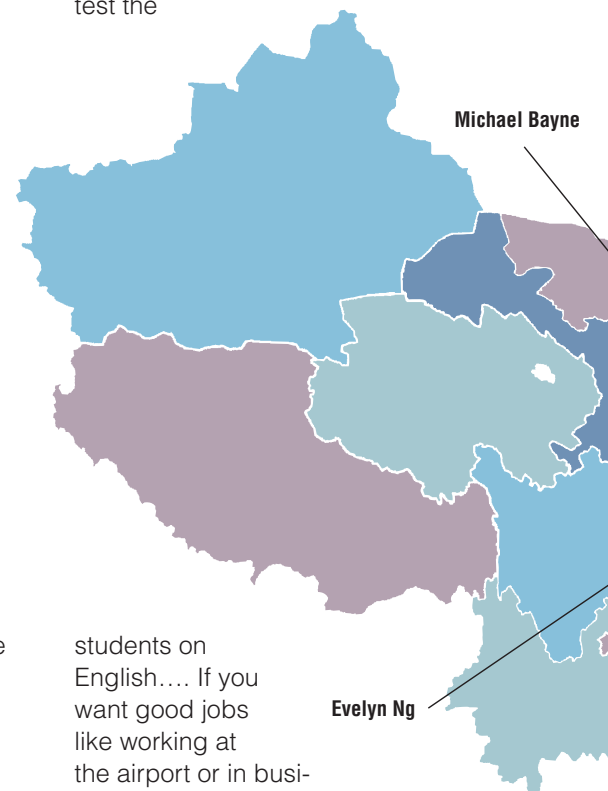
Derrick Larson: "Where I stayed there was no electricity. We had running water only at certain times because they had a big problem with the water pressure getting up to the different elevations. The school where I was staying in the dorms was higher up than the rest of the town. We never knew when we'd have running water. So whenever the running water goes, it doesn't matter when, you had to run down with your bucket and fill up your bucket because that was the water you had to wash your clothes in, take a shower..."

Rodney Blaco: "I had a great time. It was an incredible experience. Myself, I grew up poor by U.S. standards. My father was born in a logging camp and my mom was from a coal mining town. So we didn't pass the poverty line until I was well into high school. From that perspective I was wondering what it's like from another person's perspective in another country to grow up poor. I was blown away by the difference and how much we take for granted here [that] you just don't have in other countries."

Bayne: "The local farmers ... lived in caves.... It was okay in the summer, but very harsh in the winter because of the cold weather and being in the high desert. When you walked into the cave directly to your right is a small wall that's about two feet tall. That forms the perimeter of the bed. And there's a small wooden door and inside they put coal underneath the bed. They sleep on wooden planks that are supported by this little brick perimeter. And in the back of the cave they have their coal supply. About 90% of their income goes towards buying coal.... The biggest deal in the town is that they're going to use cow patties instead of coal for energy usage. The coal is going to be shipped out.... So they're going to be putting cow patties underneath their bed and sleeping there in the winter."

On teaching and education:

Brandon Luu: "The whole world's learning English, even in Japan they have to learn English when they're in 6th grade. And Malaysia uses it as a second language and Singapore uses it as a second language. Everyone [has to] learn English, it seems, to do business.... I guess China didn't want to be left behind, because they're the only country using Chinese.... So on their tests, they test the

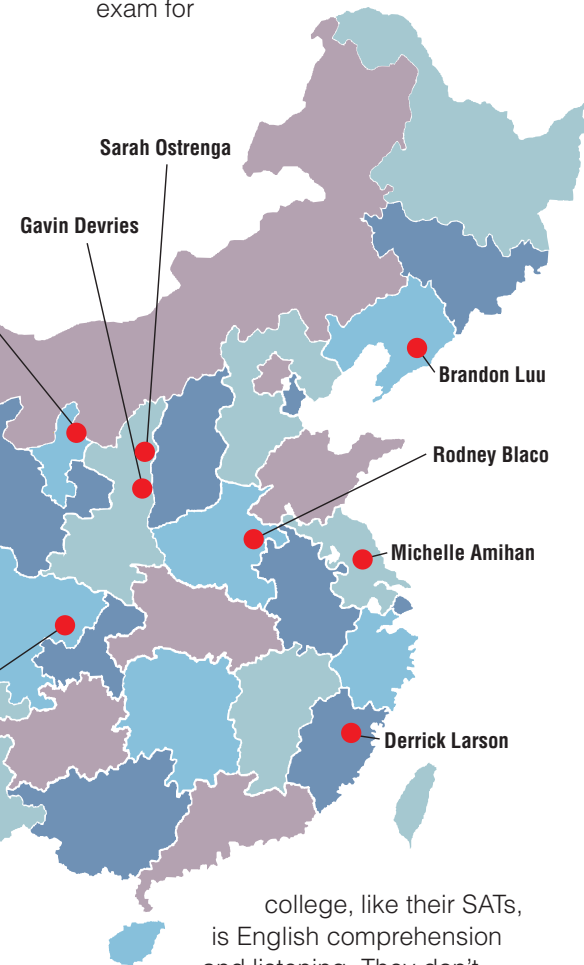


students on English.... If you want good jobs like working at the airport or in business you have to know some sort of English, especially for the 2008 Olympics. They expect the people at the airport to know English, the taxi drivers to know English, and they're going to be tested on it, too."

Michelle Amihan: "The first week I was teaching elementary school teachers and high school teachers. Some of them spoke English. All the teachers told me that they never have to speak English in class. They'll write it on the board, or they'll say it in Chinese, but they'll never have to speak it orally and that they don't really have their

students speak English either. So I found that really surprising; how do you teach English without making somebody speak English?"

Larson: "The students were really well-educated. I taught, the first week, seniors, and then the second week I taught teachers from a teacher-training school. The main problem they're having right now is having enough English-speaking teachers because part of the entrance exam for



college, like their SATs, is English comprehension and listening. They don't have enough teachers for the students."

Blaco: "I liked teaching the kids more than I liked teaching adults, because they're much more excited. They want to learn English; they really want to absorb as much as they can. So I tried to find creative ways [to teach]. If they wanted to play basketball everyday, I taught all the English words for basketball and then made them go play basketball using English."

Luu: I thought I was going to a really rural place, it is rural, but I thought they're not going to have any English experience at all...but they had been teaching for 20 something years and so they do know English. And some of the students I met were close to fluent, and it really shocked me because this was out in the middle of nowhere."

Larson: "I think the main focus of my team was to give these students some sort of hope, because I guess there had not been any students who went to university. Yet these students would wake up at 7[am] and they stay up until 11[pm] and study. The dorm lights turn off at 10:30[pm], so the students go down to the bottom floor where there's a light outside and they'll cram under the light with their book and read. And none of those students are going to go to a college more than likely. Yet they study so hard and they're all speaking good English...."

Amihan: I think the main impact for me at least in my province is that, I think everyone's right, you can't teach them English in so little time. But you have to spark the interest in them to want to learn and I think we did, especially being able to speak to an actual foreigner, like an American, and to be able to learn about America from an actual person who lives there.

On the culture:

Blaco: "In the classroom one thing I noticed was that everyone wears the same outfit every day. Again, it comes down to income level.... It was easy to remember who people were because he's the guy in the red shirt; he's one of six kids in the Yao Ming jersey. I never saw clothes that had Chinese lettering on them, except for in a store window. Everything was Houston Rockets, Nike, or Adidas, even in the villages with 300 people. Every person that I saw that had on a t-shirt on, it was an American t-shirt.... Western influence has reached every corner of the country."

Bayne: "I was kind of upset for China. I thought that they should have opportunities created without the need for English, because they are their own country."

On how the experience affected them:

Evelyn Ng: "I would go back to visit them and see how they're doing.... It's [this experience] actually given me a lot more respect for people who can't understand English because I've been to a foreign country where nobody speaks English and I had to listen to their Chinese throughout all the discussion sessions and a lot of their conversations with each other.... I would want to talk with them, but I didn't know how. Knowing how difficult it is to learn another language or to just be in a room with people who can't even understand or communicate with you, I have more respect for my grandparents or my aunts who came from China and don't speak English."

Luu: "I thought China was a dangerous place. Then when I went there it totally changed my mind. How I see the world is totally 180 now.... I want to go back as soon as possible.... It was all these terrible conditions, but my professor on our team was telling me that outside of this town... there are places even worse than what you see.... I'll never have to go anywhere close to these kinds of conditions.... So I felt like I have to come back... I have to do something.... It really changed me."

For more information about the service learning program visit the Wang Foundation's website at www.wangfoundation.net/home.htm.

Rodney Blaco's blog is available at www.rodneyclaco.blogspot.com/ and additional photos have been posted by Michael Bayne at <http://web.mac.com/michaelbayne/iWeb/China>. ■

Celebrating 60th Anniversary at 2006 Engineering Awards Banquet

The 2006 Engineering Awards Banquet was highlighted by the College of Engineering's 60th Anniversary celebration. Alumni, Silicon Valley friends, faculty, staff, and students gathered to honor the college's distinguished alumni and award winners.

The program included a 60th Anniversary video as well as toasts to the College and its future success. Dean Belle Wei challenged engineers to address global issues. Keynote speaker Dr. Moira Gunn, host of NPR's TechNation, discussed the interdisciplinary nature of engineering today. We are at "a juncture of science and engineering," she noted and went on to emphasize the enormous role Biotech will play in the future of engineering. ■



2006 College of Engineering Awards



The Applied Materials Faculty Award
for Excellence in Teaching

Kurt McMullin

Civil and Environmental Engineering

Best known for his expertise in seismic damage, Dr. McMullin is passionate about teaching. He directs the "Partnership for Student Success in Science," a \$6.7 million project providing engineering training to K-8 science teachers. Students cite Dr. McMullin's innovative projects and inquiry-based instruction as excellent preparation for work in industry.



The McCoy Family Faculty Award
for Excellence in Service

Rameshwar Singh

Civil and Environmental Engineering

A professor of water resources engineering, Dr. Singh's record of service ranges from city and state water commissions to the Santa Clara County Flood Advisory Board. He has directed groundwater basin and wastewater recycling studies for Santa Clara County and designed hydraulic models of pumping stations to ensure their efficient operation.



Onslow H. Rudolph, Jr. Staff Excellence
in Service Award

Ben Rashid

An Operating Systems Analyst and lead College of Engineering Microsoft Desktop Support, Ben combines creativity and problem-solving skills with excellent customer service to provide solutions ensuring client satisfaction.

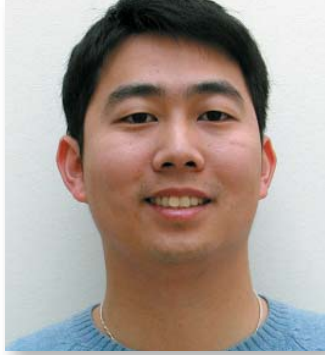
Student Awards



Scott T. Axline Memorial Student Award
 for Excellence in Service

Ragu Kantamaneni

Ragu's record of service begins with his 2004-2006 term as president of the Society for Computer Engineering. A finalist in the Microsoft Windows Embedded Student Challenge, Ragu and his team designed the iFree, an embedded system that monitors and transmits vital functions of wheelchair-bound patients via wireless communication.



Donald Beall-Rockwell Award
 for Engineering Accomplishment

Jimmy Chi-Yun Chan

An M.S. candidate in mechanical engineering, Jimmy is studying deformable polydimethylsiloxane membranes in microscale. He presented at the MEMS & BioMEMS 2005 conference and is a researcher on the Planar Pneumatic Microvalve project.



Lockheed Martin Student Award
 for Academic Performance—Undergraduate

Sarah Lemmer

Sarah is an aviation major, a NASA research assistant and a licensed private pilot. A participant in the 2005 Global Technology Initiative Asia Study Tour, Sarah is also a President's Scholar and Dean's Scholar.



Lockheed Martin Student Award
 for Academic Performance—Undergraduate

Grace Wu

Electrical engineering major Grace Wu was a President's Scholar in both 2005 and 2006. She is a member of the IEEE and has an outstanding grade point average.



College of Engineering Award
 for Academic Performance—Graduate

Pankaj Aggarwal

Pankaj was the recipient of the 2005 Performance Award at Tensilica and is also a former lead design engineer at Cadence and advisory engineer for IBM. As a graduate student in the electrical engineering program, Pankaj completed a project that was adapted for a VLSI Systems course.



College of Engineering Award
 for Academic Performance—Graduate

Masao Drexel

In his M.S. in materials engineering program, Masao is studying the effects of cold work and heat treatments on Nitinol wire. A participant in the 2006 NSF East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI), Masao has also interned at Applied Materials and Nitinol Devices and Components.

2006 Alumni Award of Distinction Recipients

Carolyn Guidry

**President, Mark and Carolyn
Guidry Foundation**

M.S. Computer Engineering, 1979

The 2006 recipient of the Alumni Award of Distinction, Carolyn Guidry earned an M.S. in Computer Engineering from San José State University in 1979. In the late 70s, Ms. Guidry's master's degree made her a pioneer for women in engineering, a discipline in which women have been underrepresented; however, she already was a pioneer twenty years earlier when she earned a bachelor's degree in Electrical Engineering from Louisiana State University (LSU) in 1959.

As an undergraduate, Ms. Guidry was active in student leadership and served as Student Vice-President of the College of Engineering. At this time she also met her future husband, Mark Guidry. Married one week after graduation, the two formed a lifelong partnership that would include three children—all with degrees in engineering; two successful startup companies; and a nonprofit foundation that supports a variety of children's education programs, teacher education programs, and children's museums.

After spending twenty years raising a family of three children, Ms. Guidry returned to higher education and earned her master's degree while her youngest child completed high school. The work/study flexibility at San José State made it possible for Ms. Guidry to accomplish both her family responsibilities and professional pursuits.

Two of Ms. Guidry's adult children were at the 2006 College of Engineering Awards Banquet where Ms. Guidry

received her award as a distinguished alumna. "We're just so proud of her," daughter Gayle said, beaming, "We're a family of engineers." In fact, Ms. Guidry's son, Mike, attended San José State, earning a degree in Electrical Engineering in 1995.



After graduating from San José State, Ms. Guidry was involved in designing new computers, completing market analyses, and managing product planning at Hewlett-Packard (HP). She and Mark also partnered with other technologists in starting two companies: Simon Software and Avasem Corporation.

Simon Software, which specialized in semiconductor design software, was acquired by ECAD. The company later released the only circuit-simulation program on the market developed especially for the MOS (metal oxide semiconductor) technique of chip design. ECAD merged with SDA Systems to become Cadence.

Among its many products, Avasem Corporation developed the first single-chip timing generator chip (primarily

used in PC motherboards to replace crystals and oscillators). In 1993, Avasem merged with Integrated Circuit Systems (ICS).

Ms. Guidry's roles in the startup companies ranged from corporate secretary and member of the board of directors to handling employee policy and employee development. She also contributed to product planning and market growth. Today, both Cadence and ICS are financially successful and employ nearly 6,000 people, facts of which Ms. Guidry is very proud.

In 1988 Ms. Guidry retired from HP and turned her considerable technological and managerial talent to volunteerism in the education field. "Children are our future," Ms. Guidry has said, and she has dedicated herself to children's education. As a full-time volunteer for the San José Children's Discovery Museum, she developed computer systems and software for the museum's operations. She also assisted in content conception and realization, and in fundraising.

Well aware of the fundraising challenges facing educational and arts organizations like the Children's Discovery Museum, Ms. Guidry again partnered with her husband to establish the Mark and Carolyn Guidry Foundation. As president and chief operating officer of the foundation, Ms. Guidry combines her skills in technology and passion for volunteerism with her devotion to funding education and the arts in order to make a difference in the lives of children. ■

Peter McGrath, Ph.D.

**Former Sector Vice President,
 Science Applications International
 Corporation**

B.S. Mechanical Engineering, 1965

In 1969, Dr. Peter McGrath began working and conducting research on nuclear energy in Karlsruhe, Germany. As he became internationally known for work on nuclear reactor safety and environmentally safe storage of radioactive wastes, he also hoped that one day nuclear energy would become the primary power source for industry and homes in the U.S. as it is in other European countries.

“I have always believed that nuclear power should have a prominent position in our installed electric generating capacity. Public acceptance has been a major hurdle to date. At present about 20% of our electricity is from nuclear, while in France it is about 75%. I don’t see any reason why we could not do the same.”

Dr. McGrath’s concern about energy sources in the U.S. reflects a larger issue for him: the competitive position of the U.S. on an international scale, especially with regard to engineering students today. Dr. McGrath believes that good engineering students must also be good leaders who have an international sensibility.

Currently, Dr. McGrath sees challenges to the U.S. maintaining its technology supremacy: “Too few of our bright students are pursuing careers in the sciences and engineering. When I was entering college the national attention and public pressure were on how we could catch up to and surpass the Russians in science and engineering.”

Although Russia is no longer the main competitor, China and India now are, and the skills students need to acquire

to make them globally competitive, according to Dr. McGrath, go beyond the classroom. He advises students to use to the fullest extent possible the activities college life offers: “Get out of the library and the classroom and participate. While GPA is important,



it should not be the sole focus. Participation in college activities will help develop vital skills to be successful in any career, including engineering. Spend time learning to write and speak in public forums.”

When Dr. McGrath attended San José State University, graduating in Mechanical Engineering in 1965, he not only excelled academically but was also involved in many extracurricular organizations that honed his leadership skills. He served as Sophomore Class President, Junior and Senior Class Representative to the Student Council, and as a member on several student-faculty committees. He was also a member of several leadership fraternities and an officer and member of Sigma Phi Epsilon.

Another invaluable resource Dr. McGrath credits are the mentors he had at San José State. There were three influential people, whom he vividly remembers to

this day: Rod Diridon was his roommate of several years; his “advice and active pushing helped bring a raging introvert like me out of my shell.”

Dean of Students Stanley Benz, whom Dr. McGrath got to know well through his involvement in student government, taught him how to negotiate non-technical problems, or, as Dr. McGrath puts it, “real-world problems.”

Finally, Professor Robert Clothier went beyond his classroom responsibilities by encouraging Dr. McGrath to attend graduate school, helping locate financial support, and steering him to the field of nuclear engineering. His influence was profound, and Dr. McGrath earned his Ph.D. in Nuclear Engineering from the University of Wisconsin in 1969.

Having earned numerous awards, Dr. McGrath is the former Senior Vice President of Science Applications International Corporation (SAIC). During his career, he has also worked at Sandia National Laboratories and the Environmental Protection Agency, and has served on the U.S. Nuclear Regulatory Commission.

Dr. McGrath’s international technical and business expertise put him in an ideal position to assess the future. He believes the actions of individuals still matter and can have major impacts. “In hindsight, yesterday’s problem or issue appears to have been easier to address, while those we are currently facing appear to be insurmountable. Either you set yourself to effect change or someone else or event will do it for you. I, personally, prefer to strive to influence my future rather than simply accept what comes along.” ■

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