

## Learning By Doing ABROAD

### Grad Student Represents CSC at Conference in Japan

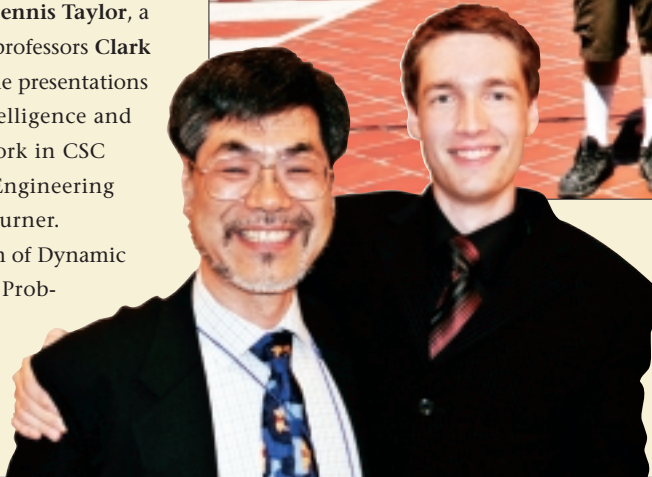
By Brett Bojduj  
CSC Graduate Student

**A**s a Computer Science graduate student, I attended the 20th International Conference on Industrial Engineering and other applications of Applied Intelligent Systems at the University of Kyoto in Japan.

There, I presented two papers that were written in cooperation with **Dennis Taylor**, a fellow graduate student, and professors **Clark Turner** and **Franz Kurfess**. The presentations covered topics in artificial intelligence and were based in part on my work in CSC 508, the graduate Software Engineering course taught by Professor Turner.

The papers, "Optimization of Dynamic Combinatorial Optimization Problems Through Truth Maintenance" and "Hierarchical

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*Brett Bojduj broadened his educational experience by traveling to Japan, where he visited Shurijo (above) and met Hiroshi Okuno, chair of the Industrial Engineering Conference and a Kyoto University professor (left).*



India D'Avignon and Ignatios Vakalis

▼ FROM THE CHAIR: IGNATIOS VAKALIS

## Achieving Success on Many Levels

**W**ow! It has already been a year since I joined Cal Poly as the chair of our Computer Science Department. It has been a busy year, full of learning; of working with a group of exceptional faculty and staff; of serving and educating our students; of getting to know some of our alumni, donors and industry collaborators; of professional (and personal)

joy; and a year of continuing the open dialogue, communication and mutual support among the members of the department. Such a pleasant work environment helps me quickly forget the "not so small" amount of paperwork that passes over my desk every day.

The winter 2008 edition of our *Voices* newsletter is full of success stories. You can

See Success ▼ page 2

## Success ▼ from page 1

read all about the great adventures of Professor **Mei-Ling Liu** in Macedonia, the success story of Professor **Chris Clark** in his robotics research on the ground and most notably underwater (no oxygen required), and the outstanding volunteer work of staff member **Greg Porter** during the aftermath of Hurricane Katrina.

New faculty and staff, Professor **Alexander Dekhtyar** and **Greg Porter**, are enriching our out-of-the-box thinking. Success is achieved by the right blend of technical and political wisdom from senior faculty married with the unquenchable energy of our younger colleagues.

There are also success stories of our colleagues obtaining grant funding such as that for a new parallel computing system, thanks to Professor **Diana Franklin**, and organizing a summer faculty development workshop, thanks to Professor **John Clements**.

Our Interactive Entertainment/Gaming curriculum is underway with ever increasing relationships with DreamWorks, Disney and other gaming companies.

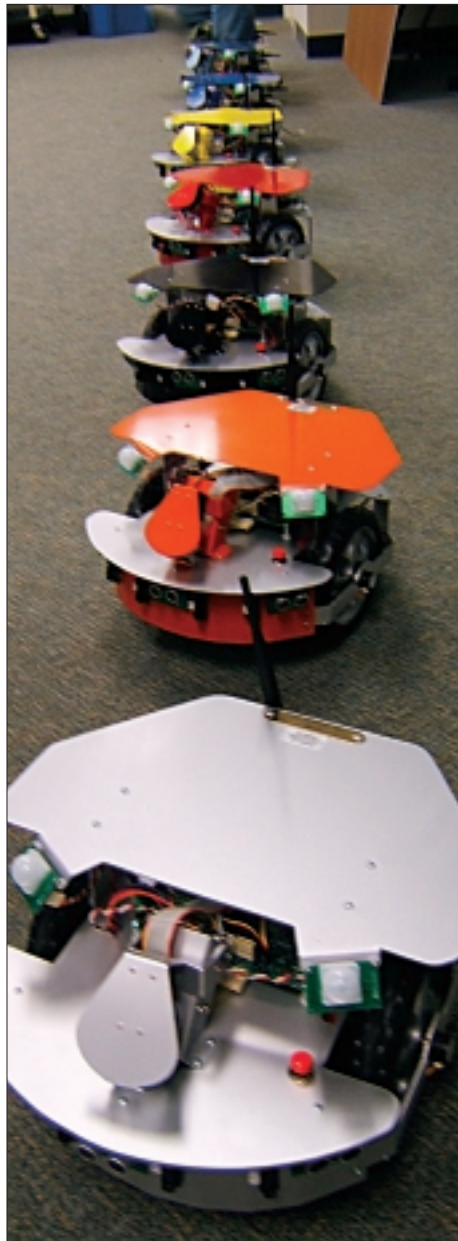
A snapshot of our student success is captured by the outstanding achievements of graduate student **Brett Bojduj**.

Our connections with other departments in the college and beyond are increasing. For example, our new parallel computing system runs simulations from our colleagues in Aerospace and Mechanical Engineering. Let's not forget that computing is the fabric and not just the tool to engineering and science.

You may be wondering about the picture on page 1 associated with my brief report. On July 26, 2007, I married **India D'Avignon** in a very small wedding ceremony in Cambria, practically on the beach, on a crisp, sunny day. There was no fog; I guess miracles still happen!

India and I met at Capital University in Columbus, Ohio, where she was a professor of piano and chair of the keyboard department. India decided to join me on the Central Coast and start a new life at Cal Poly, where she is currently teaching.

With her guidance and advice, it is becoming more and more evident that the CS graduates who will be successful well into the



Read more about Professor Clark's robots on page 5.

future (not just getting a job) are those who are developing a new way of thinking in combining creative and technical competencies for leading the knowledge economy.

I am confident that you will enjoy this edition of *Voices*, and I hope that some of the "voices" will resonate and capture your interest and passion. Let me know by contacting me at [ivakalis@calpoly.edu](mailto:ivakalis@calpoly.edu) or (805) 756-6285.

IGNATIOS VAKALIS ▲ DEPARTMENT CHAIR

## Abroad ▼ from page 1

Visualization for Chance Discovery," were published in Springer's book series, *Lecture Notes in Artificial Intelligence* (LNAI 4570), as part of the IEA/AIE 2007 conference proceedings.

It is difficult to travel to a conference as a student since conference funding can be hard to find. Fortunately, the Computer Science Department, the Student Fee Committee, and the Research and Graduate Programs office paid my expenses for the trip.

In Kyoto, I was fortunate to stay with a Japanese family, which afforded me the opportunity to practice my Japanese and learn more about Japanese culture. This was especially the case because the family I stayed with did not speak any English! It was a very educational and humbling experience for me.

Before and after the conference, I explored Tokyo, Kyoto and Nara. I visited the Japanese Imperial Palace in Tokyo, the Imperial Villa in Katsura, near Kyoto, and many Buddhist temples and Shinto shrines, many of which are centuries old and designated as UNESCO World Heritage sites.

After the conference, I traveled to Ishigaki Jima, which is an island in the south of Japan, near Taiwan. I enjoyed snorkeling with manta rays, which were over three meters across, and kayaking down a river through a jungle, surrounded by mangrove trees.

In addition to sightseeing, I also gave a presentation on some of my research at the University of Tokyo. It was a great opportunity to get feedback on my work and connect with other people working in the same field. At the University of Tokyo, I was asked to write a chapter in an upcoming book in my area of research.

My experience at the conference and in Japan was very useful and gave me a lot of practical knowledge about research and academic life. I look forward to returning to Japan next year to do research for my thesis.

I recommend that everyone try to do research, as it opens up new possibilities to expand one's knowledge.

## ▼ SEND US YOUR NEWS

We welcome your news and photos. Please contact Cindy Bitto at (805) 756-7229 or [cbitto@csc.calpoly.edu](mailto:cbitto@csc.calpoly.edu).





# IN A WORD ... CHALLENGING

## Macedonian Trip Proves to be Language Lesson for Professor

By Professor Mei-Ling L. Liu

"Hello" is "Zdravo!" "Thank you" is "Bla-go-da-ram." Armed with such Macedonian word power, I landed in Skopje, the capital city of the Republic of Macedonia, on a wintry day in 2007. Just how unprepared I was became evident when for weeks, I – a U.S. Fulbright Scholar – was lost in a maze of unrecognizable signage. It took me a week to begin to effortlessly map "petopah" to "restaurant," "hotap" to "notary," "anteka" to "pharmacy," etc.

And just when I was getting comfortable with Macedonian in Skopje, where I lived, a suspicion of mine was realized. The primary language at South East Europe University (SEEU) in Tetovo, where I was to teach and research, is not English, not Macedonian, but Albanian.

Beyond untangling the languages, my life in Macedonia was rich with everyday challenges. How to get groceries without a car? Dry towels and sheets without a dryer? Get enough Denars in tens of thousands to pay rent? Tell a Macedonian cab driver to make a quick right after a left turn?



One of Professor Liu's sightseeing destinations in Macedonia was the Church of St. Jovan (top). The Cal Poly professor taught classes at South East Europe University (above).

I had more than my share of misadventures. How, with a severely limited vocabulary of the local language, do you get out of a jam of being locked out of your apartment? Arrange to be on a van-pool with a driver who does not speak English? What to do when you find yourself on a vehicle with total strangers who are openly tipping the bottles in celebration of TGIF?

In what language should you scream when your wallet has just been snatched from your purse by a street urchin? Or when an ATM machine just confiscated your card?

But the rewards, too, were rich. The natural beauty of the country is unmistakable. In addition to the cities of Skopje and Tetovo, I was fortunate to have had the opportunity of visiting Ohrid, Bitola, Gostivar, See Macedonia ▼ page 4

## Alex Dekhtyar Joins CSC Department

I was excited to join the Computer Science Department at Cal Poly during fall quarter.

When I was five years old, I would tell anyone and everyone who'd listen: "My father is a mathematician, my mother is a mathematician, and I will be one when I grow up." Thirty years later, the promise (hopefully) fulfilled, there are no regrets, but I did allow the notion of "mathematics"



to encompass the everexpanding horizons of computer science.

In the 15 years or so that I've been paying attention to the science aspects of computer science, I have walked the path from theory to empirical science. I worked with a wide range of people: scholars of old English literature who wanted to assemble and disseminate their knowledge; independent verification and validation (IV&V) analysts who needed to ensure that NASA's mission-critical software was written to spec; case managers working with clients in the new welfare-to-work system, whose decision-making and whose advice to their clients we tried to model.

From a more biographical perspective, I graduated in 1994 from Tver State University in Russia with an undergraduate degree in applied math and computer science and a desire to pursue a career in science. Prior to graduation, I spent one academic year at the University of Alabama (Tuscaloosa) as part of an exchange program between Russia and the USA. I joined

*Alex Dekhtyar with sons Victor (middle) and Gregory*

the graduate program at the University of Maryland in College Park in 1995, in part because I had some prospective advisors in mind, and in part because I liked the idea of living next door to Washington, D.C. for five years. In 2000, I graduated from UMD, and prior to joining Cal Poly, worked for seven years at the Department of Computer Science at the University of Kentucky.

My research spans the fields of databases and artificial intelligence, with applications to such diverse areas as software engineering and computing in humanities. I study how one can reason with uncertain data and how uncertain data can be efficiently stored and manipulated in databases. I work with humanities scholars on finding ways to manipulate complex meta-data used to describe historical documents.

I work with software engineers on using information retrieval and data mining techniques to improve the time and the accuracy of the process of tracing between two software artifacts.

I also make a hobby of doing research with family members: I have joint papers with my father and my wife, and there is still hope left for at least one of my two sons.

In my spare time, I read, listen to music and run together with my older son, Victor, around the woods, holding a GPS receiver and looking for plastic boxes full of trinkets – an activity otherwise known as geocaching.

– Professor Alex Dekhtyar

## Macedonia ▼ from page 3

Matka and Mavrovo, where I enjoyed many breathtaking sights, some rarely seen by outsiders.

The humble economy of Macedonia belies the intelligence of its citizens. By necessity, most Macedonians are bilingual, speaking Macedonian and Albanian. Additionally, its young people are well versed in English.

Macedonians are avid readers, as evidenced by the vast array of publications on display in newsstands and the popularity of their bookstores and libraries. I had the privilege of meeting some of the brightest young Macedonians when I served on a panel that

interviewed candidates for a Fulbright doctoral fellowship, including a young man who scored perfectly in the physics subject test of our GRE (Graduate Record Examinations.)

At SEEU, I taught two sections of an undergraduate course in Distributed Computing in modern classrooms where the facilities did not always function as they should. In the end, only a handful of students finished my course, but the ones who persisted impressed me greatly.

Elsewhere, I attended conferences; I gave a number of talks at universities and city libraries; I made many contacts, with some of

whom I have hope of developing long-term collaborations.

I bade farewell to Macedonia in July 2007 and returned to Cal Poly with renewed energy and a broadened perspective, 10 pounds lighter and much healthier.

Among the trinkets that I brought back, my most prized is a miniature brightly colored flag of the Republic of Macedonia. I promise to put this flag to good use for the amusement of Department Chair **Ignatios Vakalis**.\*

*\*Note: If you are puzzled by the last sentence, try an online search for information about the "Macedonia flag controversy."*



By Christopher Clark  
Assistant Professor, CS/CE

Before arriving at Cal Poly, my hours at work were spent teaching and conducting research in the area of robotics and autonomous systems.

In January 2007, I moved to Cal Poly, and through the support of the faculty and students in the Computer Science Department, I have been able to continue these efforts. Better yet, I have had the opportunity to start new courses and projects.

In the Aerospace Robotics Lab at Stanford, where I completed my Ph.D., I studied motion planning in multi-robot systems. My goal was to develop algorithms that were scalable, but could deal with real-world constraints like limited communication and sensing. I wanted to develop algorithms that could construct collision-free trajectories for many robots, with real-time constraints. This led to the development of a new strategy based on probabilistic road maps (PRMS).

After graduating, I realized that only so many multi-robot systems would be deployed on Mars during my lifetime. Hence, I broadened my scope to include intelligent and autonomous vehicles. Many of the same problems and approaches I used in the past were applicable to the large numbers of vehicles on the highway. My research (or should I say my students' research!) in inter-vehicle communication (IVC)-based intelligent transportation systems (ITS), has led the development of new lane position estimation algorithms. Also, we designed a new decentralized lane assignment algorithm that uses linear programming (LP) techniques to optimize traffic flow. Just recently, we completed a new position estimation strategy that fuses aerial images and onboard camera images to predict the vehicle's location in urban areas where GPS is not available.

I am now completing a project in modular and reconfigurable robots (MRR). The idea is that the robots can be optimized to the assembly task at hand. Our work looked at design of the MRR, control using non-linear



*Students (from left) John Hoare, AJ Reid and Nick Kubiak implement closed-loop position control for the autonomous robot.*

# TOO MANY ROBOTS, TOO LITTLE TIME

## CHRISTOPHER CLARK'S COURSES CHALLENGE STUDENTS IN ALL THINGS ROBOTIC

back stepping methods, and configuration optimization using genetic algorithms. Our GA will determine the optimal configuration of links and joints that will allow the manipulator to reach all assembly points in the workspace and minimize energy when moving to these points.

I have also been working on coordinating the motion of many autonomous vehicles in tunnel settings where vehicles have little room to maneuver. When tunnels are single-lane, the coordination becomes difficult. By formulating the motion planning problem into a multi-phase tree-based search, we have been able to plan for hundreds of vehicles in less than a second. Moreover, we can implement task assignments for the vehicles that can query our algorithm to make sure vehicles won't collide when trying to accomplish their tasks.

At Cal Poly, I have been fortunate to have access to the Cal Poly Center for Ocean Marine Sciences. A good deal of my time is now dedicated to underwater robot research. I am currently researching algorithms to plan missions for AUVs (autonomous underwater vehicles), and autonomously track fish. In September 2008, I will travel to Malta to aid archeologists who are studying the cistern systems in ancient buildings. My robot will be mapping out these underwater tunnel systems, hopefully giving the archeologists the answers they are looking for, and maybe even finding some treasure!

With all this research, who has time to teach? Luckily for me, I have been able to develop and teach two new courses: Autonomous Robot Navigation and Multi-Robot Systems. The students really enjoyed these courses, and they exceeded my expectations in performance. Thanks should be made to the CS students who helped fund the purchase of

these robots with the Student Fee Committee funds.

Next time you are on campus, keep an eye out for the latest and greatest robot projects. Soon there will be a Mars Sandbox, a swimming pool dedicated to robots, autonomous golf carts for transportation, and don't forget Professor John Seng's robotic wheelchair.



# TeachScheme, ReachJava!



*Professor John Clements assists student Kendra Baughman in a course where students navigate the challenges of computer programming.*

Ten years ago, the TeachScheme! project set out to show high school teachers how to make computer programming a part of every student's education. Its combination of a simple language, a step-by-step textbook, and a supportive programming environment helped high schools and colleges around the world teach programming to introductory students using DrScheme and the "How To Design Programs" textbook.

Our next step is to tackle the messy world of Java, where design decisions abound and simple things can be complicated. In the TeachScheme, ReachJava! workshops, initiated last year with full support from the National Science Foundation, college instructors learn how to apply the principles of TeachScheme! to a second-semester course in Java. The five-day sequence includes an accelerated introduction to TeachScheme! and a detailed account of "How to Design Classes," the second-semester textbook of the new material.

The program is in its second year with workshops in Boston, New York, Salt Lake City, and San Luis Obispo. For details, visit <http://www.teach-scheme.org>.

– Professor John Clements

# FUN & GAMES

## IE Projects Prep Students for Jobs, Says Advisory Group

By Assistant Professor Zoe Wood

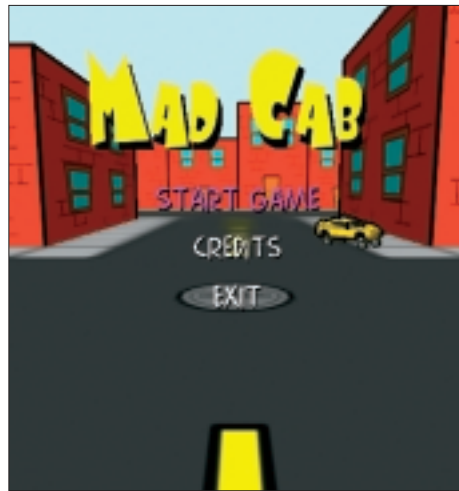
**C**al Poly faculty members continue their development of a new Interactive Entertainment Technology (IET) curriculum.

In January 2007, the department's IET curriculum development committee, Professors **Haungs, Keen and Wood**, hosted its first IE advisory group meeting with representatives from industry. Advisors came from a wide range of industry, including large game and entertainment companies like Electronic Arts and Disney, and smaller studios and firms focused on mobile phone gaming. This first meeting served as a chance for the faculty and industry representatives to brainstorm about important skills and attributes of students interested in this industry and how best to incorporate those skills into academic courses.

One of the key ideas conveyed in the meeting was the need for students to have some experience "shipping a product." The industry representatives noted that students needed experience seeing large projects from start to finish, including the design, implementation, debugging, testing and packaging of the product. Many advisors commented that students with complete computer games that they built and tested with friends were more marketable than students who had attempted very complex games and completed some complex technologies, but not a whole game.

Advisory members also emphasized the need for students to work in large teams and gain experience working on large existing code bases. They expressed that it was essential that students be able to communicate well with other team members and especially with non-technical team members, such as artists.

The advisory group actually suggested specific experiences they would like students to have in their course work. These exercises



*Student projects like Mad Cab build real-world skills.*

included having the students work through case studies in debugging, profiling and optimizing a large existing code base and having the students participate in a code swap, where one student implements and documents part of a solution and then another student must complete and test the project. These skills are highly valued in the Interactive Entertainment industry due to the fact that much of their development is done in large teams working with existing code.

Other important recommendations from the advisory members included the need for students to have very strong core skills in computer science along with a possible emphasis in a given track in IE. Some of the tracks that the group identified were graphics, scripting and tool development, user interfaces, audio, networking and concurrency, databases, project management and game design.

The department's IE curriculum development committee has integrated the information gained in this initial advisory meeting into existing classes like CPE 476, Real-time 3D Computer Graphics Software Systems, taught in spring 2007, and the very first offering of CSC 171, Introduction to Interactive Entertainment, in fall 2007.

Additionally, the meeting information will likewise continue to inform decisions about the Interactive Entertainment curriculum development in the coming years. For more information, see:

<http://www.csc.calpoly.edu/~gamedev/>

[http://www.csc.calpoly.edu/~zwood/teaching/csc476/csc476\\_07.html](http://www.csc.calpoly.edu/~zwood/teaching/csc476/csc476_07.html)

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Your contributions make a significant difference to us! **One hundred percent** of this money goes to the department and is used to benefit students and our faculty's professional development. With these contributions, we continue to keep our focus on the future.

Every effort has been made to ensure the accuracy of this listing of contributors who made donations between July 1, 2005 and July 1, 2007. Regrettably, mistakes do sometimes occur. If you find an error, please contact us at (805) 756-2824.

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*continued on page 8*



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Amgen "Outstanding CS Junior Award"	\$1,000	Jason Anderson	CSC - Junior
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## GRANTS CENTRAL

### Faculty Members Secure Funds to Enhance CSC Program

**Michael Haungs**, in collaboration with **Diana Franklin** – \$30,000 from Google to infuse parallel computing concepts into the curriculum

**Michael Haungs** – \$2,250 State Faculty Support Grant

**David Janzen**, in collaboration with **John Clements** – \$25,000 from Lockheed Martin for "Test-Driven Learning: Integrating Test-Driven Development in an Early Programming Course"

**Chris Clark** – \$25,000 from Lockheed Martin

**Chris Clark** – \$11,000 State Faculty Support Grant for "Simultaneous Localization and Mapping of Underwater Tunnel Systems and Autonomous Underwater Robot Systems for Distributed Sampling Applications"

**John Clements** – \$500,000 NSF Collaborative Grant

**Diana Franklin** – \$300,000 multi-year NSF Early Career Development (Career) Grant titled "Horseshoes and Hand Grenades: Exploiting Error Tolerance in Applications"

**Diana Franklin** – \$45,000 NSF Major Research Implementation Grant to purchase a 64-processor parallel cluster

**Clark Turner** – \$15,000 from Lockheed Martin for "Professional Responsibilities in Software and Systems Design"

**Franz Kurfess** – NSF Grant for a multi-disciplinary honors student project on "Human Computer Interaction (HCI)"

**Ignatios Vakalis** – serving as co-PI on a \$400,000 three-year NSF collaborative grant for course and curriculum development

#### **MAJOR FACULTY GRANTS PENDING:**

**David Janzen** – NSF Career Grant for "Planting Test-Driven Development SEEDS"

**Christopher Clark** – NSF proposal for "Improving Confidence in Detection and Classification of Underwater Explosives Using Autonomous Systems"





*Greg Porter (right) and colleague deliver replacement server to Louisiana National Guard's disaster recovery site.*

## BEFORE CAL POLY, KATRINA CALLED

### Former National Guardsman Brings Expertise to CSC Lab

I joined the Computer Science Department in January 2007 as an operating systems analyst and serve as a system administrator in the Computer Systems Lab.

Before coming to Cal Poly, I served in the California Army National Guard as a signal officer and worked full time as an information technology manager at Camp San Luis Obispo until my retirement.

While serving in the Guard, I had a number of interesting experiences, but one of the most memorable was when I volunteered to go to Louisiana after Hurricane Katrina to help rebuild the Louisiana National Guard's computer center. The center was originally at Jackson Barracks in New Orleans' major flood zone, and their computers were under water for a month. They reconstituted at Camp Beauregard, La., a few hours inland. Their entire computing and network infrastructure needed to be replaced.

To CSC lab operations, I have been applying my many years of experience running mission critical data centers. I have completed a number of projects to make lab systems perform better, be more

fault tolerant and easier for students and faculty to use. I intend to move critical lab file servers, database servers, and application servers to highly available clusters in the near future.



*Greg Porter*

In my time at Cal Poly, I have enjoyed getting to know both students and faculty better. I particularly enjoy working with students on projects or problems. The lab offers real opportunities for students to get significant hands-on experience with state-of-the-art equipment and techniques. I find that they often come up with highly original suggestions on how to improve lab operations.

I have an A.A. Degree in electronics from Cuesta College and a B.S. Degree in computer information systems from Regent's College. I hold a number of technical certifications such as Oracle Master and Oracle Certified Database Administrator, and I'm a certified system administrator in HP-UX, Solaris and Windows.

I live in Paso Robles with my wife, Leslie, son, Austin, and our little white dog, Pearl.

— Greg Porter

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*continued on page 10*

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*continued from page 9*

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*continued*



*Members of the Computer Science Fee Allocation Committee oversee a \$380,000 budget.*

## **CSC's Student Fee Committee Benefits CSC Students**

**By John Vu**  
**Student Fee Committee Chair**

**S**erving the students and faculty of the Computer Science Department is the heart of the Computer Science Fee Allocation Committee (CSCFAC).

The CSCFAC came into existence after the budget crisis in the 1990s, giving power to students on how to spend the special fees collected. The group is currently governed by 15 students majoring in Computer Science and Software Engineering who oversee a budget of \$380,000. The money comes directly from the students' special fees and may only be spent by students.

Over the last two years, the CSCFAC has invested at least 90 percent of the budget in maintaining and expanding computer science courses, 5 percent for tutoring hours and lab hours, and 5 percent toward special projects,

including computer lab renovations. My goal for this year is to encourage all students and faculty members to apply for our special projects fund, including conferences or special lab materials. Last year, we were able to purchase robots for Assistant Professor **Christopher Clark's** robotics class and send one graduate student to a conference in Europe. Our committee members are ready to listen and help to make our department the best.

"I personally joined the committee because I had ideas that I believed would improve the CSC Department," says vice president **Jason Anderson**. "By becoming a member, I have not only been able to voice my opinions, but also the opinions and suggestions of other computer science students. We welcome the input of all CSC/SE students to improve the CSC Department's job of facilitating the growth and education of its students."



## **2007 Spring Commencement**

*They did it! These grads earned bachelor's and master's degrees in Computer Science and Software Engineering.*



## Campus Hosts Fun-Filled Engineering Activity Days

In July, 2007, Cal Poly hosted Engineering Activity Days, a one-week program introducing high school females and minorities to the fun of engineering.

Sessions offered included computer science, computer engineering, electrical engineering, materials engineering, environmental engineering, civil engineering, and aeronautical engineering. Activities consisted

of programming robots to play music and/or make spirograph-like designs, building rockets, making foot-triggered light switches, making ice cream with liquid nitrogen, and destroying concrete. The students also took a trip to Diablo nuclear power plant.

Thank you, donors, for making this camp a reality! We hope to make it an annual event.

— Professor Diana Franklin



## IAC Talks Opportunities with CSC Students, Staff

The Computer Science Department Industrial Advisory Council met Friday Nov. 9, 2007. Industry representatives spoke with students and staff about curriculum and career opportunities at the college.

The members are (back row, from left): Jim Chappell, Centrifry Corporation; Peter Breunig, Chevron; Rick Bergquist, Vecta; Jim Donahue, Adobe; Barry Bruins,

Cisco; Jim Mainard, DreamWorks; Neal Openshaw, Qualcomm; Babu Turumella, Sun Microsystems; and Wolfgang Polak, consultant.

Front row: Rick Spohn, IBM; Michael Van De Vander, Sun Microsystems; David Martin, Borland Software Corporation; Gaines Coleman, St. Jude Medical Corp.; and Ray Stratton, Management Technology Inc.

### ▼ IN MEMORIAM

#### Emile Edward Attala

JANUARY 1934 - JUNE 2007



Emile Attala

Emile Edward Attala, an accomplished engineer and computer scientist, passed away June 18, 2007 at his San Luis Obispo home. He was 73.

Emile was born in Cairo, Egypt, in 1934.

In 1958, he earned a degree in petroleum engineering and worked in Middle Eastern oil fields before immigrating to America.

In 1962, he enrolled at UC Berkeley to pursue a master's degree in engineering.

A job with NASA followed, during which he worked as part of a three-man Apollo 13 rescue mission that programmed the back-up system for the troubled spaceship's 1970 flight to the moon. Soon afterward, Emile took an associate professor position in Cal Poly's new Computer Science Department.

"Teaching and telling stories, those were his passions," says his son John. He says his father also loved gathering with family and friends for Middle Eastern dinners.

Emile obtained his Ph.D. in computer science at UC Santa Barbara while teaching at Cal Poly. In 1978, he was appointed chair of the Computer Science and Statistics Department. He retired as a professor emeritus in 1997.

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## WOWee Parade

*CSC Department  
Chair Ignatios Vakalis  
leads a procession of  
incoming freshmen  
around the campus  
during Week of  
Welcome (WOW) in  
September 2007.  
Welcome, frosh!*