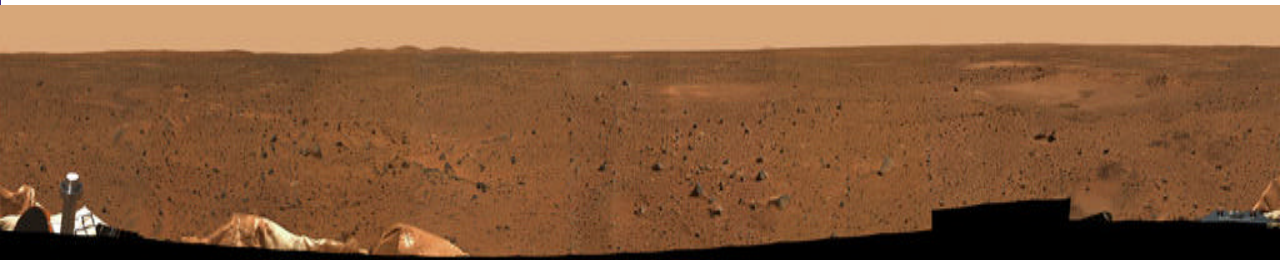


e-Synergy

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SEAS Researchers Analyze Atmosphere on Mars and Reconstruct Trajectory of Mars Rover "Spirit"

The first 360-degree panoramic view of the Martian surface, taken on Mars by the Mars Exploration Rover Spirit's panoramic camera. Part of the spacecraft can be seen in the lower corner regions. (Photo from NASA's Jet Propulsion Laboratory website).

SEAS researchers associated with NASA's Langley Research Center in Hampton, Virginia, are playing a major role in the Mars Exploration Rover mission by studying atmospheric entry and trajectory data from the rover "Spirit." Spirit successfully landed on Mars on January 4 after seven months of space travel.

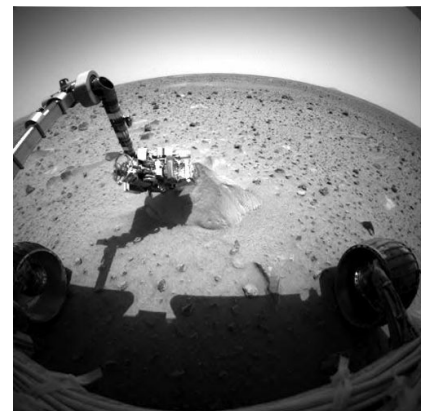
SEAS researchers at Langley, previously part of the GW/NASA Joint Institute for Advancement of Flight Sciences (JIAFS), analyzed accelerometer and gyro readings from Spirit's trip through the Martian atmosphere and found NASA's temperature predictions for the Martian atmosphere to be "right on track." The researchers are continuing to reconstruct the trajectory of Spirit to compare it with NASA's planned trajectory and study what made Spirit's

entry, descent, and landing on Mars so successful.

"We are studying the parameters that made the Spirit landing successful in hopes of duplicating conditions the second time around, as well as comparing actual and predicted temperature measurements of the Martian atmosphere," said Bob Blanchard, lead research scientist in the SEAS group. "These are two very significant tasks; obviously getting Spirit and now Opportunity safely on Mars is critical to the Mars Exploration Rover mission."

The phase of the Mars Exploration Rover mission that SEAS researchers are involved in is called the entry, descent, and landing portion of the mission. This phase begins when the spacecrafts reach Mars' atmosphere at approximately 80 miles above the surface of the planet and ends when the landers are safely on the surface of Mars.

The descent through the Martian atmosphere takes approximately six minutes, during which time the spacecraft slows from approximately 12,000 to zero miles per hour.

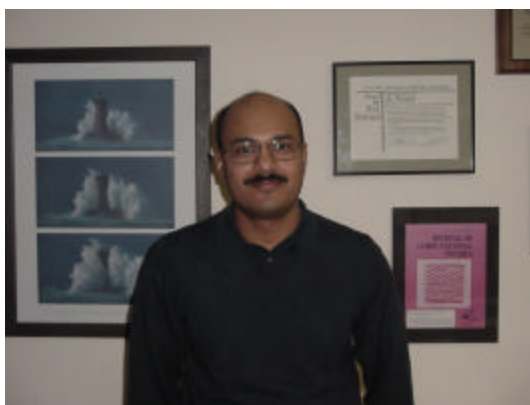


NASA's Mars Exploration Rover Spirit took and returned this image on January 28, 2004. (Photo from NASA's Jet Propulsion Laboratory website).

Rajat Mittal: Pushing the Limits of Computational Fluid Dynamics

Looking back, SEAS Professor Rajat Mittal believes that “there was never really any doubt in my mind that I wanted to be anything other than an engineer.” Mittal accompanied his engineer father to construction sites as a child and later studied aeronautical engineering at the prestigious Indian Institute of Technology at Kanpur. He continued his studies at the University of Florida and the University of Illinois at Urbana-Champaign, earning his master’s and doctoral degrees, respectively. He finished with post-doctoral work at Stanford University’s Center for Turbulence Research.

Mittal and his team, which currently consists of eight doctoral students and one research scientist, study fluid mechanics or fluid flow. Specifically, they concentrate on computational fluid dynamics, which creates models of fluid flow on a computer and then uses the models to understand various applications of fluid mechanics—without actually having to conduct experiments. In aerospace engineering, such applica-



tions have traditionally focused on airflow over aircraft, but Mittal is looking beyond these to new and emerging areas.

He says, “More and more, my interest is turning toward areas where biology meets engineering. There’s no doubt that biomedical engineering [BME] will assume more importance in the coming decades, so there are lots of opportunities to do research in this area. It seems that the simulation tools we have developed for aerospace and mechanical engineering applications can lead to amazing new insights when applied to problems in biology and [BME].”

Currently, Mittal and his team of researchers are busy with a range of projects that lie at the intersection of biology and engineering. As part of the soon-to-be-created GW Institute of Biomedical Engineering, Mittal is collaborating with computer science professor James Hahn and Drs. Raymond Walsh and Steve Bielamowicz of GW’s School of Medicine to try to use computer models to predict the outcome of laryngeal surgery. Mittal talks enthusiastically about the Institute and how it will provide a forum to quickly bring together researchers from the engineering and medical fields.

Mittal’s team is working on two other interesting projects in the biol-

ogy arena that look at how fish swim in order to apply those principles to human and machine swimming and maneuverability. In one case, the team is working with the US Swimming Organization to determine whether computer models of fish swimming can help us better understand the mechanics of human swimming, thereby ultimately helping the U.S. Olympic Swimming Team bring home more medals in the 2008 Olympics.

The other project is part of a Multidisciplinary University Research Initiative grant from the U.S. Navy to determine how much of the mechanism that a fish uses to swim can actually be translated to a small autonomous underwater vehicle in order to improve its maneuverability and stealth. Mittal’s team includes zoologists from Harvard University and material scientists and mechanical engineers from the Massachusetts Institute of Technology.

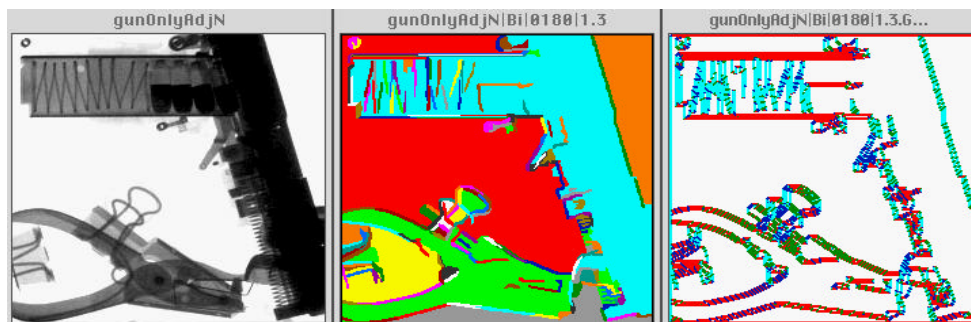
Beyond this, Mittal continues to work on research in more traditional areas of aeronautical and mechanical engineering. Says Mittal, “Currently, we have funding from most of the defense research agencies, so it speaks well of the broad support that our research program has received.” Among these are projects with the U.S. Air Force and with NASA in the emerging area of active flow control and with projects from the U.S. Army and Navy that deal with turbomachinery flows.

Says Mittal, “I’ve been at GW for nearly two-and-half years now, and one thing I’ve found is that, as in everything else, location is the key. And I think at GW we are in the right location to build collaborations. We are also very close to the agencies that support our work, and that is priceless. No amount of money can substitute for that.”

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Professor Bock Receives Grant for Project ALISA



Left panel: small section of the input X-ray image of a briefcase.

Center panel: output image from the ALISA Segmentation Module.

Right panel: output image from the ALISA Geometry Module: classes = **horizontal**, **vertical**, **upslant**, **downslant**

The Defense Threat Reduction Agency of the U.S. Department of Defense (DoD) has awarded a \$320,000 grant to Professor Peter Bock of the SEAS Department of Computer Science to support research for the next two years in Project ALISA (Adaptive Learning Image and Signal Analysis). Over the last decade, Professor Bock and his research assistants have designed, developed, and tested ALISA, whose successful applications have included the detection of intruders in complex physical environments, the location of roads and other structures in multi-spectral satellite images, the classification of cancer cells in liver tissue samples and mammograms, and others. Under the current DoD grant, Professor Bock and his team will apply the ALISA technology to two applications related to homeland or national security. The doctoral students on the team include David Portnoy, Carsten Oertel, Dan Phifer, and Alice Armstrong.

The first application uses ALISA for spectral decomposition to try to identify the components and concentrations of mixtures of radioisotopes, such as those that might be used to construct radiological or "dirty" bombs. Mixtures of radioactive material—which exist throughout our environment—give off signals that detectors can pick up. Based on these detected signals, ALISA can identify

the sources of the radiation and their relative concentrations in the mixture. This information, then, can be used to estimate what produced the signal (e.g., whether the radioactive source is a weapon or a mixture used peacefully for cancer therapy).

Researchers already have been using other algorithms for some time to try to identify the radioisotopes in a given mixture, and several software packages exist for this purpose, but their accuracy, speed, and flexibility are not very high. On the other hand, results of initial pilot experiments suggest that the ALISA approach is significantly better in all three respects. A rigorous set of formal experiments under highly controlled laboratory conditions, as well as many complex real-world tests with data acquired from the field, are currently underway to validate the initial promising results of the pilot experiments.

The second application that Professor Bock's team will study is segmentation and classification of objects in x-ray images of luggage. The ultimate objective is to identify whether or not objects appearing in the image are likely to be weapons, such as handguns, knives, grenades, etc. Security agents at our nation's airports currently perform this task

manually by visual inspection. Professor Bock's team, however, believes that ALISA can help by performing a valuable screening step in this overall inspection process. Because computers don't get tired, as do humans working long and tedious shifts, error rates would decrease, a reduced number of security agents could focus on checking the few items singled-out by ALISA, and the remaining agents could be trained for other, higher-level activities involved in securing airport safety.

Did You Know . . .

"If you have selected good features, any classifier will work; if you have selected poor features, no classifier will work. The elusive art of pattern recognition is feature selection."

K. S. Fu (1930-1985)

GW Aviation Institute Hosts 12th Aviation Safety and Security Summit

From December 8-12, 2003, GW's Aviation Institute hosted twenty-six delegates from seven West African countries at the 12th International Summit on Aviation Safety and Security. Led by their respective minister of transportation, permanent secretary of the Ministry of Transportation, or director general of the Civil Aviation Authority, delegates from these countries convened in Washington D.C., for five days of discussions on improving civil aviation safety and security on both the regional and international levels. U.S. government officials and representatives of the West African Economic Community and the International Civil Aviation Organization also attended the Summit.

Ms. Marion Blakey, administrator of the Federal Aviation Administration (FAA), addressed the delegates during the opening ceremony of the Summit,



SEAS Professor Vahid Motevalli (left) and the Summit program administrator, George Novak (second from right), pose with delegates from Gambia, including His Excellency Bala Garba Jahumpa, secretary of state for works, construction and infrastructure (second from left); FAA Administrator Blakey (center); and Doug Lavin, assistant administrator for international aviation (far right).

and the Honorable James L. Oberstar, United States House of Representatives (D-MN 8th), ranking minority member, House Committee on Transportation and Infrastructure, addressed the Summit later during the program's first day.

The summit capped a busy year for GW's Aviation Institute, which hosted over 200 senior officials from more than 40 countries and international organizations at six summits in Washington D.C., and three regional aviation safety and security programs in Turkey, Costa Rica, and South Africa.

The international summits on aviation safety and security are conducted as part of a three-year, \$9 million cooperative agreement between GW and the FAA. The summits are conducted by a consortium of universities led by GW, with the participation of George Mason University, and in partnership with the U.S. Department of Transportation. Professor Vahid Motevalli of the Department of Civil and Environmental Engineering directs the program.

SACRI Awarded Grant to Study Astronaut Safety

The board of directors of the Space Shuttle Children's Fund (SSCF) recently decided to commission the first independent study of human space flight safety for the space shuttle and the International Space Station. After a competitive process, the SSCF awarded a two-year, \$300,000 grant to GW's Space and Advanced Communications Research Institute (SACRI) to study the technical, policy, and standards aspects of safety and risk minimization for the United States shuttle programs and other future manned space programs. This is the largest award that the new SACRI group has received to date.

A team of investigators will interview space experts at NASA, other U.S. government agencies, aerospace companies, research institutes, and representatives of other space agencies

around the world to identify ways to improve safety and reduce risks of future manned space missions. The investigation will examine ways to apply new developments in biotechnology, information technology and communications systems, robotics, ion propulsion, artificial intelligence, large-scale project management, modular construction, and anti-terrorist protection and escape capabilities to enhance the safety and productivity of future manned space efforts.

The team will be headed by Dr. Joseph Pelton, the director of SACRI and the former dean of the International Space University, and Professor John Logsdon, the director of the Space Policy Institute and a member of the Columbia Accident Investigation Board. Other

SACRI members who will work on the project include Dr. David Smith, Mr. Neil Helm, and Mr. Peter MacDoran. Justin Borodinsky, a graduate student in electrical and computer engineering, and Cirog Vyas, a doctoral candidate at the Space Policy Institute, will support the project.

SACRI is a part of the SEAS Department of Electrical and Computer Engineering, and the Space Policy Institute is housed within GW's Elliot School of International Affairs. The SSCF is a 501c3 charitable fund whose mission is to provide assistance to the children of astronauts lost in the Challenger, Columbia and any future space shuttle accident.

CSPRI Soon to Launch SELinux University Consortium

GW's Cyber Security Policy and Research Institute (CSPRI) will soon launch the Security Enhanced Linux (SELinux) University Consortium using seed money provided by the National Security Agency (NSA). The research and development activities will be located at the GW's Virginia Campus, where researchers aim to create a complete, usable, state-of-the-art, secure, open-source operating system based on SELinux. Participants in the Consortium hope to create a community of researchers, educators, developers, users, and administrators, actively participating in and using the secure operating system.

In the past few years, threats to cyberspace have risen dramatically, and as a result the national security of the United States is at risk of a debilitating disruption of its information systems. Because the healthy functioning of cyberspace is essential to the U.S. economy and national security, the NSA considers the creation of a viable secure operating system to be a critical research problem.

The NSA's Information Assurance Research Office, therefore, initiated SELinux, whose goal is the creation of an efficient architecture that provides support for security, and executes programs in a way that is largely transparent to the user and attractive to vendors, so that security controls can be successfully integrated into mainstream operating systems. The Consortium—built from academia, government, and the open-source community—will provide stewardship of the entire SELinux project, safeguarding its name, origin, goals and essential features.

The objectives of the project are to create research and development that can be commercialized to prevent cyber attacks against the nation's critical infrastructure, and to minimize damage and recovery time from cyber attacks that do occur. In particular, the project aims to complete the development of SELinux and its integration into a

standard distribution of Linux; to stimulate research on future secure operating systems; to incorporate research results from academia directly into a next version of SELinux; to develop programs on open-source SELinux through educational grants to the Centers of Academic Excellence; and to train the next generation of computer science students to contribute to open-source projects.

The SELinux University Consortium project will be led by Professor Dianne Martin, director of CSPRI and chair of the Department of Computer Science, and Tony Stanco, associate director of CSPRI. Other SEAS computer science faculty involved in this effort include Professors Bhagirath Narahari, Hyeong-Ah Choi, Abdou Youssef, Shmuel Rotenstreich, Rahul Simha, Jonathon Stanton, Lance Hoffman and Sead Muftic.

SEAS Begins New Outreach Initiatives

SEAS has begun several new initiatives this year to improve outreach to high schools and prospective SEAS students. Among these are visitation laboratories for students, chat sessions on the web, and visits to a number of high schools and local community colleges by Assistant Dean for Student Affairs David Grier.

"Much of our interaction with prospective students occurs in the new student reception center that was created last summer during the renovation of Tompkins Hall. The new reception center was built as part of an overall effort to create a welcoming environment at Tompkins Hall for visiting students and their families," says Dean Grier.

Visiting students to SEAS often have the opportunity to participate in a



SEAS students Will Alexander and Carine Doumit attempt to crush concrete in a preliminary demonstration lab.

series of demonstration laboratories, which are the School's most popular activities, to date. Many of the prospective students have had little experience in an engineering

facility, and this series of labs allows them to work with equipment and to experience some of the activity that is found in an engineering education. For example, students in the material testing room get to crush concrete and bend steel, while those in the steel bridge lab build a steel bridge and take it down again. Other labs demonstrate stall in a wind tunnel or give students the chance to assemble a circuit that they can later take home with them. (At least one student rewired his board and sent back a photo on the network).

Dean Grier notes, "It's been fun to see the laboratories generate an excitement in the students and a feeling of mastery. We're continuing to plan more demonstration labs for visiting students, as well as other outreach initiatives."

Developing a Virtual Environment Training Harness for the Navy

Professor Roger Kaufman of the Department of Mechanical and Aerospace Engineering is working with the Naval Research Laboratory (NRL) to develop mechanisms for training Marines in close-quarter combat. Using a harness system that interacts with a virtual reality simulator currently being developed at the NRL, this mechanism eventually will be used to train Marines in a confined space on shipboard.

The harness system that Professor Kaufman is designing will constrain the Marine to walk, run, crawl, or turn in place. The computer simulation and vision system that interacts with the harness monitors the performance of the Marine and drives a head-mounted, virtual reality display that shows what the Marine would



A SEAS student demonstrates the virtual environment training harness.

see or hear were he in an actual combat situation. The harness incorporates a unique spatial linkage mechanism and frame designed by Professor Kaufman and built in the SEAS machine shop with the aid of SEAS machinists Carl Behnke and Bill Rutkowski.

A third generation prototype of the new frame system has now been installed at the NRL and is in use in the laboratory of Dr. James Templeman (B.S., 1977, M.S., 1979, Ph.D., 1992). This frame will serve as a test bed and will be a key component of Dr. Templeman's ongoing research in the development of mobile interaction techniques for dismounted combat simulators. Others involved with this research at NRL are Linda Sibert (M.S., 1988), Patty Denbrook (M.S., 1978), and Rob Page (M.S., 1996).

The Office of Naval Research is funding this Virtual Technologies and Environment (VIRTE) research within the Navy's Long Range Future Naval Capability program.

CSPRI Teams with Private IT Firms to Analyze DOJ Information Sharing System

GW's Cyber Security Policy and Research Institute (CSPRI) and the Integrated Justice Information Systems (IJIS) Institute have established a lab at GW's Virginia Campus to conduct performance testing on a technology integration and information-sharing tool developed by the U.S. Department of Justice (DOJ), Office of Justice Programs (OJP).

Specifically, GW and the IJIS Institute are joining forces to analyze the OJP-sponsored Global Justice Extensible Markup Language Data Dictionary (GJXDD). The GJXDD is part of ongoing research and educational efforts by the OJP and others to improve system integration and information sharing in the justice and public safety communities.

There is a growing trend toward more integrated databases in law en-

forcement, with the goal of creating a more effective justice system and improved public safety," said Professor Dianne Martin, chair of the Department of Computer Science and director of CSPRI. "GW and the IJIS Institute are contributing to this goal by studying a specific DOJ-developed database and recommending improvements to the GJXDD to ensure it is the best available resource of information for the justice and public safety communities."

The completed research and recommendations for GJXDD by GW and the IJIS Institute will be publicized and distributed to agencies throughout the country using the system. Through the initial agreement between GW and the IJIS Institute, the groups will collaborate on GJXDD performance tests in the

500 square-foot test lab on the GW Virginia Campus through July 30, 2004. Two SEAS graduate students and one SEAS research faculty member will manage the analysis of the GJXDD, based on a test plan developed by the IJIS Institute.

The IJIS Institute is a non-profit corporation founded in the spring of 2001 and sustained by 52 information technology companies that are involved in developing and implementing justice information systems. The institute is funded primarily by grants from the OJP's Bureau of Justice Assistance.

NSBE Grows at GW

The GW chapter of the National Society of Black Engineers (NSBE) had a very active fall semester and has begun an equally active spring semester.

Under the leadership of its student executive board, the GW chapter has grown in membership, activities, and participation since last year, and the chapter's members are infused with a new sense of enthusiasm. The chapter has initiated a number of academic, social, and organizational activities for its members, and it is especially proud of the Pre-College Initiative (PCI) chapter that it created last fall at the nearby School Without Walls high school. Among the benefits that the PCI initiative provides to these high school students are tutoring sessions and SAT (Scholastic Aptitude Test) workshops.

In addition to increased participation in chapter activities, the GW chapter has



NSBE members get together for a monthly study lock-in.

been involved in other NSBE activities, as well. Three of the chapter members—Tysha Tolbert, Rachael Hurd, and Kiana Russell—have seats on NSBE's regional executive board, and 20 of its members attended the NSBE Fall Conference for NSBE's Region 2. During the conference the chapter won a regional chapter incentive award, and members Tai Prince and Demetria Tipps were

offered internships from companies present at the career fair.

Members of the chapter are also planning to attend NSBE's annual national convention in Dallas, Texas, this March, where they look forward to interacting with chapters throughout the U.S.

Among the spring events is a February 23 reception for Dr. Lydia Thomas, a GW alumnus who received a Black Engineer of the Year Award. For more information on this and other upcoming NSBE activities at GW, please see the NSBE website: www.gwnsbe.org or e-mail: nsbe@gwu.edu. Students interested in the PCI activities may stop by the School Without Walls, room 107, any Thursday at 3:30pm.

SEAS Student James Harris Wins U.S. Air Force Award

James Harris had a very good year last year. In addition to receiving his doctor of science degree in operations research from GW in December, he received the U.S. Air Force Senior Civilian Analyst of the Year Award for 2003 during the annual Air Force Operations Research Symposium at Hanscom Air Force Base.

The award that Harris received was based partly on his dissertation work, entitled *Sortie Generation Rate Model* (SGR), and partly on another model he developed for the Air Force, called the Aerospace Expeditionary Force (AEF) Process Model. Harris' SGR model has helped the Air Force dramatically reduce the time necessary to model such rates.

Before he developed his model, the Air Force used three computer models, each of which required its own input data, to compute sortie capability. Because the three models required extensive data processing and because they were located in different offices of the Air Force—and at times even in differ-

ent geographical locations—completing sortie rates generation required two to three months. Once the sortie rates were computed, changing the rate generation based on slightly different “what-if” analyses was difficult.

In contrast to this, Harris' SGR model is a stand-alone model that uses a single data set, composed of 49 data entries, and provides a sortie rate capability within minutes. Within two-to-three hours, the user can run as many as 100 different scenarios (data sets) and can easily do “what-if” analyses by varying the parameters. Harris' SGR model is so flexible that it is useful for computing sortie rates for the futuristic aircraft of the Air Force, the F/A-22, and the F35 aircraft, as well as for the aircraft the Air Force currently has.

Harris also received recognition for his AEF Process Model. The AEF Process Model examines the number of personnel required by the

Air Force over an eight-year period, considering personnel training, deployments, leave time, personnel attrition, recruiting, and an assortment of other personnel skill capabilities required to do the Air Force work. It is able to determine which skill areas are stressed because of a shortage of personnel and how many new personnel would be required to supplement the personnel shortage. Harris notes, “Since I am a government employee, it was a tremendous savings to the government for me to develop the models rather than hire contractors to develop the models.”

With regard to receiving this prestigious award, Harris simply says, “It's been gratifying to have the opportunity to use the education I received at GW and the other academic institutions I've attended to make a contribution to my country. That gives me a great sense of satisfaction.”

GW Team Visits the Middle East

For ten days last October, GW President Stephen Joel Trachtenberg, Executive Vice President for Academic Affairs Donald R. Lehman, and SEAS Dean Timothy Tong traveled through the Middle East in an effort to reconnect with GW alumni living in the region and to assess the opportunities for educational partnerships between GW and local institutions.

During recent years, the University has received several friendly inquiries regarding partnerships from individuals and institutions in Kuwait, Bahrain, and Jordan. In response to these inquiries, President Trachtenberg, Executive Vice President Lehman, and Dean Tong met with officials from the University of Kuwait, the University of Jordan, and Hashemite University, which is also in Jordan. They also met with individuals in Bahrain who are involved in building a private university there. The principals of the new university in Bahrain would like to work with GW to create its academic programs, and



GW's President Trachtenberg (second from right), Executive Vice President Lehman (far right), and SEAS Dean Tong (third from left) join Minister Jowder (third from right) and others interested in possible educational partnerships with GW.

they are especially interested in working jointly to build a computer science program. Discussions are now underway between GW and this new university to create an agreement that would facilitate possible future cooperation.

During their Middle East trip, the team held planned meetings with GW alumni in each country, including a meeting with Mr. Fahmi Bin Ali

Jowder, the minister of works and housing in Bahrain and a GW/SEAS alumnus.

The team also had the good fortune to run into several alumni with whom they did not have scheduled meetings. In each instance, they were gratified to hear the alumni speak fondly of GW and say that they feel they received a good education from the University.

While the team had a full schedule of business meetings during their trip, they were able to wind up the trip with a visit to Petra, Jordan's famous "City in the Rock." Their guide for the visit was Mr. Edward W. "Skip" Gnehm, the U.S. ambassador to Jordan and another GW graduate.

Deason Selected as Policy Research Scholar

In January, The George Washington Institute of Public Policy (GWIPP) selected SEAS Professor Jonathan Deason as a Policy Research Scholar. Professor Deason, who is a faculty member of the Department of Engineering Management and Systems Engineering (EMSE), submitted two policy-related research proposals to the Institute, and both proposals were selected in the 2004-05 Policy Research Scholar competition. The awards will not directly sponsor research, but they will provide offsets from teaching loads, enabling Professor Deason to pursue external funding for the projects described in his proposals.

Deason's proposed research project, *Optimization Modeling to Improve National Energy Security and Environmental Quality*, aims to assist the federal government in meeting the goals of the Energy Policy Act of 1992 (EPACT) and Executive Order 13149, which are intended to enhance the nation's energy security and improve environmental quality through increased alternative fuel use. EPACT and E.O. 13149 set forth a series of requirements for use of alternative fuel vehicles (AFVs), reductions in petroleum consumption, and other petroleum reducing measures. However, in the 11 years since EPACT was enacted,

most of the 18 covered federal agencies have failed to meet its requirements, due to rapid changes in AFV and alternative fuel availabilities, budgetary constraints, and other problems.

In conjunction with EMSE doctoral students, Professor Deason proposes to develop a series of mathematical optimization programs to assist federal agencies in developing optimal acquisition policies that will result in compliance with EPACT and E.O. 13149 under a variety of scenarios. The model will maximize petroleum consumption reductions subject to budget constraints, EPACT acquisition require-

(continued on next page)

SEAS Faculty Awards and Activities

At a December 8, 2003 ceremony at GW, **Dean Timothy Tong** was inducted into the Beta Omicron Chapter of the Phi Beta Delta Honor Society for International Scholars. The society recognizes faculty, staff, and students who have participated extensively in international education exchange. The society also serves as a vehicle to develop academic-based international programming, and it provides an on-campus network of faculty, staff, and students involved in international endeavors. Phi Beta Delta has chapters across the country and throughout the world.

Dr. Joseph Pelton has recently written three books on satellites. *Basics of Satellite Communications* and *Satellite Communications in the 21st Century: Trends and Technology* were published in fall 2003, while *Satellite Communications: Global Change Agent* is due to be published in early 2004. Dr. Pelton was also recently named the co-chair of an Asia-Pacific Space Policy Forum to be held in November 2004.

Professor Mike Stankosky was chosen as Academic Leader of the Year 2003 by the National Knowledge and Intellectual Property Management Taskforce. In selecting Professor Stankosky for this award, the taskforce cited his contributions as a scholar and innovator within the field of knowledge management.

The work of **Dr. Lawrence Bennett** was referenced in the 2003 Nobel Prize winning paper for physiology and medicine. The Nobel Prize was awarded in December to Paul C. Lauterbur for his 1973 paper in *Nature Magazine*, entitled "Image Formation by Induced Local Interactions: Examples Employing Nuclear Magnetic Resonance." In his paper, Dr. Lauterbur references the work of Dr. Bennett: "A possible application of considerable interest at this time would be to the in vivo study of malignant tumors, which have been shown to give proton nuclear magnetic resonance signals with much longer water spin-lattice relaxation times than

those in the corresponding normal tissues." This is the first Nobel Prize given in the field of magnetic resonance imaging.

Professor Enrique Campos-Nanez has recently had two papers accepted for publication: Campos-Nanez and S. D. Patek, "Dynamically Identifying Regenerative Cycles in Simulation-Based Optimization Algorithms for Markov Chains," to appear in *IEEE Transactions on Automatic Control*; and A. Garcia, E. Campos-Nanez, and J. Reitzes, "Dynamic Pricing and Learning in Electricity Markets," to appear in *Operations Research*.

Deason (continued from previous page)

ments, and other parameters, and it will minimize fleet AFV acquisition costs while meeting EPACKT mandates. The model will also aid federal fleet managers by allowing them to make "what if" calculations very rapidly, based on changing requirements and scenarios.

Professor Deason's other research proposal, *Assessment of Environmental Sustainability Trends in Federal and State Parks: Implications for Policy Development*, is intended to assess trends that reflect environmentally sustainable conditions within federal and state park systems and translate the results of such assessments into policy options to promote more envi-

ronmentally sustainable practices within the park systems of the United States. He envisions that the results of this research, which will involve other EMSE faculty members and doctoral students, will assist the National Park Service and state-level park systems in developing policies to facilitate long-term environmental sustainability of park operations.

Community News

Welcome the Newest Members of the SEAS Community

SEAS Director of Graduate Admissions Adina Lav gave birth on October 22, 2003, to a boy, Edden Lav. Edden weighed 8 pounds, 5 ounces at birth, and was 22 inches long. Both Edden and Adina are doing well.

Professor Xiuzhen Cheng of the Department of Computer Science gave birth on October 25, 2003, to a girl, Cassi Xiuzhen Chen. Cassi weighed 8 pounds, 5 ounces at birth, and was 21 inches long. Both Cassi and Xiuzhen are doing well.

Upcoming:

Engineers' Week: February 23-28

For information on this year's events, including the Engineers' Ball, please contact:

Puja Valiyil: puja65@gwu.edu

Rachel Safran: rsafran@gwu.edu

Ashley Canning: acanning@gwu.edu

ICEE Creates Forum for Energy and Environment Dialogue

With more than 360 speakers from 28 nations, the International Conference on Energy and Environment (ICEE), held in Shanghai, China from December 11-13, 2003, was a tremendous success. GW and the University of Shanghai for Science and Technology (USST) jointly organized the conference, which served as an international forum to exchange information and create a dialogue on critical energy and related environmental issues.

Topics covered during the conference ranged from technical issues such as measuring techniques in energy and environmental engineering, cryogenic engineering, waste technologies, combustion, power equipments and renewable energy technologies, to policy issues such as climate change and energy/environmental policies.

SEAS Dean Timothy Tong was co-chairman of the ICEE, along with USST President Kangmin Chen. Also partici-



Several of the GW participants pose for a group shot during a break in the ICEE.

pating in the ICEE were SEAS Professors Jonathan Deason and Charles Garris and doctoral students Elvin Yuzugullu, Yi-Chun Catherine Liu, and Hongfang Zhang. Professor Deason served as co-chairman of the International Organizing Committee for the event, chaired two sessions on advances in waste-stream technologies, and presented a keynote paper. Professor Garris also served

on the International Organizing Committee and chaired two sessions on advances in refrigeration, air-conditioning, and cryogenic engineering. Elvin Yuzugullu and Hongfang Zhang also presented papers.

A number of GW faculty and staff helped organize the conference during the previous two years. They include: SEAS Professor Robert Romano, Oscar Carrasco and Adina Lav of SEAS, and Professor Mark Starik of the School of Business and Public Management. Colleagues who helped from other universities include Professors Robert Beauchamp of the University of Maryland, Timothy Kao and Michael Chi of The Catholic University of America, and Gajanan Sabnis of Howard University.

For more information on the conference, please visit the web site at: <http://www.gwu.edu/~eem/ICEE/main.htm>.

SEAS Hosts 2nd Training Program for Industrial Leaders

Twenty-four industrial managers from China and Taiwan convened at GW for a four-week training program hosted by SEAS in November and December 2003. This marked the second year of the Training Program for China Manufacturing and Technology Leaders, which is supported by the Chiang Chen Industrial Charity Foundation of Hong Kong. The program teaches manufacturing technology and management practices to mid- and upper-level managers in a variety of industries.

During the program, the trainees worked with several professors from the SEAS Department of Engineering Management and Systems Engineering and two experts from local businesses. Among the topics covered were: global manufacturing and the World Trade Organization, taught by Dr. Kam Lau of Automated Precision,



Program trainees and GW faculty and program staff

Inc. (API); quality control, taught by Professor Rene van Dorp; case studies of American manufacturers, taught by Professor Marvin Hamner; project management, taught by Professor Howard Eisner; management of technical organizations, taught by Professor Robert Waters; management of e-commerce technologies, taught by Professor Theresa Jefferson; and intellectual

property law, taught by Dr. Mardson McQuay, a patent attorney.

Trainees also toured the Hughes Network Systems manufacturing plant, courtesy of SEAS alumnus Pradman Kaul, and the API manufacturing facilities. In addition to their coursework, the trainees also experienced American culture through a variety of activities. These included attending a live taping of CNN's "Crossfire" program and a Washington Wizards basketball game, visiting many of the museums and cultural sites in Washington, D.C., and participating in a business networking session with local business leaders who have connections to China and Taiwan. The program ended with a scenic boat cruise on the Potomac River.