



SCHOOL OF INFORMATION SCIENCES

UNIVERSITY OF PITTSBURGH

Learn to tame complexity

Returning NSF official sees bright future for telecommunications grads

Despite the prediction by many that the IT industry is becoming irrelevant, the value of the industry is only now beginning to emerge, predicts Taieb Znati, professor of computer science. A few years ago, many new IT companies saw their market values plummet, and some forecast the 'commoditization' of IT, said Znati, who holds a joint appointment in the School of Information Sciences.

"Commodity" has different meanings to different people," Znati said. "A PC is not a commodity in the same way that crude oil is a commodity. Look carefully at companies such as MCI/WorldCom, whose assets are now worth so little. Although this is a technology company, it was an investment decision based on an overly simplistic view of a complex telecommunication world that went bad."

"We need to start thinking about smart networks that can interact with users, and networks that exhibit some level of autonomic behavior. One vision is that a system can monitor the dynamics of its environment and detect problems and 'heal' itself when problems occur. We do not have these networks now, and it will take a lot of work to build them," Znati said. He recently returned from a four-year assignment with the National Science Foundation, where he was on loan from the University of Pittsburgh to serve as the senior program director of research in networking in the Directorate for Computer and Information Science and Engineering.

Znati said that researchers have barely scratched the surface of networking. "We don't know how to tame complexity, and don't have a science that will allow us to know about emergent behaviors in complex systems. Components may work well individually, but once compiled into larger, more complex systems, a tiny component may bring down the entire system."

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Emerging discipline, new book

Telegeoinformatics

Telegeoinformatics is a term coined by Hassan Karimi, assistant professor and director of the Geoinformatics Lab in the Department of Information Science and Telecommunications. "This is a new discipline," he said, "that encompasses telecommunications for mobile computing (*tele*), geospatial data and processing (*geo*), and information processing (*informatics*)."
Karimi recently co-edited a book, *Telegeoinformatics: Location-Based Computing and Services*, with Amin Hammad of Concordia University in Canada.

Karimi said that telegeoinformatics is emerging as a result of the integration of mobile computing, wired and wireless communications, and geoinformatics, including Geographic Information Systems (GIS), the Global Positioning System (GPS), and remote sensing techniques and technologies. Telegeoinformatics is a distributed mobile computing environment, he said, where location-aware mobile clients are interconnected to other mobile clients, stationary clients, and servers via wired and wireless communication networks.

(continued on page 2)

Governor honors Toni Carbo

Toni Carbo, professor of information sciences and public and international affairs at the University of Pittsburgh, was recently honored as a Distinguished Daughter of Pennsylvania by Governor Ed Rendell and Judge Marjorie Rendell, first lady of the Commonwealth.

Carbo's achievements and those of this year's six other honorees were highlighted at a presentation on Oct. 20. Carbo was nominated by the Women's Association of the University of Pittsburgh.

"The Governor and I are pleased to host these distinguished women and commend them for their leadership and contribution to the Commonwealth," said Judge Rendell. "These seven women are committed to issues of importance in Pennsylvania, and their accomplishments and awareness will shape the future of our state."

Carbo was dean of Pitt's School of Information Sciences from 1986 to 2002. She served as executive director of the U.S. National Commission on Libraries and Information Sciences during the Reagan Administration.

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Please let us know of the significant events in your life via email — Link@mail.sis.pitt.edu

Calling all alumni

The SIS Alumni Society (SAS) has been reborn through the efforts of a dedicated core of alumni who answered the Dean's call to once again make SAS a self-governing society. SAS is an open membership society that welcomes all alumni from every era to participate in both social events and projects that promote and assist SIS in its mission (www.sis.pitt.edu/people/alumni/SAS.html).

The next SAS meeting will be held on Thursday, Jan. 20, 2005, in the large commons room on the fifth floor of the IS building from 6:00 p.m. to 7:30 p.m. Denise Callihan, SAS president, hopes for a large turnout. "Think about bringing a fellow SIS alum or buddy and getting involved with our group. We will concentrate on putting together a calendar of fun events and helpful projects — please bring your calendars." One project that is being planned with SIS and Career Services is a student event to review resumes and conduct mock interviews. Ideas for social gatherings include an evening at Dave & Buster's, attending professional and Pitt sporting events, and touring the Petersen Events Center.

Interested alumni should contact SAS president Denise Callihan at 724-325-5221, or e-mail callihan@ppg.com.

Telegeoinformatics, continued

Emerging discipline, new book

and where the bulk of computations are location-based. Telegeoinformatics is emerging as a discipline that encompasses Location-Based Computing (LBC) that underpins computing and communication infrastructure, and Location-Based Services (LBS) that support the set of technologies and data to process application-specific requests.

Users of telegeoinformatics have diverse backgrounds and interests, but all want to solve a range of problems emphasizing location information. Karimi said that users of telegeoinformatics range from individuals seeking locations of nearby objects (e.g., restaurants) while driving, using in-car navigation systems or subscribing to LBS, to dispatchers managing a fleet of vehicles within an area in real time (e.g., delivery truck services), to engineers interested in obtaining such information as the most up-to-date imagery and GIS data to repair damage to infrastructure (e.g., bridges). Like users, applications of telegeoinformatics, both existing and emerging, are diverse and widespread, he said. Example applications include the fields of transportation, transit, utilities, environmental studies, navigation, planning, and public health.

Karimi received a PhD in geomatics engineering and an MS in computer science from the University of Calgary. Earlier he earned a BS in computer science at the University of New Brunswick. His current research interests include geoinformatics, grid/distributed/parallel computing, computational geometry, mobile computing and in-car navigation, spatial algorithms, and spatial databases.

Telegeoinformatics: Location-Based Computing and Services. 2004. Edited by Hassan Karimi (University of Pittsburgh) and Amin Hammad (Concordia University, Canada). Taylor & Francis Books, Inc.

Dialogue with the Dean

In the words of the immortal postcard from faraway, ". . . wish you were here," for it is impossible to share with you through a few pages of a newsletter the energy, enthusiasm, and excitement that pervades the halls of the School of Information Sciences. Indeed, the vitality we witness here is not unique to our School, but is emerging across the nation at our partner schools, as well.



You may hear me and others increasingly using the term 'Information Schools' to describe the evolution of our institutions as we adapt to the challenges and opportunities of an information-driven economy and society. These changes are reflected in a number of trends. Enrollments in graduate-level library and information science programs at SIS have been steadily rising. Last year they reached an historic high, and this year that record was again broken. Also encouraging are the recent employment data that show information sciences salaries for new graduates are up 10.7% over last year. That, coupled with Bureau of Labor Statistics data forecasting that the economy will add more new information-related jobs in the next 10 years than it did in the last 10 years bodes well for SIS and its partner schools.

But not all of the news is rosy. Other forces shaping our future include corporate trends toward outsourcing and offshoring, and increasingly complex and difficult regulations for international students who want to attend American schools. We are working with our newly-constituted Industry Advisory Council to better understand the economic forces with which they are dealing. Our objective is to refine SIS programs so that our students graduate with skills that are strategic to their employers and cannot be outsourced. In addition, while we adapt admissions procedures to accommodate more stringent INS requirements, we are also exploring alternative models to extend our reach internationally.

On strictly a local note, the next time you visit our building, make sure you try out the new interactive displays in the lobby. Designed by faculty member Michael Spring and his students, the system that he calls RAPAI (Role-Assured Publicly Accessible Information) delivers news and navigational information about SIS and Pitt in a variety of modalities, including RFID access, touch screen navigation, and scrolling information feeds. This is only the most recent of changes to our building and our facilities to make the School not only an exciting place for learning, but also a laboratory in which we can collectively explore and experiment with the evolving implications of advancing technologies.

It is always a joy to be visited by SIS alumni and friends. When you are in the vicinity, please stop by and say hello.

Ronald L. Larsen, Dean and Professor

Two long-time SIS employees retire

A 35-year veteran of the School of Information Sciences retired at the end of November. **Marian Grant** began her career with the University of Pittsburgh in 1969 and retired as an administrative secretary in the Dean's office. She spent her entire career at SIS.

Visiting family in the Boston area will become a more frequent activity in retirement, Grant said. Her daughter's family, including seven grandchildren, live in that area, as well as her sister's family with two nieces, and seven grandnephews and grandnieces. Her son lives in Penn Hills.



"Other than visiting family, I have no definite plans right now," Grant said. "I want to retire, relax, and think about what I want to do." She is active in her church and is president of its choir, and is considering enrolling in a culinary school.

Painting and sketching have always been an interest, and Grant said that she may devote more time to those creative endeavors.

For the last 16 years, students in the School of Information Sciences have been able to take advantage of a valuable navigational aid as they traverse the path through graduate school. As the registration specialist for SIS graduate students since 1988, **Regina Premozic** has smoothed the path for hundreds of grad students. She will retire in February.

"Once a grad student has been admitted, I take care of all the paperwork — grade changes, grade rosters, letters to verify enrollment, and many other items," she said. "I've been around long enough to sense what needs to be done. I help students enroll in classes in other Schools and sort out red tape with the Registrar's Office. Students have enough to do with their school work, so I try to take care of the paperwork. I know who to contact to get things taken care of. Luckily, at Pitt, people do care."

Premozic stayed home with her children for 19 years and then began her career with Pitt in the Registrar's Office in 1985. With five of her six children in the area, Premozic expects to be called on for 'grandma duty' with her six grandchildren, three boys and three girls who range in age from 5 months to 9 years. She has lived in Penn Hills since 1968, and is active in several organizations, her church, and a political party. "I have some furniture that's been patiently waiting to be refinished," she said. Premozic traveled to Rome and Paris in the last few years, and plans to visit England and Ireland after retirement. "I have family all over the country and lots of invitations."



Patricia McFadden, who currently works on graduation, development, and special projects at SIS, will become the registration specialist in March. She joined the School in 2001.

VISC work leads to IT job

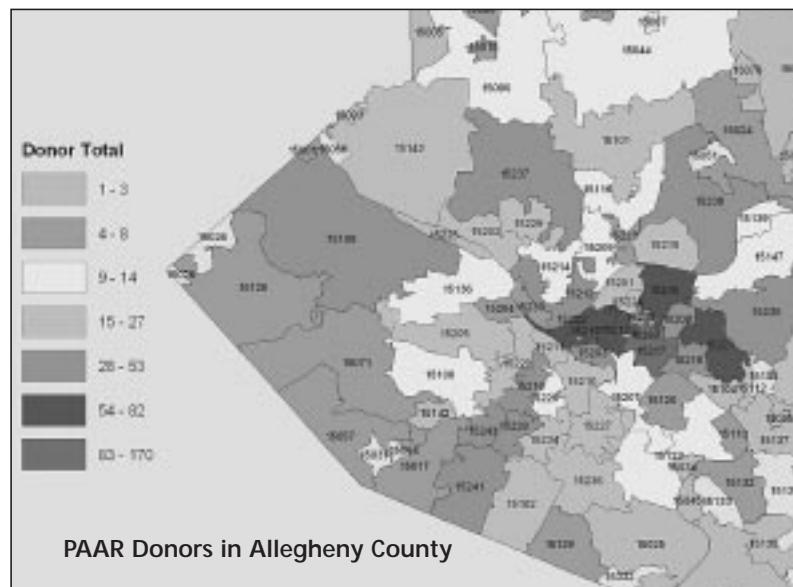
When Pittsburgh Action Against Rape decided to stop using an outside IT vendor and bring the work in-house, there was an obvious candidate for the new position.

As a staff member at the Visual Information Systems Center, Dave Perini was already working with the group to make their existing data more useable. "We produced color maps of client and donor locations by ZIP code as a way to visualize the information," he said. "The data are on spreadsheets, but when you look at a map, the data are a lot richer. Using the maps, we can see where donors and clients are located, and where we don't have clients. Those are areas where we'd like to get more information to people."

Perini completed an MSIS at Pitt during the summer of 2001 and joined the staff at VISC, where he helped clients with networks, websites, GIS projects, and training. A native of New York, Perini has an undergraduate degree in finance from Penn State. He joined PAAR in April.

"The distribution maps are more pertinent to what we do than the raw data," Perini said, "and we use them all the time — fund raising, grant proposals, and discussions about where another office should be located if we decide to open one." PAAR's office is on Pittsburgh's South Side, but most of its clients are in other areas of the city. The maps are generated by ArcGIS, a GIS package that was donated by its manufacturer, ESRI.

As IT manager for PAAR, Perini's work includes network administration, software development, project management, and supervision of two other employees. "I've relied on my experience at Pitt," he said. Currently he is building an e-mail application so that people



who contact PAAR for information can remain anonymous.

BJ Horn, executive director of PAAR, said that Perini brings the skill and knowledge to help the organization grow and take the next steps. "Dave brings marvelous sensitivity to victims' issues, and is able to teach staff with varying levels of comfort and skill how to make technology their friend," she said. "He has an excellent blend of technology and people skills."

Perini said that working at a non-profit has given him a different perspective. "We don't necessarily see a direct financial benefit from fulfilling our mission and improving services, but the clients certainly benefit. Serving clients is what drives this organization."

Dean visits China, UK

Ron Larsen, dean of the School of Information Sciences, recently returned from a multi-faceted trip that included delivering an invited paper at the Chinese Conference on Digital Libraries. The conference was hosted by the National Library of China in Beijing. From China, he traveled to Bath, England for the European Conference on Digital Libraries and two days of meetings with officials from the UK Joint Information Systems Committee (JISC) and the U.S. National Science Foundation (NSF).



Ron Larsen tries on the 80-lb pack of a man who was carrying supplies to a restaurant and hotel in a mountain park in China. Larsen was in China to deliver an invited paper at a conference hosted by the National Library of China.

Larsen was the principal investigator (with Howard Wactlar of CMU) on an NSF project to map the research agenda for digital libraries, resulting in the report *Knowledge Lost in Information*, published in April 2004 (available at www.sis.pitt.edu/~dlwkshop). He reported on that study at the China conference. Since the release of that report, he has collaborated with both NSF and JISC to foster international collaboration on digital library research and development. Meetings in Bath also included his participation as a project reviewer for NSF and JISC on the Digital Libraries in the Classroom program, a set of four international projects exploring innovative uses of emerging technologies in education (www.jisc.ac.uk/index.cfm?name=programme_dlitc).

Larsen said that China has changed dramatically since his last trip three years ago. "The country is advancing very rapidly," he said. "This time there were construction cranes in all directions, a palpable impatience among the population for progress, and an excitement about preparations for the 2008 Olympic Games. If anything, the news reports we hear about the economic boom in China are understated."

Fulbright scholars choose

The School of Information Sciences has long been a magnet for foreign students with a desire to earn advanced degrees in their chosen fields, but this year marks a new high with the arrival of five Fulbright scholars from five countries to study telecommunications.

Maria Gabriela Calle is an electronics engineer from Colombia. For the last four years, she has been teaching undergraduate courses in electronics engineering at Universidad del Norte. The school is a private university in Barranquilla, a city on the north coast of Colombia. She also directed several undergraduate degree projects, all of which related to data communications. Prior to her university teaching, she worked for an engineering company in Colombia that helped its clients improve their communications systems.

Calle plans to complete an MS degree in Telecommunications (MST) as part of her Fulbright project, and anticipates focusing her thesis research on wireless data networks. When she returns to the Universidad del Norte, her teaching will expand to graduate level courses. She plans to convey to her students and the people of Barranquilla the values and ideas she has learned in Pittsburgh, as well as promote cooperation between Latin American and American universities.

Mohamed Said M. Kassim plans to return to his native Kenya after completing the MST program to help that country exploit the rapid advances in information and communications technology (ICT). With a BS in electrical and communication engineering from Moi University in Kenya, he was employed for five years by Telkom Kenya, Ltd., the government-owned telecommunications company, working with switching and radio transmission facilities. During his initial years with the company, he installed equipment, particularly in rural areas. Later he



Maria Calle

worked in the planning section that was responsible for telephone switches and network management for the entire country.

Kassim plans to focus on ICT. There is a large digital divide among and within countries, he said, and while telecommunications and information technology are converging, in Kenya most of the telephone switches are legacy equipment that offers primarily voice transmission, with a separate legacy system for data networks. His Fulbright studies will focus on convergence of voice and data networks through technologies such as Voice over IP (VoIP) and broadband transmission. He is hopeful that his graduate studies will contribute to the advancement of telecommunications infrastructure and policies in Kenya as economic and development tools.

After completing his master's program in December 2005,

Kassim plans to return to his former employer. He would like to pursue a PhD and later work for a non-governmental organization such as the International Telecommunications Union (a UN agency) so that he can design and implement ICT solutions in developing countries.

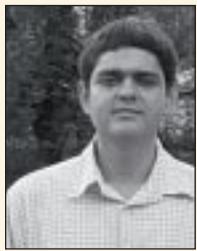
Kassim's parents never went to school, but they endeavored to ensure that their children would be educated. He is the oldest of 10 children, five sons and five daughters. Thus far two sons have graduated from college and one daughter is in medical school, with twin daughters slated to begin university studies in the fall of 2006.

Patrico Martelo is an electronics engineer from Argentina. He completed his undergraduate work at the Universidad de Buenos Aires in 1998. Prior to beginning his Fulbright studies, Martelo consulted in Argentina for Hewlett Packard and Agilent Technologies



Mohamed Kassim

Telecommunications



Patrico Martelo
for four years, working with their communications testing and measurement products. He plans to complete the MST program in the next few months and return to Argentina where he would like to work in telecommunications management and academia.

Guy Merlin Njankeu Sabeya taught computer science at the Catholic University of Central Africa – Catholic Institutes of Yaoundé in Cameroon for the past five years. He holds a BS in computer science and mathematics and an MS in theoretical computer science with a focus on parallel computing, both from the University of Yaoundé.

As a newly arrived Fulbright scholar in the MST program, Njankeu intends to concentrate on networking and service engineering, specializing in mobility and security services. He hopes to continue into the PhD program, and when he returns to Cameroon, plans to set up a graduate program in communications systems as well as establish a private consultancy.

Living in Pittsburgh has not been a big adjustment, Njankeu said, but he expects that to change as winter approaches. He chose to apply for a Fulbright scholarship because it was both challenging and an opportunity to continue his studies in the U.S., “where the Internet originated.”

Njankeu said that the University of Yaoundé has a strong computer science program that is primarily theoretical. In Cameroon, the majority of the people don’t have access to computer tools, even if they are available in the country. It is a management problem, he said, to bring the Internet and computers to a wider audience.

Njankeu grew up in the coastal city of Douala, Cameroon’s largest, located on the



Guy Njankeu

Bight of Biafra. He is the oldest of five brothers, with one older sister and three younger ones. Njankeu said that he is grateful to his father for inspiring him and his siblings to study science and technology.

Luis Orantes plans to be a communications systems professional designing structured data networks in his native Mexico. As an undergraduate at the Tuxtla Institute of Technology, he worked as an assistant at three research centers, participating in ‘summer with a scientist’ programs. The winner of 13 national awards in creativity contests, he graduated in 2002 with a BA in electronic engineering. Tuxtla Institute is in his home town of Tuxtla Gutiérrez in the state of Chiapas on the Guatemalan border.

As a Fulbright scholar in the MST program, his primary interest is in digital signal processing applied to wireless communications. Orantes has been working to apply wavelet analysis to compress audio files. As an undergraduate, he presented a paper at an international conference sponsored by the Institute of Cybernetics, Informatics, Mathematics and Physics. He was accepted to a training program at the Instituto de Investigaciones Eléctricas (Electrical Research Institute), and worked on development of accelerometers for low frequency applications where the influence of gravity makes it difficult to accurately measure acceleration. This work is used in the design and maintenance of gas turbine engines at power plants.

With a planned career in research and teaching, Orantes plans to pursue a PhD. He and his brother, who is a computer systems engineer, own a small business in Mexico (www.highbits.com) that develops web portals and works with remote video monitoring.



Luis Orantes

Arlene Taylor, Fulbright in Israel

The University of Pittsburgh’s School of Information Sciences has a stellar reputation as an educational destination for foreign students and scholars, but the knowledge transfer works in both directions.

Having had what she describes as a “truly wonderful experience” as a Fulbright Senior Specialist in Thailand in 2002, Prof. Emerita Arlene Taylor had no hesitation about accepting a second Fulbright opportunity in 2004, this time at Bar-Ilan University in Israel. “It’s a good feeling to help people learn,” Taylor said. During her appointment in the Department of Information Science, she presented two workshops, Practical Applications of Metadata, and Ontologies and Taxonomies: Theory and Practice. The audience included graduate students, faculty, professional catalogers, database managers, bibliographers, and library managers from throughout the country. She also presented a colloquium, Modern Tools for the Organization of Information.

During her earlier Fulbright in Thailand, Taylor led workshops in online cataloging and web teaching, and consulted on strategy for revising and updating the curriculum of the School of Information Technology, Suranaree University of Technology. She has also consulted at Oxford University in England and the Universidade Federal de Goias in Brazil, as well as presenting papers in Italy and Japan.

Taylor taught at SIS from 1993 until her retirement in 2003, although as an emerita professor, she still occasionally teaches. Over the years, her courses included organization of information, subject analysis and classification, descriptive cataloging, library automation, online systems for bibliographic control, and a doctoral seminar in organization of information theory. Prior to joining SIS, she taught at Columbia University and the University of Chicago.



New Faculty

Glenn L. Ray

Glenn Ray, one of the newest members of the SIS faculty, migrated from geology to information science with several unusual stops along the way — lobbyist, telecom marketer, and business professor.

Ray will work with other SIS faculty to revise and update the information science curriculum, in part to include two courses he expects to teach — Java and object-oriented analysis and design. He will also coordinate student internships, which are now handled by many faculty.

"My background is more industrial," Ray said, "and I'll be part of an industry liaison team that plans to build and maintain relationships with companies that offer internships to SIS students. We want to give students the flavor of what it's like to work in a typical environment instead of just an academic setting."

In his most recent position at Georgia Southern University, Ray was part of a consortium that offered custom courses for industry employees whose technology skills were out of date. Ray plans to do research in executable UML — unified modeling language — by which a computer can digest a model and generate software code. "We still have to do some hand editing," he said, "but we're moving toward the point where everything could be computer generated." Other research interests include rule-based systems, web services, GIS, and distance education.

Ray earned a BS in geology at Florida State University and a PhD in earth science at MIT. He also holds an MS in software engineering from Florida A&M University, and is a certified financial planner.



Daqing He

Daqing He joined the Department of Library and Information Science in September as an assistant professor. With a background in information retrieval, natural language processing, human-computer interactions, and user modeling, He's research interests focus on designing and developing information systems that will build synergistic relationships among people, information, and technology.



The University of Pittsburgh was attractive to He for several reasons, including the reputation of the department, other faculty members who are conducting similar research, and the new collaborative MS program on digital libraries with Carnegie Mellon University. His teaching will be related to information retrieval, user-centered systems, digital libraries, and natural language processing. His teaching style, he said, is to create an interesting story out of a research topic to stimulate student interest and imagination. "A successful teaching session needs careful thinking, imaginative design, clear presentation, and frequent evaluation and updating."

After earning BS and MS degrees in computer science at Beijing University of Aeronautics and Astronautics in China, he earned his PhD from the Division of Informatics (previously known as the Department of Artificial Intelligence) at the University of Edinburgh, Scotland. Since then, He worked as a research fellow at Robert Gordon University in Aberdeen, UK, and most recently, as a research associate at the University of Maryland College Park.

Anthony Debons — two careers, still teaching

Anthony Debons has traveled the world, seen two wars from up close, and taught for 40 years. And at age 88, this emeritus professor of information science and telecommunications continues to offer decades of experience to students.

Information science is a second career for Debons. Although born in Malta, he emigrated to the U.S. in 1923, became a citizen in 1941, and enlisted in the Army Air Corps the following year. As a second lieutenant, he saw action in two of the most notorious episodes of World War II, the Battle of Britain and the Battle of the Bulge. After the war, the military sent him to complete a BA at Brooklyn College, and then assigned him to Alaska to study human behavior in severe climates.

Following the Korean War, he completed a PhD in experimental psychology at Columbia University in 1954. When Debons retired from the military in 1964, he headed the psychology department at the University of Dayton, where he created an autonomous department of

information science, and then created a similar program in the graduate school at Pitt. Although he retired in 1986, he continues to teach and conduct research.

Reflecting on his military experience, Debons said that information systems are a matter of national survival. Future information professionals should appreciate the power of systems in a broad context, he said, where they have the ability to counter epidemics, national disasters, and other social concerns.



In the early 1970s, a colleague at the University of Michigan, Robert Havelock, offered a new concept of library service that visualized reference work in the structure of a medical clinic, where individual needs could be diagnosed and information and knowledge subsequently be organized to meet the specific needs of each individual client. This work, Debons said, convinced him of the interdisciplinary context

of what could be called 'information science.' If information systems were to meet the challenges of what was then called the space age, individuals would need to develop an interdisciplinary mind set, he argued.

In conceptualizing the study of information science, Debons sees four major areas — foundations, methods, technology and systems, and the relationship between society and information science. He said the current educational paradigm in information systems centers on business applications and curriculum development, but Debons argues that the broader perspective merits consideration. Information systems that exceed entrepreneurial perspective possess a greater power, he said.

Debons is the author of several books on information science, two of which have received awards. He directed four NATO international institutes on information science, all of which are in published proceedings. He is a fellow of the American Psychological Association, the New York Academy of Science, and the AAAS.

VISC researcher maps Pittsburgh's famous steps

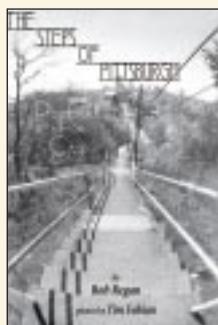
He was born on the route of the Boston Marathon. Decades later as he crisscrossed Pittsburgh on his early morning bicycle rides, he became obsessed with the city's own marathon — the thousands of steps that conquer Pittsburgh's legendary terrain. Bob Regan is a multi-modal man, and one who has chronicled the city's 712 sets of steps in his book, *The Steps of Pittsburgh: Portrait of a City*, published by The Local History Co. with photographs by Tim Fabian. That's 44,645 steps and 24,108 vertical feet.

"My parents were mill workers in Boston, and Pittsburgh's steps gave me a sense of early mill workers when I walked them," Regan said. "As the city's first mass transportation system, they are unique and should be preserved." After many years at Boston College, Regan said he became obsessed with Pittsburgh's steps within two days of moving to the city 10 years ago, and decided to map and document them. After procrastinating for seven or eight years, early one morning while riding over the Birmingham Bridge, three rows of lights that parallel steps on the South Side slopes spurred him to action. Regan said he rode home, woke his wife, and told her he was taking two or three months off to map the steps.

As a visiting research professor at the Visual Information Systems Center in the School of Information Sciences, Regan had the skills and tools to make the maps. Although he has a PhD in geophysics, Regan has been involved in GIS work since the early 1980s. With digital data provided by the city, Regan rode his bicycle on every street in Pittsburgh, noting where the steps are and dictating data into a recorder. Among other features, he noted if steps are wood or concrete, if they are on the left, right, or both sides of the street, and if they are one of the 'paper' streets that confuses so many newcomers to Pittsburgh. He counted the steps, noted their condition, neighborhood, angle, top and bottom streets, and if they intersect with another set of steps.

What was originally thought of as a niche book is now in a third printing. The first printing of 1,500 sold out, and an Associated Press story about the book that was reprinted across the country pushed the book into the top 100 on the Barnes and Noble bestseller list.

Regan's next project is a book about Pittsburgh's bridges. In his early research, Regan has turned up a bridge whose name changes every year, a recycled bridge, a buried bridge, and two bridges in one.



Two new employees

Terry Kizina comes to his new job with an ideal background. As the first director of recruitment, admissions, and financial aid for the School of Information Sciences, Kizina assumed the position after spending the last eight years in the University's Office of Admissions and Financial Aid.



"This is an exciting opportunity for me," Kizina said.

"I'm able to focus my expertise in University admissions toward expanding and stabilizing the student body of a professional school that is at the leading edge of the rapidly evolving information society. Information schools across the nation have both benefited from and been battered by the ups and downs of the information economy. My role is to smooth out the enrollment dynamics that are largely driven by near-term economic factors. Initially, I'll coordinate the School's response to inquiries from potential students," he said.

"Students are the lifeblood of the School," said Ron Larsen, SIS dean. "We are delighted to have someone of Terry's experience and knowledge join the staff. Terry will provide the focus and energy we need to attract and retain the best and brightest to the information professions."

In his most recent job with the University, Kizina oversaw the review of all undergraduate applications (19,000 in 2003), as well as being a member of the financial aid packaging team for freshman and returning students.

The School of Information Sciences and the University Library System now share a new employee — a director of diversity initiatives. After three years as a project director in the School of Social Work, **Crystal Ware** began her new job in mid-October.



"I'm charged with recruiting students, staff, and faculty, as well as student workers at ULS," Ware said.

"Although I've only been here a few weeks, I've been able to renew my prior connections with high schools and area agencies." Earlier, she was the executive director of two non-profits before becoming assistant director of admissions at Duquesne University in charge of minority recruitment.

"I've already started analyzing the atmosphere for diversity at the libraries so that I can provide feedback to ULS," she said. One goal, Ware said, is to diversify the student body and make the School more visible to diverse groups.

Poker inspires seminar

The science fiction image of robots physically interacting with humans may seem far off, but in the electronic world of the Internet, humans and interactive computer programs (software agents) are on more of an equal footing. In this world, ideas for developing software that exhibits properties of intelligence are not burdened with the trappings of the physical world such as the ability to move and speak. Games are one interaction in which software can be tested against other software as well as human players.

Poker is an excellent platform for testing software agents because they can model the strategies of individual opponents, and a conference last summer has spawned a doctoral seminar that uses poker-playing software as a primary focus. Faculty member Paul Munro said that poker games between humans and software agents during the 6th International Conference on Cognitive Modeling inspired the seminar. "A good poker player must assess the other players in order to interpret their actions and make reasonable inferences about their hands," Munro said. "At the same time, a good player should not behave in a way that gives away his hand. Thus the interactive agent that goes into a poker player has many levels and is conceptually more challenging than a game like chess."

IT graduates, continued

Bright future for telecommunications grads

"We need to understand fundamental principles, construct accurate models, develop rigorous design methodologies, and create evaluation frameworks to gain a better understanding of large-scale network systems. Right now we don't have frameworks to test large-scale systems and conduct repeatable experiments in a theoretically sound manner. We need to leverage many disciplines," he said, "and involve scientists who have visionary approaches. People who design and construct buildings have managed to assemble a body of knowledge that guides them to build systems that are reliable, but so far we don't have that kind of knowledge in networking. We can handle moderate-sized systems, but not those that are large-scale."

The IT field is quite immature compared to other fields such as civil engineering, Znati said. "The Internet was driven by rough guidelines and used simple protocols to make it all work. Now we are seeing the emergence of ubiquitous and pervasive environments. It is not a network of PCs anymore, but a network of appliances, tiny sensors, and wireless devices deeply embedded in our surrounding environments."

Fundamentals are important, he said. "We need to advance beyond reliance on intuitive principles and develop scientific and engineering foundations as a guide to enable next-generation networks. Information technology will continue to prosper and the discipline will mature, however, the web has become a network of services far beyond finding, sharing, and comparing documents. Now we need tools that incorporate the detailed semantics of data and that will facilitate greater consistency in its use, understanding, and applications."

Far from the grim employment picture that some predict, Znati believes that the need for networking expertise will continue to grow, and there will be demand for graduates with skills in Internet development, network design, and data network management. "Add in all the people who will be employed in end-user organizations, and IT graduates from SIS have a bright future," he said.

Ida Flynn — 24 years at SIS

The faculty, staff, and students of the School of Information Sciences are mourning the loss of Ida Flynn — teacher, friend, and colleague. Flynn joined the University in 1980 and taught in the Department of Information Science and Telecommunications. She received the Golden Apple Award for her teaching five consecutive years, 1983-87. Flynn retired as director of the undergraduate program in 2000 but continued to publish. She died on April 12, 2004. Contributions in her memory may be made to the Cancer Center at the University of Connecticut Health Center, or to the Ida M. Flynn Memorial Fund to be used in honor of her career. Fund contributions may be sent to Roger Flynn, c/o the University of Pittsburgh, 135 N. Bellefield Avenue, Pittsburgh, PA 15260.



Advisory Council formed

The School of Information Sciences has established an Industry Advisory Council. "This Council provides a strategic touchstone and a 'reality check' for the School and its faculty that is vital to our efforts to offer the best education possible," said Dean Ron Larsen.

Early topics of the triennial meetings include information security, educating future IT professionals, leadership, and offshoring/outsourcing.

Corporate partners are a vital element of our educational and research programs, Larsen said. "Not only do some partners provide equipment, research funding, scholarship support, internships, and jobs, but hosting these discussions enables us to continually refine our degree programs. Some issues faced by industry are ultimately the same as those that must be answered by SIS, its students, and graduates."

Industry participants represent IBM, Mellon Financial, Microsoft, AT&T, Alcoa, Cisco Systems, Marconi Corp., PPG Industries, and North Pittsburgh Telephone Co.



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