College of Computing Sciences
NEWSLETTER
Spring 2008

Changing by many degrees

A message from the Dean

Computing is the most world-changing technology of modern times. It stands behind everything from the Internet to the iPod. It is in everything from the automobile to the cell phone. Computing powers businesses, organizations, and governments; it enables transportation, entertainment, and much more! Computing is changing the way we do business, the way we interact with each other, the way we live.

Technology and science are dramatically changing our economy and creating new business opportunities and needs. The most successful computing employees will be those prepared to be involved in business aspects of a company, with a solid understanding of business fundamentals.

Computing is where the action will continue to be. In Fall 2008, the College of Computing Sciences (CCS) will be expanding its degree offerings to match varied student interests and society's needs. CCS, in partnership with the School of Management, is introducing:

New Degrees

BS/MS Computing & Business
BS/MS Business & Information Systems

The Computing and Business degrees are primarily for people who want to develop, use and manage software applications and systems in a business environment. For example, designing and developing new software applications, designing databases, installing and running applications, setting up and maintaining firewalls, protecting and managing networks, running computer systems, enhancing financial systems, developing and maintaining websites and e-commerce systems, and providing IT support to traders and financial analysts.

The Business and Information Systems degrees are primarily to prepare for careers involving requirements analysis and application systems design and development, as well as using, analyzing and evaluating computing applications and systems in a business environment. For example, analyzing system requirements, using and deploying information systems, decision support systems and other MIS applications, database design and analysis, database and information systems auditing, and web development, in addition to many other exciting opportunities.

Graduates with these degrees will be well prepared for high paying technology jobs in the business world. They'll spend minimum work time acquiring necessary business knowledge and maximum time getting things done.

Narain Gehani

Prudential Scholarship for Juniors

The Technology Management Division of Prudential Corp. is sponsoring a scholarship / internship opportunity for juniors in the College of Computing Sciences. The successful candidate will

win an $8,000 scholarship

and have the opportunity to

work as a summer intern for Prudential.

Stay with Us

Changing your email or other contact information? Please make sure that you receive future issues of the CCS Newsletter and invitations to alumni events. Send your updated contact info to **ccs@njit.edu**.

INSIDE

Kernighan speaks at alumni reception

Brian Kernighan, professor of computer science at Princeton University and co-author of the classic book, *The C Programming Language*, was the featured speaker at the Fall 2007 CCS Alumni Reception on September 20. Kernighan spoke to an audience of more than 100 NJIT alumni, current students, and faculty. Before Prof. Kernighan spoke, there were brief remarks by President Altenkirch, Provost Nelson and Dean Gehani. The reception provided an occasion for alumni to renew old acquaintances and to make new ones.

Kernighan's talk, D is for Digital and Why It Matters, made highly technical topics relevant and accessible to a broad public. He illustrated how computers pervade our activities, where computerization is headed and why should we care. Like it or not, he said, digital computation, representation of information and communications, and exponentially shrinking size and cost of digital devices have changed our lives and will continue to do so. Understanding where we have come from and something of the power and limitations of digital technology may help us to better control and guide such changes in the future.

Kernighan was in the Computing Science Research Center at Bell Labs until 2000. He is the author of eight books and holds four patents.

Prudential CIO Koster speaks at CCS

Barbara Koster, senior vice president and corporate Chief Information Officer of Prudential Financial corporation, visited CCS in November 2007. As CIO, Ms. Koster oversees the use of information technology companywide, including the formulation of policies, establishment of standards and architectures and the development of guidelines and management practices.

Ms. Koster spoke to students and faculty about Technology in the Workplace: Today and Tomorrow. Speaking to a standing-room-only crowd, Ms. Koster described how technology must support a company's business goals, the challenges in using technology to enable a diverse set of businesses situated around the globe, and the future of technology driven by the workplace needs of tomorrow. Ms. Koster fielded and responded to many questions from the audience.

A team of Prudential Financial recruiters accompanied Ms. Koster. They met with a large number of NJIT computing students about potential job opportunities.

Rosenthal: 'Don't call your boss an idiot'

Alan S. Rosenthal, Chair of the CCS Board of Visitors, talked to a packed audience of CCS faculty and students in January about the importance of social skills and communication from the perspective of his professional career. He illustrated from personal experience how these skills can advance or destroy a career. Rosenthal advised on relations with management (e.g., don't call the boss an idiot even if he is one). Situations in which communication and social skills affect one's career include getting a job, presenting a project plan to be funded, managing vendors, working with clients and colleagues, and the critical importance of networking.

While honesty and technical excellence are always important, Rosenthal gave positive and negative examples of how social behavior also influence success. Indeed, he said, if the boss is an idiot, one should have a plan to deal with that situation.

Rosenthal worked in the financial services industry for 24 years. He headed the IT Business Architecture group at Bank of America and, previously, ran the Bloomberg Systems Development area of Merrill Lynch.

CCS Partnerships

CCS Board of Visitors

The CCS Board of Visitors (advisory board) helps promote the mission of NJIT and especially that of CC:. to aid in the preparation of students for positions of leadership as professionals and as productive citizens; to provide educational opportunities for a broadly diverse student body; to respond to the needs of large and small business, state and local government agencies and civic organizations and to advance the use of technology as a means of improving the quality of life.

The Board serves as the critical link between the business community and CCS. It enhances business participation in the learning process by sharing knowledge, expertise and perspectives that impact on the academic, personal and professional development of the students, as well as the ongoing growth of the college. Members contribute in a variety of ways, as determined by their specific interests and available time and resources.

The current members of the CCS Board of Visitors are:

- Sudhir Ahuja, Bell Labs / Alacatel-Lucent
- Kevin Barnes, IBM
- David Belanger, AT&T Labs
- Khurshed Birdie, NorthStar Technologies, Inc
- Jerry Casarella, PSEG
- Darryl W. Copeland, Jr., Provident Realty Partners, LLC
- Lubna Dajani, Stratemerge
- Rick Franckowiak, Johnson & Johnson
- Arthur Garces, Prudential Financial
- Larry Gardner, CyberExtruder
- Jim Iversen, (ex-CEO) W & H Systems
- John Katzianer, Verizon
- Rakesh Kushwaha, Mformation Technologies
- Robert M. Lansey, Wyndham Worldwide Corporation
- Russ Lewis
- Jim Medeiros, UPS
- Philip Neches, Foundation Ventures, LLC
- Alan Rosenthal (chair), Merrill Lynch (retired)
- Seema Singh, State of NJ

Liberty Science Center

by James Geller,
Department of Computer Science

In February 2006, NJIT launched a collaboration with the Newark-based Liberty Science Center (LSC), the premier science museum in the New York metropolitan area. In spring 2007, NJIT solicited proposals for projects that NJIT faculty would perform at LSC. In cooperation with Dr. Jeff Osowski and Dr. Joe Amara of LSC, four proposals were selected to receive seed funding for summer work. On December 3, the four winners presented their accomplishments to the NJIT community and visitors from LSC.

The first presentation was by Kate Swift of Biomedical Engineering. She described her Workshop Series on Video Game Development for Disabled Young Adults. The first of these three day workshops, held at LSC, was enthusiastically received by children, ages 11-14, and their teachers. Swift and Professor Rick Foulds, the project director, are committed to organizing two more such workshops at no cost to LSC.

Professor Paul Ranky of Industrial Engineering presented on two subjects. The first was Advanced Digital Design and Digital Manufacturing in the Virtual and in the Real World. Its goal is to keep New Jersey and the US internationally competitive by using the most advanced Computer Aided Design techniques. The second topic, Humanoid Robot Design & Modeling, deals with the rapid developments in the field of robotics. Dr. Ranky presented both topics in a workshop for high school students at LSC. Students especially liked the robot models navigating the lab.

Professor Ravindra of the Physics Department discussed the Physics of Baseball Bats. He and several of his students have been building a trailer-sized exhibit for LSC consisting of a pitching machine and a batting machine with three bats made of wood, aluminum and composites. Visitors can pitch baseballs to all three bats by pushing a button. The speed of the returning balls is measured and displayed on a screen on top of the trailer, which is nick-named the “Bat Mobile” because the exhibit is mobile.

The proposal and award process for innovative collaborations will repeat in 2008. According to Dr. Osowski, through this series of projects NJIT is now one of the two closest scientific partners of LSC.

CCS News

BOOKS

Fadi Deek and James McHugh: Open Source Technology and Policy

Fadi Deek (IS/CSLA) and James McHugh (CS/IT) have published a new book entitled *Open Source: Technology and Policy* (Cambridge Univ. Press, 2008). This book explores a movement that has had widespread impact on education and government, as well as historic, cultural and commercial repercussions. Topics range from the Internet's infrastructure to open source applications and collaborative development techniques.

Frank Shih: Digital Watermarking and Steganography

Prof Frank Shih (CS) has published a new book entitled *Digital Watermarking and Steganography: Fundamentals and Techniques* (CRC, 2007). Digital technologies permit the creation of unlilmited numbers of perfect copies of digital works at low cost. This also creates new threats to security, such as forgery and pirating of copyrighted material. The theoretical foundation presented in this book will facilitate the creation on new techniques and algorithms to combat present and potential threats against information security.

Jason Wang: Analysis of Biological Data

Jason Wang (CS) has published a new book: *Analysis of Biological Data: A Soft Computing Approach*, with coauthors Profs. S. Bandyopadhyay (Indian Statistical Institute), U. Maulik. The book is part of World Scientific's Science, Engineering and Biology Informatics (SEBI) series. This book is aimed at providing a unified framework, with both theoretical and experimental results, describing the basic principles of soft computing and demonstrating the various ways in which they can be used for analyzing biological data in an efficient manner.

GRANTS

Borcea, Jones, Passerini, Churchill: Creativity in Social Computing

Profs. C Borcea (CS), Q. Jones (IS), K. Passerini (SoM / IS) and E. Churchill (research professor, IS) are co-PIs on an NSF grant for "Fostering Creativity in Ubiquitous Social Computing through Casual and Formal Interactions in Interdisciplinary Design Studios." This project is a collaboration between CCS and NJIT's School of Architecture. Amount $200K; duration:18 months. PI: W. Jabi (Architecture).

Chengjun Liu: Biometric Identification

Prof. Chengjun Liu (CS) has received a grant from the NIJ/DOJ: C. Liu, "Facial and Iris-Based Biometric System." The grant is for $320,035.

Quentin Jones: Social Recommender Systems

Prof. Quentin Jones (IS) has received an NSF grant for $106K to develop a new area of SmartCampus research: "Synchronous Social- Interaction-Space Recommender Systems." This is an exploratory research grant.

Vincent Oria: Managing Multimedia Databases

Prof. Vincent Oria (CS) has been awarded a grant of $95K for "Querying Moving Objects: Providing a Database Support to Object Tracking Systems." The grant is for one year, from the Department of Defense through the KIMCOE (Knowledge Integration and Management Center of Excellence) set up by the Army Research Laboratory at Morgan State University.

Usman Roshan: Assembling the Tree of Life

Prof. Usman Roshan (CS) has obtained an NSF subaward of $53,324 from the Assembling Tree of Life (AToL) program, spread over five years. The Principal Investigator (PI) institution is UT Austin and Roshan is the PI at NJIT.

Frank Shih: Forecasting Space Weather

The NSF has awarded a grant of $151K to Prof. Frank Shih, with Profs. Wang and Dr. Jing (Physics), for "Automated Monitoring and Forecasting of Space Weather using Artificial Intelligence Techniques." This continues their work in solar image processing and analysis.

Jason Wang: Structure Comparison and Mining for RNA Genomics

Prof. Jason Wang (CS) has received a grant from NSF for "Structure Comparison and Mining for RNA Genomics" to advance interdisciplinary data mining and bioinformatics.Duration: Aug 15, 2007 - July 31, 2009; amount: $123,310. The co-PI is Vivian Bellofatto.

AWARDS

Osama Eljabiri: Carnegie NJ Professor of the Year

Osama Eljabiri, an NJIT senior university lecturer (CS), has been named as 2007 New Jersey Professor of the Year by the Carnegie Foundation for the Advancement of Teaching.

Joseph Leung: Excellence in Research

Prof. Joseph Leung (CS) has received the NJIT Excellence in Research Medal.

Osama Eljabiri: Excellence in Service

Xin Wang (CS) has received the NJIT Excellence in Service Award.

Xin Wang: Excellence in Instruction

Xin Wang (CS) has received the NJIT Excellence in Teaching by a Teaching Assistant Award.

PROMOTION AND TENURE

Brook Wu

Brook Wu (IS) has been granted tenure and promoted to the rank of associate professor.

Dimitri Theodoratos

Dimitri Theodoratos (CS) has been granted tenure.

CCS Administration

Narain Gehani, Dean
Barry Cohen, Associate Dean
Serena Branson, Ass't to the Dean
Glenda Caldwell, Secretary

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