



LINKS

Newsletter of the Department of Computer Science

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Are YOU still there?

You came to Pitt. You worked hard for years. Then, you graduated. Your hard-earned degree opened doors and launched your career in the world. But, by the time that we shook your hand and took your picture with your family at graduation, we were just starting to know you. Where are you now? How is life treating you? As you read this issue of LINKS, we hope that one theme stands out: we want to stay in touch with you! Whether you visit us at the annual CS Day, attend an alumni event, or listen to a talk in the department - you are invited to visit us.

Over the next several months, we plan to introduce a new feature to the Computer Science web-page that focuses on our alumni. Please check the site frequently for updates on this feature. We encourage you to stay in touch with us and with your classmates. Please fill out the form at www.cs.pitt.edu/people/alumni. We promise not to share your information without your permission.

CONGRATULATIONS TO OUR 2007 GRADUATING STUDENTS!



Some of our 2007 Graduates at the Graduation Brunch

Seventh Annual Computer Science Day

Reprinted with permission in part from a story by Sara Evans of the Pitt News:

Each year, more high school, undergraduate and graduate students attend Pitt's annual Computer Science Day. More than 200 students attended the Feb. 23 event in Sennott Square, from 10 a.m. to 5 p.m. It included a scavenger hunt, representatives from more than 30 companies, a public debate and poster, video/graphic and T-shirt design competitions. "Each year it gets bigger and bigger," Nancy Kreuzer, the event coordinator, said. "We wanted to do something more to bring in high school students and make them familiar with the Computer Science Department."

One of the biggest events of the day was the Net neutrality debate, which was also presented as a live Webcast. Two experts in the field, Art Brodsky, the communications director of Public Knowledge, and Hal Singer, the President of Criterion Enterprises, were flown in from Washington, D.C., to speak about the possibility of free Internet coming to an end.

Students loved the competitions, especially the video competition, which included videos ranging from the hilarious to the high-tech. Nathan Good, a sophomore computer science major, won the top award for his mock rap video, "Where are all the Girls?" He danced with six friends and rapped about why there are so few women in the computer science department.

On the opposite side of the spectrum was Joe Cavanaugh, who made the runner-up video. He spoke about computer graphics while showing the students a program that he had been working on since September. Throughout his presentation he displayed the computer-generated world that he created, complete with realistic trees, changing light and a castle. "It takes about five to six hours a week of programming," he said. "I play video games a lot, and I wanted to learn how to program them. The Computer Science Day gave me the opportunity to show my video, meet companies and for people to learn more about the department."

"We do this for our students and faculty, so that the department gets closer together," Rami Melhem, the chairman of the department, said. "We want to project an image to the outside world about what we offer and for the industry to get to know our students."

Department Hosts Two Alumni Events

In October 2006, we invited alumni to return to Pitt during Homecoming Weekend to celebrate the 40th anniversary of the CS Department. Several PhD, MS & BS recipients, along with their spouses and families, came from all over the country to participate in the festivities.

On Friday, October 20, an Alumni Workshop was held in Sennott Square, at which PhD alumni presented their recent work and research. Dakai Zhu, Xin Yuan, Chunming Qiao, Robert Simon, Rastislav Bodik, Atif Memon, Evelyn Duesterwald, Stephen Smith, Vanathi Gopalakrishnan, Jae C. Oh, Foster Provost, Robert Kramer, Michael Anthony Kapolka, Pete Sanderson, Yi Deng and Subbarayan Venkatesan were among those who presented.



Mohammad Sultan (PhD 1991) and Bob Hoffman (Director of Operations)

That evening, CS alumni, faculty, and staff convened for an Alumni Dinner. Rami Melhem, CS Department Chair, and D. Raja, Chairman of the CS Industry Board, addressed the audience.

Bob Hoffman, Director of Operations for the CS Department, presented the history of the department through a series of vintage slides and photographs.

In April, the Computer Science Industry Board hosted a dinner for alumni of the University of Pittsburgh Computer Science department. Several alumni from all different backgrounds gathered with their family and friends to socialize with other CS graduates from the University of Pittsburgh.

With over fifty people in attendance, the event was a great success! Guests enjoyed dinner and a presentation by the keynote speaker, Mr. David Ruppertsberger, President and CEO of The Technology Collaborative. By comparing the advances throughout history; where we are versus where we could be, David explained how our region needs help to keep technology on the rise.

CS Alum, Mr. Gordon Dorworth, who graduated from the department with a BS in 1980 enjoyed himself. "It was my pleasure to once again see members of the department and my fellow Alumni. The diversity of companies, interesting products, and great conversations I enjoyed at the dinner were truly appreciated. I would highly recommend all CS Alumni to attend the next event."

New Grants

During fiscal year 2007, our total research expenditure was approximately 2.8 million. Below are the new grants that were awarded since the last issue of LINKS.

Workshop on Data Management for Wireless Sensor Networks

(September 2006 - August 2007)

Source: NSF

CS Faculty: Panos Chrysanthis, Alexandros Labrinidis

Automated Detection of Invasives

(September 2006 - September 2007)

Source: DOA

CS Faculty: Bob Daley

Career: A Compilation for the Development of High Performance Secure Applications of Trusted Processors

(July 2006 - December 2008)

Source: NSF

CS Faculty: Youtao Zhang

Innovative Technology for Virtual Leased-Line Services in High Speed Networks

(July 2006 - August 2007)

Source: Computations Consulting / DOE

CS Faculty: Taieb Znati, Rami Melhem

Adapting to Student Uncertainty Over and Above Correctness in Spoken Tutoring Dialogue System

(September 2006 - August 2007)

Source: NSF

CS Faculty: Diane Litman

Information Extraction of Events & Beliefs from Text

Source: ONR

CS Faculty: Janyce Wiebe

Workshop on Research Challenges in Dynamic Data Driven Application Systems and Infrastructure

Source: NSF

CS Faculty: Taieb Znati

Next Generation Radar and Signal Processing in the Cell Broadband Engine

Source: ONR

CS Faculty: Don Chiarulli

SPORE in Lung Cancer

(September 2006 - September 2007)

Source: NIH

CS Faculty: Milos Hauskrecht

Network Communication Analysis Project

(April 2007 - July 2007)

Source: Bettis/DOE

CS Faculty: Daniel Mossé

Botnet Detection and Mitigation

(January 2007 - February 2009)

Source: ECI

CS Faculty: José Brustoloni

Learning Syntax-Based Evaluation Metrics for Machine Translation

(March 2007 - February 2008)

Source: NSF

CS Faculty: Rebecca Hwa

Botnet Detection and Mitigation

(February 2007 - January 2009)

Source: TTC

CS Faculty: José Brustoloni

Botnet Detection and Mitigation

(February 2007 - January 2009)

Source: Netronome

CS Faculty: José Brustoloni

Evidence Based Anomaly Detection in Clinical Database (April 2007 - April 2009)

Source: NIH

CS Faculty: Milos Hauskrecht

Enabling Circuit Switching with Compiler and Run-time Analysis Performance Systems

(May 2007 - April 2008)

Source: NSF

CS Faculty: Rami Melhem

Towards a Comprehensive Linguistic Annotation of Language

Source: NSF

CS Faculty: Janyce Wiebe

2007 Summer Undergraduate Research Fellowship

(May 2007 - April 2008)

Source: US Dept. of Commerce

CS Faculty: Rami Melhem

A Robust Execution Environment for Fragile Multicore Systems

(March 2006 - February 2007)

Source: NSF

CS Faculty: Bruce Childers, Sangyeun Paul Cho

José Brustoloni

Professor José Brustoloni recently received grants to research defenses against botnets. Botnets are bots (also known as zombies or infected computers) under the control of an attacker.

It is estimated that 7% of the computers currently connected to the Internet are infected by at least one botnet, and 250,000 new bots are detected each day. Attackers use botnets in a variety of attacks, including identity or intellectual property theft, sending denial-of-service (DoS) attacks or spam, or committing click fraud.



Prof. Brustoloni's lab will prototype and evaluate new devices for detecting and mitigating botnets.

Face Alive Icons

Xin Li, a recent PhD graduate, and Professor Shi-Kuo Chang, have worked together to develop an innovative way to express emotion in the technology world.

According to a recent article in the *Technology Review*, Face Alive icons allows people to use images of their own faces to replace the emoticons that are popular in e-mail, instant messages and text messages. After transmitting only a single photo, users can then warp their facial features by keying in the typical text symbols, to express a wide range of emotions.

Face Alive icons are now being incorporated into an application used for distance learning. Instead of viewing a virtual classroom filled with emoticons giving the same blank expression, the teacher can view each of the virtual pupils in the classroom and observe how he or she is feeling.

Faculty News

Professor Litman Receives Award

Prof. Diane Litman and Prof. Johanna Moore of the University of Edinburgh received a Visiting Professorship Award from the Leverhulme Trust. The Leverhulme Trust awards enable UK universities to host an internationally distinguished academic from overseas (chosen and invited by the host institution) in order to enhance the research skills and work of the host institution. Visiting Professors are expected to offer a short course of Leverhulme Lectures.

Professors Organize NSF-Funded Workshop

Professor Panos K. Chrysanthis and Alexandros Labrinidis co-organized (with colleagues Stan Zdonik and Ugur Cetintemel from Brown University) the NSF-funded Workshop on **Data Management for Mobile Sensor Networks**.

The workshop, held on January 16 & 17, brought 30 experts to Pittsburgh from academia, industry, and government to discuss new directions and to identify challenges for data management research stemming from mobile sensor networks and their applications.

Faculty Teaching Awards

The department's teaching awards are given to faculty for achieving the highest student evaluation score for overall effectiveness during the academic year.

Jean Addleman (among part-time faculty teaching a CS course)

George Novacky (among faculty teaching a core CS undergraduate course)

John Ramirez (among faculty teaching a CS upper-level undergraduate course)

Taieb Znati (among faculty teaching a CS graduate 2000-level course)

Ahmed Amer (among faculty teaching a CS upper-level undergraduate course)

Faculty Members Receive Provost's Awards

Each year, the Provost's Advisory Council awards projects promoting innovation in education. These awards are given to high-quality proposals that give promise of introducing innovative and creative approaches to teaching. The Provost Awards encourage instructional innovation and teaching excellence.

This year, the Computer Science Department was represented very well. A total of eleven awards were given, four of the eleven awards represented Arts and Sciences and three of those four went to Computer Science professors: Ahmed Amer, Alexandros Labrinidis, and Daniel Mossé.

Amer's project, "The Virtual Systems Laboratory", will create a new environment for operating systems programming projects using a model of dedicated virtual computers. The laboratory will be used in the department's systems courses to make the curricula more rewarding, practical, and consistent.



This project aims to establish the first virtual systems laboratory, which will offer students the opportunity to use multiple dedicated computers for each project they attempt within a course, or simply a single dedicated computer for a course. Also, by combining virtual computer emulators, the project will construct a laboratory of computers that students can use from any computer with network access as well as freely available standardized software.



Labrinidis's project, "Virtual WebDB Laboratory", will develop a new curriculum for senior undergraduate students in computer science and computer engineering programs. The project will develop new courses on design, implementation, and evolution of Web software to provide a unified picture of the technologies involved.

The development of new courses on design, implementation, and evolution of Web issues will provide a capstone experience for senior undergraduates in computer science and computer engineering programs by purposefully looking at the complete picture instead of isolated individual technologies. Through these courses and an establishment of an evolving, ever-increasing online repository of designs, methods, techniques, samples, and other supporting material for building Web 2.0 sites,

students will become better prepared, investing themselves in building large-scale realistic projects.

Mossé's project, "Can a Radically New Presentation of Old Course Materials Make a Difference?" aims at increasing the diversity of students in CS, by changing the way materials are presented to first time programmers. The project's new programming paradigm (storytelling and animations) will attract students who have not initially considered CS.



This project will fill the need for a new approach to teaching the first courses in the Department of Computer Science—by offering separate courses for majors and nonmajors. Because the types of students attracted to the field has changed over the last few years, reorganizing courses could help recruit a larger and more diverse group of students to the field. The project would offer a course to nonmajors that focuses on creativity. The project would also reorganize the curriculum of the first-year course for computer science majors, favoring the use of Microsoft Robot Studios instead of Java.

This is the first time that such prestigious awards have been granted to three Computer Science faculty members at the same time. Congratulations to Ahmed, Alex and Daniel for their achievements and for bringing the department into the spotlight!

Robotics Team Wins Director's Award!

Congratulations to the departmental sponsored Falk Laboratory School (University of Pittsburgh) Robotics Team. The "Invisible Robonauts" won the first place Director's Award in the "May Madness 2007: Space Adventure" tournament. The Director's Award is based on the team's combined performance in robot missions, hardware design, software design, and a research project. The tournament is sponsored by the Robotics Academy. The team of five consisted of 5th-7th graders at Falk School. They were coached by CS Professor Diane Litman, along with Professor Feingold and Professor Martinson of the Graduate School of Public Health.

Graduate Spotlight: Nevine Abou Gazala

Reprinted with permission in part from a story by David Templeton of the Pittsburgh Post Gazette:

In August, Nevine Abou Gazala, expects to land a doctoral degree after 6 1/2 years of graduate study. She will not have a problem landing a teaching position at a prestigious U.S. college or university, where she hopes to continue research in computer power management. Ms. Abou Gazala has carved out space in the field with impressive credentials even before she landed her degree.

Nevine has had 10 papers on computer power management published in advance of conferences and workshops along with three journal articles and two book chapters. In addition, she has landed an Andrew Mellon Fellowship and a Josephine de Karman Scholarship. Her grandest success came in winning a 2006 Google Anita Borg Memorial Scholarship of \$10,000 as an outstanding woman in computer science. Such success leaves her with "a couple of offers to think about" after she receives her doctoral degree.

Nevine has embraced a field of study into which few women dare to venture -- and many take pains to avoid. But Nevine fosters a philosophy that women should enter this male-dominated kingdom of computer science and claim it as their own. She also hopes to dispel stereotypes that nerds and geeks of the male persuasion are the formidable gods of computer land. While she confirms that few American women enter this field, she says those who do can find ample opportunity and success. Female computer scientists, she said, bring a problem-solving focus to the field.

During her years in Pitt's doctoral program, Nevine has focused on developing ways to preserve computer battery power. She created hardware that scales back power consumption in processing and hard-drive memory when tasks being performed require less power. She also produced software that further reduces battery drain. The Defense Advanced Research Projects Agency awarded a grant she used to create technology to extend battery life up to 150 percent in laptop computers. It is being tested at Pitt. She anticipates large computer manufacturers someday will adopt her technology, which is not yet available in the commercial market. The technology can also reduce energy consumption in cell phones and other computer-driven devices.

So her mission is clear: Define problems, then tackle them. Nevine is seeking a teaching position that will allow her to continue her research in power efficiency with the goal of developing a laptop that goes 10 days without recharging."

Undergraduate Spotlight: Tonya Groover

Reprinted with permission in part from a story by Hassan Wilcox of the Pitt Chronicle:

"I strongly believe the African proverb, 'It takes a village to raise a child,'" says Tonya Groover. "It is important that as a community we provide opportunities, exposure, and encouragement for the next generation." Tonya, who completed her B.S. degree in April, is the founder and director of the Technology Leadership Institute. The TLI, which began last summer, is a six-week academic enrichment program that helps high school students build the knowledge and skills necessary to gain admission into competitive college programs in science. "There are social implications involved with computers and technology," says Tonya. "This program provides an opportunity for students to get academic instruction as well as the ability to use what they learn in the classroom - outside the classroom through a service-learning project."

Long before Tonya set out to help bridge the "digital divide" between those with access to computers and technology and those without it, she was just a little girl fascinated by computing. Groover took computer programming courses in high school but subsequently found Pitt's introductory computer science curriculum to be more rigorous than she had anticipated. "What I learned in high school did not prepare me at all for what I needed to know in college," she acknowledges. Groover switched her major to computer engineering for two terms before returning back to computer science. She also held leadership positions with Pitt's Black Action Society and the University's chapter of the National Society of Black Engineers.

Curious why African Americans were so underrepresented in computer science, Tonya knew that she wanted to do something to help solve the problem. Tonya applied for and was awarded a research grant from the Pitt computer science department's Moyé Information Technology Initiative Summer Research Experience to investigate the digital divide. In fall 2005, she wrote the proposal outlining the TLI. Groover's digital-divide research is part of a larger project she calls the Ujima Project. "'Ujima' is an African work meaning collective work and responsibility," quotes Tonya. "I believe those of us who are blessed with technical skills should strive to share with those who are disadvantaged, because we live in a technologically driven society, and those without access and training will continue to fall behind."

Eventually, Tonya would like to earn a graduate degree in computer science and education. In the meantime, she plans to continue directing the TLI.

Undergraduate Year in Review

This has been a good year for the Computer Science Department, as the job market continues to expand. Based on federal government predictions, the CS job market will continue to grow in the next ten years, and we are optimistic about good placements for our current and future students. This has also been a good year for our students; here is a partial list of some student accomplishments in the past year:

Robert Cleric and Gregory Nicholas both earned honorable mention in the CRA 2007 Outstanding Undergraduate Award program. Robert Cleric was also the winner of the Computer Science Department Outstanding Undergraduate Award. This award is given by the department to the student who best represents what we want our majors to be, both in the classroom and in other activities.



Director of Undergraduate Studies, John Ramirez, presenting award to Robert Cleric at CS Day.

Students from the CS and CoE departments joined to produce our two programming teams this year, Pitt Blue (Pavel Puchkarev, Victor Puchkarev, David Kyle) and Pitt Gold (Mark Donoghue, Will Klieber and Andrew Merski). These teams competed at the East Central North American Region of the ACM International Collegiate Programming Contest in November and at the Carnegie Mellon Invitational in March. At the ACM competition Pitt Blue finished 17th in the region (out of a total of over 100 teams). At the CMU competition Pitt Blue finished first and Pitt Gold finished second.

Another programming contest that featured our students was the Microsoft Imagine Cup. In the Software Design competition, Pitt qualified 17 students for the regional finals and one for the North America finals in Redmond. Please join me in congratulating all of our Imagine Cup competitors! Our participation in the Imagine Cup was made possible by our Microsoft Student Partner, Nathan Homitsky. Throughout the year Nathan worked very hard in his post, hosting presentations and workshops, and doing his best to draw interest to the Imagine Cup. Clearly, his hard work paid off. Let's hope our Microsoft Student Partner for next year does as well as Nathan did this year.



We are looking for a Microsoft Student Partner for the upcoming academic year. Please contact John Ramirez at ramirez@cs.pitt.edu if you are interested and believe that you are qualified for this position.



The Pitt Geeks club also hosted a 24-hour coding contest here in the department. The contest featured some programming puzzles for teams of students and was a great success. The winning team consisted of Nick Farnan, Eric Conlon and Joe Frambach, while second place went to Jarrett Billingsley, Chris Brack and Adam Modlin.

Other events such as movie nights, a LAN party, a CS Department T-shirt design contest, a CS Department video/graphics contest and a CS Day scavenger hunt were also organized and sponsored by our students, through our three undergraduate computer science clubs: The Archive (president Lenny Kramer), Pitt Geeks (president Brian Madden) and the Student Chapter of the ACM (president Patrick Boylan). Thanks to these groups and all of their members for providing much needed distractions and gatherings for all of our students.

Undergraduate Honor Roll 2005-2006

Joshua Albrecht
Joshua Baer
Steven Barrios
Daniel Boeve
Ryan Bungard
Robert Cleric
Eric Conlon
Wesley Goodman
Nathan Homitsky
Chester Hosey
Timothy Kelly

Jason MacAllister
Michael Nugent
Christopher Povirk
Alexander Rudzki
Michael Sabatini
Ezra Smith
Chad Spensky
Allen Stern
Edward Wardak
Brian Wongchaowart
Zachary Zabetakis
Anthony Zana

Requirements for the yearly honor roll: full-time status for the past academic year (fall, spring) and qualifying computer science grade point average (GPA) of 3.75 and overall GPA of 3.5 during that period. Congratulations to the 23 students who have met this strict criteria!

COME SAY HELLO!

All of our graduates are invited to attend our Fall Alumni Social.

WHEN: Friday September 21, 2007

TIME: 5:30pm - 7:00pm

WHERE: Joe Mama's Italian Restaurant

www.cs.pitt.edu/events/alumsocial

Come meet members of the Computer Science Industry Board.

Appetizers will be provided by the department and your first drink compliments of the Industry Board!

*LINKS Newsletter
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LINKS is the newsletter of the Department of Computer Science, University of Pittsburgh. If you would like to receive the LINKS Newsletter, please send email to links@cs.pitt.edu.

You can find back issues of LINKS at the CS Department's web page:

<http://www.cs.pitt.edu>

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