

DEPARTMENT OF COMPUTER SCIENCE



LINKS

UNIVERSITY OF PITTSBURGH

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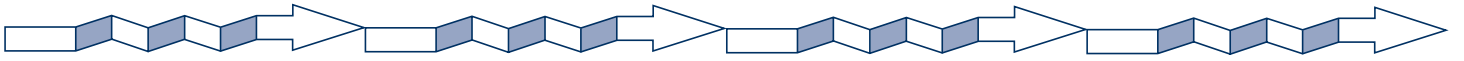


Photo taken during the incoming graduate student orientation on August 21

New faces in the department

Every semester we get a rush of fresh energy in the faces of new graduate and undergraduate students. This year, besides the 19 new graduate students (nine for the PhD program and 10 for the master's program), we also had a new faculty member, Rebecca Hwa.

Admissions were again very competitive this year: out of 617 received applications we only accepted 19. All of the incoming PhD students are supported financially either as teaching or research assistants.

Looking into the future

On August 25, the faculty in the department met in the Fox Chapel Yacht Club for the annual CS mini-retreat. The mini-retreat is a full-day meeting which provides the faculty with the opportunity to review the accomplishments of the previous year and to discuss short-term and long-term plans for the department. The accomplishments of the 2002–03 year include a successful recruitment season, which brought the size of our faculty to 24 full-time faculty members, and the size of our graduate program to 55 Ph.D. and 37 MS students. The department's research expenditure also increased by 22 percent to \$2.4 million. As for future plans, the faculty discussed the establishment of a computer science minor and the development of a capstone experience for computer science majors. The faculty also agreed to propose to the dean the creation of a new research center for cyber security. The participants were very optimistic about the future of the department and vowed to continue to work hard to maintain an excellent teaching program and an outstanding research program.

Rami Melhem, Department Chair
melhem@cs.pitt.edu

News in Brief

During the summer, Rami Melhem was elected department chair for a second term (2003–07).

Rebecca Hwa joined the department in the fall as an assistant professor.

George Novacky returned to the department in the fall as senior lecturer and associate department chair, after serving as a CAS assistant dean for three years.

Nancy Kreuzer, Kathy O'Connor, and Loretta Shabatura have completed over 20 years of service to the University.

Mark your calendars: Computer Science Day will be on November 1. The schedule of events is on the back cover.

In this issue:

New Grants.....	4
Faculty News.....	2
Rebecca Hwa	
Teaching Awards	
Network Security Lab	
Staff News.....	3
20 Years of Service	
Nancy Kreuzer	
New Grants.....	4
Faculty Activities.....	5
Alumni.....	6
D. Raja	
Student News.....	7
Awards, Recent Graduates	
Computer Science Day...	8

New assistant professor: Rebecca Hwa



Rebecca Hwa joined the Department of Computer Science in the fall of 2003. She received her BS in computer science and engineering from UCLA in 1993, and her PhD in computer science from Harvard University in 2001. Her research is in the areas of artificial intelligence and natural language processing.

She is particularly interested in applying statistical and machine learning methods to natural language applications such as parsing and machine translation. Hwa's work has centered around the fundamental challenge of training a machine to represent linguistic structures. The goal for the system is to automatically induce a model of a language (e.g., a grammar for English) such that it could generate the correct parse tree (i.e., linguistic structural analysis) for any sentence in the language. Such a system has great practical value because performing syntactic analyses on text is a vital step for applications such as speech recognition, information extraction, and machine translation. The process may also provide some insights into how people learn language structures.

In the spring term, Hwa will be teaching a graduate seminar, which will focus on the challenges in using empirical methods for natural language processing. She looks forward to working with students in addressing these challenges.

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. The award recipients for the 2002–03 academic year are:

Donald Bonidie (among Part-Time Faculty teaching a Computer Science Service Course)

John Ramirez (among Faculty Teaching a Computer Science Core Undergraduate Course)

George Novacky (among Faculty Teaching a Computer Science Upper-Level Undergraduate Course)

John Ramirez (among Faculty Teaching a Computer Science Upper Level Undergraduate Course)

Kirk Pruhs (among Faculty Teaching a Computer Science Graduate 2000-Level Course)

Markus Mock (among Faculty Teaching a Computer Science Graduate 3000-Level Course)

Accolades

Kurt VanLehn was one of the three to be elected a fellow of the Cognitive Science Society in 2003.

Gregg Kapfhammer and Mary Lou Soffa won the SIGSOFT Distinguished Paper Award at the Foundations of Software Engineering in Helsinki in September 2003.

New Laboratory for Computer Network Security Instruction

Prof. José Carlos Brustoloni received an Innovation in Education Award (including \$15,000 in equipment funding) from the University's Advisory Council on Instructional Excellence. The award is for the creation in our department of a new laboratory where students will learn how to apply security principles and gain hands-on experience in defending computer systems and networks against attacks. This facility is among the first few nationwide that are dedicated to developing a curriculum for preparing professionals in the area of computer security. Given the increasing threats of cyberterrorism and hacker activity faced by the nation, such professionals are in great demand. The laboratory is located in room 5506 of the Sennott Square building and features 12 Dell computers (2.6 GHz Pentium 4 with hyper-threading, integrated Fast Ethernet interface, and 17" LCD display), eight extra Fast Ethernet interfaces, eight Wi-Fi interfaces, four Fast Ethernet hubs, and four gateways with integrated four-port Fast Ethernet switch, Wi-Fi access point, and 802.1x authentication server. Undergraduate and graduate students in the department's operating system and networking courses will receive training in the new laboratory in the 2004 academic year.

Research Grant Spotlight Scalable Peer to Peer Data Management

PI: Alexandros Labrinidis

Over the last decade, the Internet and the World Wide Web have completely transformed the way we live. At the same time, however, the scalability and security of our Internet computing and communication infrastructure have been stressed beyond their limits. For example, popular Internet servers cannot always cope with their increasing traffic, failing to deliver their service during peak hours. Some of the above limitations in the scalability of our computing and communication infrastructure can be traced in the "client-server" distributed computing model that most Internet services employ. To cope with the limited scalability and reliability, the peer-to-peer (p2p) distributed computing model has been proposed. The p2p model advocates that all computers are both servers and clients at the same time: they are peers. Thus, in a p2p system, the service is not provided only by a limited set of servers: it is provided (potentially) by all peers, which in turn increases the scalability of the whole system. Unfortunately, most p2p systems do not optimize the traffic they generate, wasting their resources and limiting their scalability. In this project we propose to conduct research in peer-to-peer systems, with emphasis on improving their scalability. We plan to explore the locality aspects of these systems and to propose methods that will capitalize on this locality.

Twenty years of service

Nancy Kreuzer, Kathy O'Connor, and Loretta Shabatura have completed over 20 years of service to the University of Pittsburgh. They were recognized during a special campus-wide ceremony last December. John Aronis interviewed all three in September. We are publishing the interviews in alphabetical order, starting in this issue.

Nancy Kreuzer



Nancy Kreuzer was hired as a full-time receptionist in the Department of Computer Science in November 1982. The department was located in Alumni Hall; Orrin Taulbee was the chairman.

One day while she was a receptionist, Nancy heard some commotion in the hallways. When she went to investigate she found Dr. Kearns sitting barefoot with his hands behind his back and his legs crossed. Suddenly, someone in a nearby office tossed a round plastic cover from a large disk-pack over Kearns' head. Kearns and Chip Copper (a graduate student) were playing human ring toss! She says that after that incident she never knew what was going to happen next. Kearns is now at the College of William and Mary.

Nancy was a receptionist for more than a year and wanted to advance. She interviewed in other departments—and had an offer—but Dolores Shawkey, who was currently the department's administrator, asked Nancy to stay and replace her assistant, Felice Kappel, who was leaving for another position at the University. Since she liked the people in the Department of Computer Science, Nancy decided to stay. She is still good friends with Felice, who works in the Department of Anthropology.

As Dolores' assistant, Nancy handled the class schedule, book orders, purchasing, keys, and student payroll. Dolores left the University due to illness, and Nancy became the departmental administrator in May 1987. She remembers Dolores as a tough but fair boss, who was also a good friend.

Nancy went with staff and graduate students to Kennywood each year. She always had fun watching new graduate students at the amusement park, especially since many international students had never seen anything like it before. Nancy sometimes brought her daughter, Tammi, on these excursions. One year, Ben Heggy offered to take Tammi on the Ferris Wheel, since Nancy is afraid of heights. But Ben didn't account for his own fear of heights! When the ride ended, Tammi got off laughing, while Ben clung to the safety bar.

On another outing, Nancy and several graduate students went to Cedar Point in Ohio. They spent the night camping in tents. Most of the people on that trip knew nothing about tent camping, but Paul Mullens and Debbie Whitfield (who are now married) were experienced and helped. Nancy recalls how Paul and Debbie cooked a full breakfast for everyone, including pancakes and coffee.

Over the years, Nancy has seen many faculty come and go. She says that they are all different and special in their own way, and she has a lot of respect for faculty and has enjoyed working with all of them. She has been touched by the kindness and generosity of many of them. She notes that Siegfried Treu was always very fair, and she could freely discuss anything with him. She says that when Robert Daley was chairman he was "like a breath of fresh air," and Nancy enjoyed working with him very much. When Nancy's daughter, Tammi, needed help with mathematics while in high school, Mary Lou Soffa and her husband, Bill Soffa (Engineering), came to Nancy's house to tutor Tammi. Bill Soffa also helped Tammi prepare a science fair presentation. She also recalls how Treu was kind and helpful when Nancy's brother passed away. When Mary Jean Harrold (Georgia Tech) heard Nancy's daughter was sick, she immediately drove Nancy home. These are just a few examples; there have been many others, too numerous to mention.

Nancy is still the departmental administrator. Her main duties are to supervise the entire administrative staff, handle the payroll for the entire department, and arrange special events like the upcoming CS Day on November 1, 2003.

Education Grant Spotlight Embedded Security

PI: José Carlos Brustoloni

Professor José Carlos Brustoloni received a \$124,548 grant from Pittsburgh Digital Greenhouse (PDG) to develop and deliver two continuing education courses on security in embedded systems. Security was until recently a neglected topic in most computer science and engineering curricula, but a good grasp of the principles and tools used in this area has become a necessity for most practicing engineers. However, engineers often find existing textbooks and instructional materials in this area too theoretical and removed from practice. The new courses will innovate by focusing specifically on the needs and interests of this sizable and important group of students. The first course will provide an overview of commonly used cryptographic algorithms and user authentication schemes, and then discuss how these primitives are actually being applied (or misapplied) in current standards and representative products in the areas of secure storage, digital rights management, and local, internetwork, and end-to-end communication. The second course will provide students hands-on experience in applying open-source software packages in the design and implementation of secure embedded systems. Of 11 proposals competing for PDG's funding, this one drew the most advance interest; 37 engineers from eight PDG member companies will be attending. Brustoloni will deliver the first course live in December 2003 and again in April 2004, and the second course in March 2004. The courses will take place in Brustoloni's new Laboratory for Computer Network Security Instruction.

With the beginning of the new academic year, this is also the beginning of many new research grants. The following are grants of the faculty in the department approved since May 2003.

Behavioral Modeling of MEMS Sensors for System Level Design

Source: National Science Foundation (\$240,000)
Faculty: Steven P. Levitan (PI, EE Dept) and Donald Chiarulli (Co-PI)
Duration: Aug 2003–May 2006

Collaborative Research: Adapting Program Code Continuously and Adaptively

(Joint project with the University of Virginia)
Source: National Science Foundation (\$654,538)
Faculty: Mary Lou Soffa (PI), Bruce Childers (Co-PI)
Duration: Sep 2003–Aug 2006

Collaborative Research: Monitoring Student State in Tutorial Spoken Dialogue

Source: National Science Foundation (\$420,003)
Faculty: Diane J. Litman (PI)
Duration: Sep 2003–Jul 2006

Embedded Security

Source: Pittsburgh Digital Greenhouse (\$124,548)
Faculty: José Carlos Brustoloni
Duration: July 2003–June 2004

ITR: Secure CITI: A Secure Critical Information Technology Infrastructure for Disaster Management

Source: National Science Foundation (\$2,800,318)
Faculty: Ahmed Amer, José Carlos Brustoloni, Panos K. Chrysanthis, Louise K. Comfort (Co-PI, GSPIA), Milos Hauskrecht, Alexandros Labrinidis, Rami Melhem (Co-PI), Daniel Mosse (PI), Kirk Pruhs
Duration: Sep 2003–Aug 2008

Laboratory for Computer Network Security Instruction

Source: Innovation in Education Award, University of Pittsburgh (\$15,000)
Faculty: José Carlos Brustoloni
Duration: May 2003–June 2005

Latent Variable Models of Large Stochastic Networks

Source: Small Grants Program, University of Pittsburgh (\$9,900)
Faculty: Milos Hauskrecht
Duration: July 2003–June 2005

Multi-Use Wireless Gateways

Source: Pittsburgh Digital Greenhouse (\$98,312)
Faculty: Jose Carlos Brustoloni
Duration: July 2003–Dec 2004

Scalable Peer to Peer Data Management

Source: Small Grants Program, University of Pittsburgh (\$16,000)
Faculty: Alexandros Labrinidis
Duration: July 2003–June 2005

SoftTest: An Eclipse Plug-in for Scalable and Flexible Testing of Java Programs

Source: IBM, Eclipse Innovation Grants (\$29,000)
Faculty: Mary Lou Soffa, Bruce Childers

Travel Grant for Graduate Students to Attend the Third ACM International Workshop on Data Engineering for Wireless and Mobile Access

Source: National Science Foundation (\$10,000)
Faculty: Panos Chrysanthis and Alexandros Labrinidis
Duration: Sep 2003–Aug 2004

Research Grant Spotlight

Latent Variable Models of Large Stochastic Networks

PI: Milos Hauskrecht

A variety of distributed systems and networks encountered in telecommunications, power distribution, information delivery, supply management, and transportation are unreliable and exhibit random fluctuation of their connectivity structure. Despite the tremendous practical importance of such systems, only limited effort to date has been exerted to the development of models of large distributed systems that can adequately represent such stochastic behaviors. More specifically, many current stochastic models and algorithms for their analysis build upon the assumption of failure independence, the condition frequently violated in realistic world settings with intricate stochastic dependences and interactions among components of the system. A simple analysis of real-world network systems (such as power grids or communication or transportation networks) reveals that situations with more failures occurring at the same time are more likely than in the model with failure independence in which an occurrence of a larger number of failures tends to be a very unlikely event. An example is the recent power blackout that affected large areas of the eastern United States and involved a cascade of interacting failures. Under the condition of failure independence the probability of such an event would be extremely small. The objective of the project is to develop: (1) a more realistic model of stochastic failures that alleviates the assumption of independence and represents adequately the key interactions among components of the distributed system, (2) efficient algorithms for inference and learning of such a model from observational data. To achieve these objectives we study a class of probabilistic latent variable models from statistical machine learning to represent failures and variational approximations to perform efficient inferences and model learning.

These are some of the activities of our faculty since the last issue:

May 2003

Diane J. Litman gave an invited talk on “*Designing and Evaluating Two Adaptive Spoken Dialogue Systems*” at General Motors, Warren, Mich.

Diane J. Litman and **Janyce M. Wiebe** were on the Review Committee of the Human Language Technology Conference: Third Meeting of the North American Chapter of the Association for Computational Linguistics (HLT/NAACL).

Diane J. Litman was on the Program Committee of the Seventh Conference on Natural Language Learning (CoNLL).

Diane J. Litman was on the Program Committee of the HLT/NAACL Workshop on Building Educational Applications Using Natural Language Processing.

Mary Lou Soffa organized the Doctoral Symposium at the 25th International Conference on Software Engineering (ICSE 2003).

Taieb Znati was the program co-chair of the First IEEE International Workshop on Sensor Network Protocols and Applications.

June 2003

Bruce Childers was the co-organizer of the Workshop on Exploring the Trace Space for Dynamic Optimization Techniques, held during the ACM International Conference on Supercomputing.

Alexandros Labrinidis and **Panos K. Chrysanthis** were members of the Program Committee of the Second International Human.Society@Internet Conference.

Diane J. Litman was on the Program Committee of the Ninth International Conference on User Modeling.

Mary Lou Soffa was on the Program Committee of the Languages, Compilers, and Tools for Embedded Systems Workshop.

Taieb Znati gave an invited talk on “*Perspective on Future Directions in Networking Research*” in the COST(EU)-NSF(USA) Workshop in Exchanges & Trends in Networking in Chania, Crete, Greece.

July 2003

Diane J. Litman and **Janyce M. Wiebe** were on the Program Committee of the Conference on Empirical Methods in Natural Language Processing (EMNLP).

Janyce M. Wiebe was on the Review Committee for the 41st Annual Meeting of the Association for Computational Linguistics.

Janyce M. Wiebe was on the Review Committee for the Fourth SIGdial Workshop on Discourse and Dialogue (SigDial-03).

August 2003

Diane J. Litman was on the Scientific Committee of the ISCA Workshop on Error Handling in Spoken Dialogue Systems.

Taieb Znati was a keynote speaker on the International Conference on Information Technology: Research and Education (ITRE 2003) in Newark, N.J. The title of the talk was “*A Perspective on Future Directions in Networking Research: Are we done yet?*”

September 2003

Ahmed Amer gave an invited talk on “*Optimizing Storage: Beyond Speed-ups*” at the First SSRC Retreat, which was held in September 2003 in Santa Cruz, Calif. SSRC is the Storage Systems Research Center of the University of California at Santa Cruz.

Bruce Childers was on the Program Committee of the Workshop on Compilers and Operating Systems for Low Power.

Bruce Childers was the publications chair of the International Conference on Parallel Architectures and Compilation Techniques.

Panos K. Chrysanthis was a member of the panel on the Lowell Report in the Hellenic Data Management Symposium.

Panos K. Chrysanthis was one of the 12 academicians and 12 prominent industrial researchers who were invited by NSF to work on defining the initiative on the Science of Design of Information Systems.

Panos K. Chrysanthis was the general chair and **Alexandros Labrinidis** was the financial chair for the Third International ACM Workshop on Data Engineering for Wireless and Mobile Access.

Alexandros Labrinidis was on the Program Committee of the Sixth International Workshop on Mobility in Databases and Distributed Systems.

Taieb Znati was the keynote speaker at the Second ACM International Workshop on Wireless Sensor Networks and Applications (WSNA 2003) which was held in San Diego, Calif.

Taieb Znati gave an invited talk on “*A Perspective on Future Directions in Networking and Pervasive Computing*” in the SCIENCE2003 Conference of the University of Pittsburgh.

Taieb Znati gave an invited talk at the University of Michigan on “*Perspective on Cyberinfrastructure: The Atkins Report.*”

October 2003

Alexandros Labrinidis gave an invited talk on “*Location-Aware In-Network Data Aggregation for Sensor Networks*” in the GeoSensor Network Workshop, held in Portland, Maine.

Rami Melhem was on the Program Committee of the Fourth Annual Optical Networking and Communications Conference (OptiComm).

November 2003

Panos K. Chrysanthis is on the Program Committee of the Twelfth International Conference on Information and Knowledge Management CIKM 2003.

December 2003

José Carlos Brustoloni is on the Program Committee of the Communications Security Symposium, which will be held in conjunction with the 2003 IEEE Global Communications Conference.

Bruce Childers and **Daniel Mosse** are organizing a workshop on Constraint-Aware Embedded Software together with the 24th IEEE International Real-Time Systems Symposium.

Diane J. Litman is on the Review Committee of the IEEE Automatic Speech Recognition and Understanding Workshop (ASRU).

Alumni Spotlight: D. Raja



D. Raja is the co-founder of Computer Enterprises Inc., better known as CEI. Originally from Bangalore, India, Raja underwent his schooling in Chennai. He holds an undergraduate degree in electrical engineering from Anna University, India. Raja moved to the United States from India to obtain his MS in computer science at the University of Pittsburgh. While he was still pursuing

his master's degree, Raja began his professional career as a software engineer. He worked for over five years at Formtek, a Lockheed Company, where he quickly scaled the ranks from software engineer to manager of the software department. In 1992, while still working for Formtek, Raja launched his own consulting and project management practice, a venture that was to become CEI. In addition to his successful, 14-year career as an entrepreneur in the software development and project management sector, Raja recently earned an MBA from Carnegie Mellon University. Out of the office, Raja spends quality time at his home in Mt. Lebanon with his wife, Neeta, and his daughter, Isana.

About CEI (www.ceiamerica.com)

CEI is a nationally recognized strategy, technology architecture, and software consulting company. Established in 1992 with the vision of becoming a global leader in IT services, CEI has grown to a \$35 million company with over 400 employees and offices coast to coast and in India. CEI provides contract programming, technical project management, and e-business integration services to clients across the United States, including over 60 percent of the Fortune 50. The company has been named three times consecutively to both the Inc. 500 list of America's fastest growing private companies and the Smart 100 list of America's most innovative IT service providers. The company is also a five-time Pittsburgh Technology Council Tech 50 honoree and has been recognized by VARBusiness as one of the country's top 500 solution providers. CEI's service line has developed through the full spectrum of technology, from its beginnings as a client/server company to ERP and Internet technologies of today. The company presently offers quality services in a full range of key IT focus areas, including on-site, off-site, and offshore project delivery, managed services, and staff augmentation in almost any application of current and emerging technologies. CEI prides itself on staying ahead of the technology innovation curve and is an active partner to some of the market's best technology innovators, including IBM, Microsoft, Sun, Documentum, and ATG.

Industry Trends

The IT industry has evolved over the past two years to focus on consolidation, cost cutting, and employee productivity. With this as a business driver for CxO's, server and application consolidation are important for business buyers. Cost cutting has allowed IT buyers to look at Open Source (Linux) as a way to achieve the savings. Application consolidation is promoting the need to merge multiple ERP and JAVA-based application servers (e.g., IBM WebSphere, BEA WebLogic) and extend a common platform. From a business perspective, blended offshore outsourcing in technology services and business services (BPO) is being reviewed as another way to decrease costs as businesses focus on core competencies. Employee productivity is being promoted by enabling employees to make better decisions by providing the key information to them through the use of portals (e.g., IBM Portal, Microsoft Sharepoint) and collaboration technologies such as business-based instant messaging (e.g., IBM Sametime). Going forward, CEI sees a new focus on revenue-generating top-line growth initiatives that will happen as companies refresh their old technologies (e.g., Microsoft NT to .NET 2003). New initiatives such as Web services and embedded security will allow additional revenue opportunities for all companies. RFID for product tracking will create optimal supply chain tracking combined with customers, suppliers, and employees using multiple devices for information access.

University/Departmental Elections

Don Chiarulli was elected to serve for two years on the School of Arts and Sciences Honors College Advisory Board.

Bob Daley was elected to the University Senate.

Diane J. Litman and **S.K. Chang** were elected to the School of Arts and Sciences Tenure Council.

Rami Melhem was elected department chair for a second term (2003–07).

Research Grant Spotlight

Multi-Use Wireless Gateways

PI: José Carlos Brustoloni

Professor José Carlos Brustoloni received a \$98,312 grant from Pittsburgh Digital Greenhouse (PDG) for research on the security of Wi-Fi hotspots. Together with his PhD student, Haidong Xia, Brustoloni has discovered flaws in existing commercial hotspots that allow users to gain access without paying. Brustoloni and Xia followed up this discovery by designing two novel countermeasures that block theft of service in wireless hotspots without requiring any special client configuration. They are also investigating secure mechanisms that allow any organization that maintains a Wi-Fi network for its members (e.g., the University of Pittsburgh) to offer Internet access also to nonmembers (e.g., visitors or city residents). Such access may be granted by courtesy (e.g., to visitors) or sale (e.g., online credit card or PayPal payment). Technical advisors in the project are Cisco, 3eTI, and Oki Semiconductor.

Taulbee Award

In 1966, Orrin Taulbee founded Pitt's Department of Computer Science and served as its chair until 1984—an amazingly long time to hold that position. In October 1989, the four sons of Taulbee initiated this award in memory and honor of their parents. To be considered for the annual award, a candidate must: (1) be a full-time PhD student, with a high QPA; (2) pass the PhD preliminary exams and make significant progress towards the degree; (3) complete at least two semesters with classroom experience as a teaching assistant or teaching fellow with evidence of outstanding teaching skills; (4) demonstrate strong research interests, as confirmed by the faculty advisor; (5) show a marked interest in pursuing an academic career. This year's recipient of the Taulbee Award is **Mihai Rotaru**. Mihai's major advisor is Diane J. Litman. Congratulations, Mihai!



TA Mentor Award

Anandha Gopalan was selected as the TA mentor for the academic year 2003–04. The position of TA mentor in each department was established in 2001 by the dean's office as part of its efforts to enhance the learning experience of both the undergraduate and graduate students. The TA mentor's role is to provide support, especially to new TAs, in copying with their teaching responsibilities and how to deal with difficult situations with students. The TA mentor is also a liaison between TAs and faculty. All TA mentors in our department were selected by our faculty based on both their exceptional academic and TA performance. Past TA mentors were M. Vemulapalli (2001–02), V. Penkrot, and A. Berfield (2002–03).



Graduate Student Research Award



The recipient of the Graduate Student Research Award was **Cosmin A. Rusu**. This award was given for presenting the best student research paper among computer science graduate students during the academic year 2002–03.

The competition was sponsored by Compunetix (www.compunetix.com)

CS Graduates (2002–03)

In the 2002–03 academic year, 95 students graduated with a BS in computer science. The photo below is from the graduation brunch for our undergraduate students, prior to commencement on April 27, 2003.

MS degrees awarded in the last year:

Joseph Slember	(Advisor: Mary Lou Soffa)
Anandha Gopalan	(Advisor: Taieb Znati)
Narkeeran Narasimhan	(Advisor: S.K. Chang)
Sridhar Daita	(Advisor: Bruce Childers)
Vincent Penkrot	(Advisor: Panos K. Chrysanthis)
Weiyang Dai	(Advisor: S.K. Chang)
Joshua Gould	(Advisor: Panos K. Chrysanthis)
Prasad Lakkavaram	(Advisor: S.K. Chang)
Jianhang Xu	(Advisor: S.K. Chang)
Nitin Kumar Konduru	(Advisor: Daniel Mosse)
Namrata Rastogi	(Advisor: Daniel Mosse)
Zhen Liu	(Advisor: Panos K. Chrysanthis)
Matthew Bell	(Advisor: Jan Wiebe)
Garry Benner	(Advisor: Robert Daley)
Nevine AbouGhazaleh	(Advisor: Rami Melhem)
Sapana Chandra	(Advisor: S.K. Chang)
Eugene Tseytlin	(Advisor: S.K. Chang)
Ramesh Mishra	(Advisor: Daniel Mosse)
Xin Li	(Advisor: S.K. Chang)



Fourth Annual Computer Science Day

November 1, 2003

Noon–4:30 p.m.

**University of Pittsburgh
Sennott Square Building
Fifth and Sixth Floors**

Computer Science Day brings together educators, students, parents, alumni, and industry representatives in a forum enabling the exchange of ideas and information about computer science and the career opportunities available.

**Organized by the
Department of Computer Science**

Visit our Web site:
www.cs.pitt.edu/CSDay

Schedule of Events

Noon–12:30 p.m.	Room 5319	1:30–4:30 p.m.	Room 5317
Pizza and Conversation		Sample Computer Science Lecture	
		George Novacky	
		Associate Department Chair	
12:30–1:30 p.m.	Room 5317	Welcome and Introductions	
Industry Spotlight		Rami Melhem	
Representatives from major technical companies will each give a short talk and answer audience questions addressing issues related to their individual companies.		Department Chair	
		Undergraduate Awards	
		John Ramirez	
		Director of Undergraduate Programs	
		Poster Awards	
		Ahmed Amer	
		Panel on Research and Industry Student Experience	
		Nevine Aboughazaleh	
		Juliya Litman	
		Jonathan Misurda	
		T. Patrick Shurie	
		Aaron Watson	
		Keynote Talk	
		Robert Thibadeau, Seagate	

LINKS is the newsletter of the Department of Computer Science, University of Pittsburgh and is published twice a year.

We would like to hear from you. Your news, suggestions, comments, and contributions are always welcome. Please mail them to the address to the right or send them by e-mail to labrinid+links@cs.pitt.edu.

If you would like to receive the LINKS Newsletter in print or want to update your mailing address, please send e-mail to links@cs.pitt.edu with your name and mailing address.

You can find back issues of the LINKS Newsletter at the Web page of the Department of Computer Science: www.cs.pitt.edu.

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