



# LINKS

Newsletter of the Department of Computer Science

Summer 2005 - Vol. 8, No. 1

## In this issue:

### Department News

5th Annual CS Day	2
Distinguished Lecturer Series	2
Industry Board	3
Graduate Research Competition	3

### Research

New Grants	4
------------	---

### Faculty News

Sangyeun Cho	5
Kurt VanLehn	5
Teaching Awards	5
Daniel Mosse	6
Mary Lou Soffa	7
Faculty Activities	8

### Staff News

Bunny Bernfeld	9
----------------	---

### Alumni News

Ras Bodik	10
-----------	----

### Student News

UPE Honor Society	11
Moye Information Technology Initiative	11
ACM Student Chapter Activities	11
2003-04 Honor Roll	12
New CS Grads	12

## The First Annual CS Bowl



A new addition to the annual Computer Science Day this year was the Computer Science Bowl, a “Jeopardy!”-style challenge in which participants answered questions concerning various computer science topics.

One unique aspect of the event was the participation of several high schools, which sent teams of students to compete in the high school division of

the Bowl. The high schools that attended were Woodland Hills, Seneca Valley, Trinity, BlackHawk, Central Catholic, and Richland. In addition to the high school division, there was also a separate division for college students. Participants had to rely on both speed and knowledge to get a shot at winning.

Winning teams of the High School CS Bowl were Seneca Valley, 1<sup>st</sup> place and Central Catholic, 2<sup>nd</sup> place. Members of the winning College Bowl team were Nicolas Baldi, James O’Kane and James Larkby-Lahet; runners-up were Bill Morris, Scott Sweeny and Joe Gallo. Congratulations to all!



Above and left: Students participate in the CS Bowl

## Parsing Arabic Dialects, Rebecca Hwa

This summer, Professor Rebecca Hwa, along with researchers from Columbia University, the University of Maryland and the University of Amsterdam, is participating in an NSF-sponsored workshop on Parsing Arabic Dialects. Students from Stanford University, the University of Pittsburgh, Johns Hopkins University and Georgia Tech are also participating in the project.

The project will tackle the problem of parsing Arabic dialects. Parsing is an important component in many advanced Natural Language Processing (NLP) systems, and has also proven useful in language modeling for Automatic Speech Recognition (ASR). As is well known, the Arabic language exhibits diglossia, i.e., the coexistence of two forms of language: a high variety with standard orthography and sociopolitical clout which is not natively spoken by anyone (Modern Standard Arabic, MSA), and low varieties that are primarily spoken and lack writing standards (Arabic dialects). The dialects and MSA form a continuum of variation at the lexical, phonological, morphological, and syntactic levels.

There are important resources currently available for MSA with much ongoing NLP work; for example, there are several syntactic and semantic parsers for MSA. However, Arabic dialect resources and NLP research are still at an infancy stage. There are linguistic studies

(continued on page 5)

## The Fifth Annual Computer Science Day

Computer Science students, alumni, educators and industry representatives came together on February 18<sup>th</sup>, 2005 to celebrate Computer Science Day, held in Sennott Square.



This year saw the introduction of the Computer Science Bowl, in which both college and high school students competed to win prizes. Representatives of local and international high-tech

firms filled the hallways, with tables displaying information about their businesses.

Compunetix, a Monroeville-based company that develops multimedia multipoint telecommunications systems for both commercial and government markets, sponsored the department's annual graduate student research competition. In order to participate, students had to write research papers and give oral presentations before the day of the event.

A computer science poster competition was held, with separate contests for graduate and undergraduate students.



For junior Teddy Wardak, it was the first time he had participated in Computer Science Day. Wardak enjoyed all of the activities that the day had to offer, including the poster contest. He said that being able to talk to representatives from the different companies was helpful and interesting.



Students were also given the opportunity to participate in an internship and co-op forum, during which they were able to gain insight from the experiences of other students, as well as various industry veterans.

Some members of the Computer Science faculty, graduate students and undergraduates have recently completed a variety of noteworthy projects related to their fields of study. They set up demonstration tables to educate the participants about their recent achievements.

Wardak said he found the demonstrations to be very interesting, and he enjoyed learning about the new things that the demonstrations presented.

(Article reprinted from the Pitt News)

## Distinguished Lecturer Series - Spring 2005

- 01/28/05 Phil Bernstein**, Microsoft Research  
*Generic Model Management: A Database Infrastructure for Schema Manipulation*
- 02/04/05 Guri Sohi**, University of Wisconsin  
*Single Chip Multiprocessors: The Next Wave of Computer Architecture*
- 02/11/05 Keith Cooper**, Rice University  
*Finding Good Compilation Sequences*
- 02/25/05 Eva Tardos**, Cornell University  
*Network Games and the Price of Stability or Anarchy*
- 04/29/05 Michael Jordan**, UC Berkeley  
*Graphical Models, Kernel Methods and Statistical Learning Algorithms*

## CS Day Award Winners

At a special ceremony during CS Day, awards were given to the Outstanding Undergraduate Student, Carol Nichols; the students on the CS Undergraduate Honor Roll, and the winners of the research poster competition, which were:

### Best Poster Award

- Graduate: Nevine AbouGhazaleh
- Undergrad: James Larkby-Lahet

### Runner-up Poster Award

- Graduate: Branislav Kveton
- Undergrad: Ben Keating & Nicolas Baldi

### People's Choice Award

- Graduate: Haidong Xia & Jayashree Kanchana
- Undergrad: Nicolas Baldi

## CS Day Marketplace

CS Day featured a Marketplace with display booths from representatives of local and international high-tech firms. The marketplace participants were:

- ACM
- Apple
- Bosch
- Career Services
- Cisco Systems
- Computer Enterprises, Inc.
- Computer Engineering Program
- College in High School
- Compunetix
- Intel Research
- Intelligent Systems Program
- Lucent Technologies
- Northrop Grumman
- Novaurora
- Perioptimum
- PITWIC
- SUN Microsystems
- Vivisimo

## The CS Department Industry Board

The Industry Board is a recently-formed collaboration of the CS Department and leaders in industry. The purpose of the Industry Board is to allow the University to keep in touch with industry needs, ensuring that course offerings are relevant. In addition, the Industry Board works to raise funds and provide sponsorships for the department.

For industries, the Board works to create a business environment that will attract and retain prospective students and employees. It facilitates the development and hiring of qualified candidates from the University, and supports initiatives to educate computer science professionals on the latest technology and security trends.

Current initiatives of the Industry Board include the Capstone Class, CS1680 - *Project Design and Implementation*, in which Industry Board member companies define a project to be completed by teams of students during one semester. Teams work closely with their industry mentor. The company project leader and the course coordinator evaluate the team's performance at the end of the project, and the student who demonstrates the greatest abilities receives the Project Team Leadership Award. This year's award went to Michael DaParma (see photo, left).



Another initiative is the Undergraduate Lecturer Series, which will be offered in the fall. This series will bring experts from industry to the department to discuss the latest technologies, tools and trends. The Industry Board enthusiastically supports the development of distance-education courses. A pilot course from our undergraduate curriculum will be offered next summer.

## Members of the Industry Board:

### University Members:

- Dr. Rami Melhem, *Chair, Computer Science Department*
- Dr. George Novacky, *Associate Chair, Computer Science Department*
- Dr. Martin Weiss, *Chair, Department of Information Science and Telecommunications*

### Industry Members:

#### Alcoa:

- Carl Murawski, *Alcoa EBS Manufacturing IT Lead*
- Linda Berardelli, *Global Business Services - IS*

#### CEI:

- D. Raja, *CEO and Industry Board Chairman*
- Steve Mahoney, *CIO*

## 2005 CS Graduate Research Competition



Mihai Rotaru (right), winner of the 2005 Graduate Research Competition, is congratulated by Department Chair Dr. Rami Melhem (left) and Gerry Pompa of Compunetix (middle).

This year's Graduate Research Competition was held in conjunction with CS Day on February 18th, and was sponsored by Compunetix. There were 8 papers submitted. From these the committee selected 4 finalists, who presented their work on February 17th before the department.

The four finalists were (in alphabetical order):

- (1) Xin Li, *Face Alive Icons*;
- (2) Mihai Rotaru, *Using Word-level Features to Better Predict Student Emotions during Spoken Tutoring Dialogues*;
- (3) Tomas Singliar, *Probabilistic Models of Traffic Volume Data*;
- (4) Haidong Xia, *Context-Sensitive Certificate Verification in Web Browsers*.

The winner of the competition was Mihai Rotaru, who received his award during the CS Day award ceremony. Last year's Graduate Research Competition award winner was Jason Bakos.

### Compunetix:

- Gerry Pompa, *Vice President and Division Manager, Communications Systems Division*
- Dan Watkins, *CONTEX App. Development Manager*

### Eli Lilly and Company:

- Michael Bem, *Vice President, Business Integration*
- Renwick Crenshaw

### PNC:

- Mark Shozda, *CIO, PNC Advisors*

### Seagate Technology:

- Mark Kryder, *CTO and Senior Vice President, Research*
- Dr. Erik Riedel, *Dept. Head, Interfaces & Architecture*

### The Technology Collaborative:

- Mark Borger, *Vice President, Business Development*

The following are grants of the faculty in the department awarded since the last issue of LINKS.

**Advance Leadership** (Jul 2004-Aug 2004)

Source: Computing Research Association (\$28,542)

Faculty: Mary Lou Soffa

**Algorithmic Support for Temperature Aware Computing and Networking** (Started in Sep 2004)

Source: National Science Foundation (\$99,951)

Faculty: Kirk Pruhs

**Architectures for Cognitive Information Processing**

(Started in Sep 2004)

Source: Lockheed Martin (\$250,000)

Faculty: Rami Melhem

**Area, Power, and Efficient Chip I/O using Multi-Bit-Differential Signaling** (Started in Aug 2004)

Source: Pittsburgh Digital Greenhouse (\$172,166)

Faculty: Donald Chiarulli (PI), Steven Levitan (Co-PI)

**Cognitive Memory Structures** (Started in Jul 2004)

Source: Raytheon (\$156,867)

Faculty: Daniel Mosse (PI), Bruce Childers (Co-PI)

**Collaborative Research: Transactional Execution Making Unsafe Compiler Optimizations Work in Runtime** (Started in Sep 2004)

Source: National Science Foundation (\$80,350)

Faculty: Markus Mock

**CS MR Research** (Started in Sep 2004)

Source: National Institutes of Health (\$13,062)

Faculty: Department-wide

**Flexible and Dynamic Workflow Design: Theory and Practice** (Started in Oct 2004)

Source: National Science Foundation (\$255,183)

Faculty: Taieb Znati (Co-PI), collaboration with University of Florida

**Improving Program Performance with Speculative Memory Disambiguation** (Jul 2004-Jun 2006)

Source: Small Grants Program, University of Pittsburgh (\$11,125)

Faculty: Markus Mock

**Interactive Multi-Modal Learning in Discrete Mathematics** (May 2004-Apr 2005)

Source: Small Grants Program, University of Pittsburgh (\$24,920)

Faculty: George Novacky (PI), Patchrawat Uthaisombut (Co-PI), Yasir Khalifa (Co-PI)

**ITR: Tutoring Scientific Explanations via Natural Languages Dialogue** (Started in Jan 2004)

Source: National Science Foundation (\$125,573)

Faculty: Kurt VanLehn (PI), Diane Litman (Co-PI),

Michelene Chi (Co-PI), Carolyn Rose (Co-PI), Pamela Jordan (Co-PI)

**Options in Question Answering** (May 2004-Apr 2005)

Source: Department of the Interior (\$909,787)

Faculty: Janyce Wiebe

**Repository of the Proceedings and Findings of the IDM Workshops** (Sep 2004-Aug 2005)

Source: National Science Foundation/Maine (\$17,932)

Faculty: Panos Chrysanthis (PI), Alexandros Labrinidis (Co-PI)

**REU: Collaborative Research Algorithmic Problems in Next Generation Network** (Mar 2004-Sep 2005)

Source: National Science Foundation (\$10,000)

Faculty: Kirk Pruhs

**REU: NGS: Collaborative Research: Adapting Program Code Continuously and Adaptively**

(Started on May 2004)

Source: National Science Foundation (\$6,000)

Faculty: Bruce Childers (PI)

**REU: Power Autonomous Wireless Networks: Controlling CPU and Transmission Power with Rechargeable Capabilities** (Mar 2004-Sep 2005)

Source: National Science Foundation (\$6,250)

Faculty: Daniel Mosse (PI), Rami Melhem (Co-PI)

**REU: Secure CITI – A Secure Critical Information Technology Infrastructure for Disaster Management** (Sep 2004-Aug 2005)

Source: National Science Foundation (\$6,000)

Faculty: Daniel Mosse (PI), Rami Melhem (Co-PI), Louise Comfort (Co-PI, GSPIA)

**Semi-Supervised Learning Methods for Machine Translation** (Jul 2004-Jun 2006)

Source: Small Grants Program, University of Pittsburgh (\$8,000)

Faculty: Rebecca Hwa

**SGER Modeling Fragility in Sociotechnical Systems: A Transportation Study** (Feb 2004-Jan 2005)

Source: National Science Foundation (\$20,000)

Faculty: Louise Comfort (PI, GSPIA), Milos Hauskrecht (Co-PI, CS), Jeen-Shang Lin (Co-PI, EE)

**Steady increase in research funding:**

We are happy to report that our department's research funding has seen a steady increase over the past few years. In FY2005, our total research expenditure was \$2,465,548, compared to \$1,530,876 in FY2000 (a 61% increase). Also, the number of funded graduate research assistantships rose from 41 terms of support in the 2000/2001 academic year to 85 in the 2004/2005 academic year.

## Parsing Arabic Dialects (continued from page 1)

of Arabic dialectal syntax but there is no language engineering work (such as computational grammars). There are no parallel written corpora between any of the dialects and any other language, including MSA. Thus, most of the techniques developed for parsing that exploit supervised (in the canonical sense) machine learning do not apply, since there is not sufficient annotated data to learn from. The researchers would like to leverage existing resources and tools for MSA in order to parse Arabic dialects using both symbolic techniques and machine learning approaches.

The investigators expect that the project will have a significant impact on many areas. For General NLP research, researchers will investigate how to leverage available syntactic resources for families of resource-poor languages.

Researchers will create standard tools, i.e. parsers with compatible tokenization and morphological analysis components, for the processing of Arabic (MSA and dialects). These can be used in applications such as dialect translation, information retrieval, information extraction from speech data, dialect transcription, language modeling for ASR, and semantic parsing of Arabic dialects.

For resources, researchers will create standards for the transcription of Arabic dialects, as well as grammars and small corpora and lexica.

## Kurt VanLehn Presents LearnLab in D.C.



Photo: Dave Scavone

Kurt VanLehn, a professor in Pitt's Department of Computer Science and codirector of the Pitt-Carnegie Mellon University Pittsburgh Science of Learning Center (PSLC), represented the University at the June 21 Exhibition of the Coalition for National Science Funding in Washington, D.C.

He also met with Congressman Mike Doyle (D-Forest Hills) and a number of other congressional staff to discuss his National Science Foundation-funded project on intelligent tutoring. LearnLab, a project of the PSLC, is a research facility designed to dramatically increase the ease and speed with which learning researchers can create the rigorous, theory-based experiments that pave the way to an understanding of learning.

(Article reprinted from the Pitt Chronicle)

## Sangyeun Cho, Assistant Professor



Sangyeun Cho joined the Department of Computer Science in the fall of 2004. He received his BS in computer engineering from Seoul National University, Seoul, Korea in 1994, and his PhD in computer science from the University of Minnesota in 2002.

In 1999, he joined the System LSI division of Samsung Electronics, Co., in Giheung, Korea and contributed to the development of Samsung's embedded processor core family named CalmRISC(TM). He was a lead architect of CalmRISC(TM)-32, a 32-bit microprocessor core, and designed its memory hierarchy including caches, DMA, and stream buffers. He received a corporate R&D excellence award for this work. His most recent works at Samsung include design and implementation of a low-power SDRAM controller, an ARM-based embedded processor module, and a high-bandwidth bus design for the world's first 18x DVD recording SOC.

His research interests are primarily in the area of computer architecture and embedded systems, with particular emphasis on low power consumption, memory hierarchy design, and reliable computer systems.

In the 2005 spring term, Cho taught a graduate seminar (CS3410), which focused on new issues and recent advances in the computer architecture area. He enjoys working actively with students in tackling new and interesting problems.

## 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. The award recipients for the 2003-2004 academic year are:

**Robert Addleman** (among Part-Time Faculty teaching a Computer Science Service Course)

**George Novacky** (among Faculty Teaching a Computer Science Core Undergraduate Course)

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

**Daniel Mosse** (among Faculty Teaching a Computer Science Upper Level Undergraduate Course)

**Rami Melhem** (among Faculty Teaching a Computer Science Graduate 2000 Level Course)

**Rebecca Hwa** (among Faculty Teaching a Computer Science Graduate 3000 Level Course)

## Daniel Mossé, Professor



Dr. Daniel Mosse became a full Professor in the Computer Science Department in 2004. Here, he discusses how he came to the department, his love for teaching, and his (so far) fruitless campaign to squeeze more time into a 24-hour day.

### **You are originally from Brazil. How did you end up at the University of Pittsburgh?**

When I finished my Bachelor's in Mathematics in Brazil I decided I wanted to be a professor. My father said "If you want to be a professor in computer science, you have to search for the best education you can get." So I came to the USA and got my PhD at the University of Maryland. I was considering two different jobs, but I chose Pitt because it offered teaching responsibilities as well as research. And I instantly liked the department.

### **Tell me about writing your first grant.**

After my first term at Pitt, I went to Bonaire for vacation. I'd wake up before sunrise, when everyone was asleep, and write for a couple of hours. When everybody woke up, we'd play for the day. After everyone went to sleep I'd spend a couple more hours writing under the stars, with the waves rolling in. It was a very relaxing way to write a proposal, and it got funded, so I highly recommend it to anybody. Take a vacation, write a grant proposal.

### **You taught at Semester at Sea. Can you tell me about that experience?**

It was the experience of a lifetime. It was the perfect venue to expose students to the haves and have-nots, to contrast American riches with third-world ingenuity with respect to technology. I love interacting with students, and on the ship you do everything together; eat, do Tai-Bo, play volleyball; everything. So for me it was a great experience.

### **What did you do during your sabbatical at Cornell?**

I worked in a distributed system group at Cornell with Ken Birman. I also worked with the database group there. One of the things that we tried to accomplish was to have some real-time properties put into their systems. I also started developing my interest in sensor networks, mobility and mobile computing. I was at CU for a year, but also at Pitt, trying to collaborate as much as possible on the projects that Rami was handling at the University.

### **Besides teaching, what are you currently involved in?**

This year I'm the Chair of RTSS, which is the premier real-time systems conference in the field. I also head the Brazilian Workshop on Real-Time Systems.

As far as research, in the last few years we've done work with power management, which is how to make the batteries of devices, such as a laptop, last longer and how to manage the hardware capabilities through software. Recently we got a grant for Secure-CITI, which is a critical information technology infrastructure, to help in emergency situations such as earthquakes and landslides.

A new project we started about four or five months ago is on cognitive computing, which tries to build a computer that will do some functions that humans can do. The A. I. (Artificial Intelligence) dream used to be to make the computer think like a brain. What we'd like to do now is try to automate *certain* functions that are slow for the computer to do, such as the recognition of objects. We are looking at the way memories work in the brain and seeing if we can manage them in the computers in a similar way, like fast memory and short-term memory.

### **What is the most difficult aspect of your job?**

Being able to stop and say "no." That for me is the hardest part, because there are so many interesting things to do and only 24 hours in the day, which is too bad. I have tried arguing with higher authorities about this, to no avail!

So I grapple with the lack of time, and I work very long hours so I can do more. And that affects my personal life a little bit. I should be working less, now that I'm old (not only aging, but full Professor and all), but I still can't. So I think that's the hardest part of my job, both inside the department and outside.

### **What aspect of your job do you enjoy the most?**

The interaction with the students. It keeps me up-to-date and it keeps me young. I feel a kind of fatherly relationship with the students: you have to teach them how to grow and develop. And you want to keep them around afterwards. The only difference is you don't get the empty nest syndrome—there's another student coming in next year and the year after, so it's like having an unending supply of children around.

I also particularly enjoy my research with Rami Melhem, because we speak at the same level. He was a great mentor for me after my PhD, and I'm really grateful for his guidance. I must also recognize Panos Chrysanthis, with whom I shared many a night working on papers, classes, et cetera.

I love my job, I love the department. Everybody's committed to education and committed to research. People don't spare any effort in making education at large happen, and I love being a part of it.

## Mary Lou Soffa



After being recruited by a number of other universities during her outstanding academic career, Professor Mary Lou Soffa finally succumbed to an offer — a very attractive offer. She decided to leave her faculty position in the Department of Computer Science at the University of Pittsburgh, effective September of 2004, to assume the roles of Owen R. Cheatham Professor and Chair of the Department of Computer Science of the University of Virginia

In 1977, Mary Lou earned her PhD in computer science from the University of Pittsburgh. She then accepted a position on the faculty of Pitt's CS Department and remained there for twenty-seven years. During that time period, she achieved excellence in each of the three traditional areas in which faculty performance is evaluated: research, teaching, and service.

In her chosen specialty of programming languages, she became a leading researcher. Her research interests have particularly focused on optimizing and parallelizing compilers, program analysis, and software tools for debugging and testing programs. In recent years, her work has included development of a unifying framework for optimizations, usable for determining their important properties, especially their profitability. That framework includes code, optimization and resource models for systematically exploring the application of optimizations. It is expected to provide both analytical and experimental models for understanding, predicting, and verifying the properties of optimizations, such as performance impact and interactions. Also included are practical and automatic strategies for driving the application of optimizations based on the models. By utilizing the model-based strategies, the goal is to enable optimizing compilers to produce higher-quality code and to employ different paradigms than those currently in use.

Mary Lou developed a remarkable record of high-quality research projects, sustained by substantial grant support from a variety of funding sources. In so doing, she proved herself to be a very good collaborator and team player. This fact is confirmed by her many jointly-authored papers and grant awards. She makes sure that her graduate students as well as other faculty with whom she collaborates get due credit for their contributions. It is apparent from her many research projects that, in addition to focusing on her primary specialty, her orientation also encompasses various multi-disciplinary objectives.

Graduate students have always been partial to her. At Pitt she advised more PhD students than anyone else in our department. Among her advisees have been many of our women PhD recipients and a number of the best students this department has produced. Her outstanding qualities as a mentor were recognized nationally in 1999 when she received the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring.

Mary Lou is also very good in the classroom. While the undergraduate- and graduate-level courses she teaches are rigorous and demanding, she lectures clearly and knowledgeably and provides a lot of support that her students appreciate. As a result, she has won several departmental teaching awards based on scores she achieved in student evaluations of her teaching.

With regard to departmental service during her years at Pitt, Mary Lou was always a stalwart citizen. In interactions with faculty, she was a constructive, strong-minded participant. She expressed her views honestly and candidly, thereby exerting a lot of influence (on a faculty that is predominantly male). She is one of those faculty members who could always be relied upon

1. **To care deeply about the department**, its functioning, and its welfare,
2. **To express opinions** on both the good and bad characteristics of the department **and to offer suggestions** on those matters and
3. **To contribute significantly to the Department** by agreeing to take on time-consuming administrative roles and then making sure that they were performed satisfactorily.

For any department chair, it is both a delight and a relief to have faculty like her to call and count on. Now we can only hope that she, in serving as a department chair herself, will have such dependable faculty members to support her.

After accepting a range of departmental roles that gave her much visibility at Pitt, Mary Lou was selected to serve as Dean of Graduate Studies in 1991, thereby also gaining higher-level administrative experience in the University. During her five years in that position, she not only had the opportunity to formulate and pursue her vision of how Pitt's graduate school could and should be improved; she exhibited considerable interpersonal skills in undergirding the efforts she expended toward attaining her goals.

Mary Lou had to deal with other deans, about 35 department chairs and program directors, and other high-level Pitt administrators. She clearly demonstrated her ability to lead. During regular meetings of the University Council of Deans and in direct interactions with the other FAS leaders, she

(continued on page 9)

## Editorial Board Memberships

**Donald Chiarulli:** Journal of Parallel and Distributed Computing, Optical and Optoelectronic Computing Systems.

**Panos K. Chrysanthis:** VLDB Journal; guest editor for the ACM Mobile Networks Journal in October 2004 and the ACM SIGMOBILE Mobile Computing and Communications Review for July 2004.

**Rebecca Hwa:** Computational Linguistics.

**Alexandros Labrinidis:** ACM SIGMOD Record.

**Rami Melhem:** International Journal of Embedded Systems, Journal of Parallel and Distributed Computing, Computer Architecture Letters, Springer Book Series in Computer Science.

**Daniel Mosse:** Springer Journal of Real Time Systems.

**Janyce Wiebe:** Language Resources and Evaluation.

## Conference Organization

**Bruce R. Childers** was Poster Session Chair for the *ACM SIGPLAN and SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems*, June, 2005.

**Panos K. Chrysanthis** was General Chair and **Alexandros Labrinidis** was Publicity Chair of the *6th International Conference on Mobile Data Management (MDM 2005)*, sponsored by the Computer Science Departments of the University of Cyprus and the University of Pittsburgh, held in cooperation with ACM SIGMOBILE and ACM SIGMOD, May 9-13, 2005, Ayia Napa, Cyprus.

**Alexandros Labrinidis** was Program Co-Chair for the *4th International ACM Workshop on Data Engineering for Wireless and Mobile Access (MobiDE 2005)*, held in conjunction with SIGMOD/PODS 2005, June 12, 2005, Baltimore, Maryland.

**Alexandros Labrinidis** was Program Co-Chair for the *1st International Workshop on Data Management for Sensor Networks (DMSN 2004)*, held in conjunction with VLDB 2004, August 30, 2004, Toronto, Canada.

**Daniel Mosse** was Program Chair for the *Power-aware Real-time Computing Workshop (PARC)* held in conjunction with EMSOFT, September 2004, Pisa, Italy.

**Daniel Mosse** was Co-Organizer of the *Special Session in Applications of Game Theory and Artificial Intelligence Techniques on Distributed Computing and Internet-wide Computing* for the International Conference on Parallel and Distributed Computing Systems (PCDS 2004), September 2004, San Francisco, CA.

**Daniel Mosse** was the Co-Chair for the *Workshop on Games and Emergent Behaviors in Distributed Computing*

*Environments*, with PPSN (Parallel Problem-Solving in Nature), September 2004, Birmingham, UK.

**Daniel Mosse** was the Program Chair for the *Brazilian Workshop on Real-Time Systems (WTR 2005)*, May 13, 2005, Fortaleza, Brazil.

## Program Committee Memberships

**Ahmed Amer:** MSST 2005, IWSSPS 2005, and IPCC 2005.

**Jose Carlos Brustoloni:** Globecom 2004, WTR 2005, and INFOCOM 2005.

**Donald Chiarulli:** 2005 Workshop on High-Speed Interconnections within Digital Systems.

**Bruce R. Childers:** ICAC 2005, and FALSE-II: 2<sup>nd</sup> Workshop on High-Performance Fault-Adaptive Large-Scale Embedded Real-Time Systems.

**Panos K. Chrysanthis:** DMSN 2004, HDMS 2004, VLDB 2004, ICPS 2005, ICDCS 2005, and ICDE 2005.

**Rebecca Hwa:** CoNLL 2005, and the ACL 2005 Workshop on Parallel Text.

**Alexandros Labrinidis:** VLDB 2004, MDDS 2004, CIKM 2004, and ICDE 2005.

**Diane J. Litman:** ACL 2005, CoNLL 2005, and the 2005 Workshop on Building Educational Applications Using Natural Language Processing.

**Rami Melhem:** MLPD 2004, DSN 2004, the 2004 Broadband Optical Networking Symposium, Broadband Optical Networking Symposium 2004, RTSS 2004, and Supercomputing 2005.

**Daniel Mosse:** RTAS 2005, the 2004 HiPC Workshop on Performance Issues in Mobile Devices, EMSOFT 2004, the 2005 Workshop on Software Support for Portable Storage, EUC 2004, and MobiQuitous 2004.

**Janyce Wiebe:** ACL 2005, CoNLL 2005, ACL 2005 Demo and Poster Session, and FINEXIN 2005 Workshop.

## Other Professional Service

**Donald Chiarulli** is on the Technical Advisory Panel on Digitization and Communications Science, National Research Council of the National Academy of Science.

**Alexandros Labrinidis** is the Information Director for ACM SIGMOD.

**Diane J. Litman** was the Past Chair of the North American Chapter of the Association for Computational Linguistics for 2004-2005. Since 2002 she has been on the International Advisory Committee for the ACL Special Interest Group on Natural Language Learning.

## Bunny Bernfeld



If you have been to the Computer Science Department recently, you might have met Bunny Bernfeld. She was hired in August 2004 as Secretary to the Chair.

Bunny and her family have been affiliated with the University of Pittsburgh for many years. Her mother, Bella, earned a Doctorate in Education here. Bunny attended Falk Elementary School (which is affiliated with the University) where she skipped seventh grade and was elected as the first female student council president in the ninth grade. After Falk, Bunny moved on to attend Winchester-Thurston High School in Shadyside. Bunny then attended the University of Pittsburgh where she majored in Speech/Communications and minored in Economics (During her undergraduate years she lived on campus in Tower C!). She subsequently moved to Manhattan to attend graduate school, but returned to her roots in Pittsburgh after six months. Back in Pittsburgh she worked for St. Francis Hospital, the Jewish Family and Children's Service, and Carnegie-Mellon University before moving to the University of Pittsburgh.

To understand Bunny you need to look back to Russia in the early twentieth century where Jews were being tormented by Russian soldiers in the pogroms. To escape this

intolerable situation, Bunny's grandparents, aunt, and mother fled to Cuba. Seven years later they moved to the United States. Bunny's mother was trained to sing opera in conservatories in Russia and Cuba. She eventually performed in New York City and in Pittsburgh. She then went on to earn a doctorate in curriculum and supervision and taught Spanish, Russian, and voice. Bunny's father was a talented violinist, who at one time played with the Johnstown symphony. He went on to become a dentist and then an orthodontist. Their household was filled with music. Everyone played two instruments and sang. Bunny was trained in classical piano and classical guitar.

In the 1970's Bunny and her brother Martin sang as a group called "Infinite Harmony." They performed regularly in Goldstein's Bar in downtown Pittsburgh. They were "discovered" by a producer, who hired Bunny and Martin to sing a song written by two CMU professors for a Broadway play. They were accompanied by the Duquesne String Club. The song was called, "Dry Your Eyes Maggie."

Bunny has two brothers. Martin is a talented rhythm and blues singer. Lawrence is a corporate litigation attorney in Manhattan. Bunny's son, Joshua, graduated from Carnegie Mellon's Computer Science Department in 2001. He now works for Credit Suisse First Boston Bank in Manhattan, where he leads a team of four people working in the information technology department.

---

## Faculty News

### Mary Lou Soffa (continued from page 7)

made her points forcefully and achieved solid results. Furthermore, and consistent with her strong record of attracting, advising, and nurturing graduate students in our CS Department, her efforts as an advocate on behalf of all Arts & Sciences graduate students (e.g. recruiting more women and minority students into graduate school, providing better services for graduate students, reducing TA/TF workloads, combating sexual harassment, etc.) became a noteworthy trademark of her tenure as Graduate Dean.

Regarding her professional activities, she became very prominent on the national and international scene through her leadership roles in the CRA, CRA-W, ACM SIGSOFT, ACM SIGPLAN; and as conference chair, program chair, or program committee member for numerous conferences in her specialty. Throughout, she has avidly pursued the goal of improving the status of women in computer science.

In recognition of her outstanding contributions to the field, she was elected an ACM Fellow in 1999. This is a distinct honor for a computer scientist.

After setting goals for herself, Mary Lou pursues them with diligence, perseverance, and strong convictions. She is very conscientious and can always be expected to do more than her fair share of the myriad of tasks that need to be carried out by an academic researcher, teacher, and leader, especially one who aspires to excel beyond the norm. During her time at Pitt, Mary Lou certainly exhibited an admirable formula for what it takes to become very successful.

Mary Lou has been a valued colleague and an invaluable contributor to the achievements and functioning of the CS Department at Pitt. It is a great loss to Pitt to see her leave after 27 years. While we regret that she decided to depart and we shall miss her greatly, we are very happy for her and wish her only the best as she faces new opportunities and challenges. We are confident that she will continue to excel and make all of us at the University of Pittsburgh, her home base, proud of her!

*Siegfried Treu, February 2005*

## Alumni Spotlight: Ras Bodik



Ras Bodik got his PhD at Pitt in 2000 under the guidance of Rajiv Gupta and Mary Lou Soffa. He then went on to work as an assistant professor at the University of Wisconsin. After two happy years in Madison, he moved to the University of California at Berkeley, where he is now a tenure-track assistant professor. He has won the ACM SIGPLAN Doctoral Dissertation Award and the NSF CAREER Award, as well as two teaching awards at the University of Wisconsin.

Ras' core research interests are in program analysis and compilation, but in his search for important problems he also ventures into computer architecture and software engineering, as has happened with his two recent projects: BAFL and Programming by Sketching. BAFL, which stands for bottleneck analysis for fine-grain parallelism, developed a suite of techniques for designing and controlling processors, a sort of Hennessy-Patterson quantitative analysis for the era of billion-transistor chips and low-power constraints. One interesting open problem solved in BAFL was how to build a self-aware processor that can identify which of its instruction executions were critical. His team reduced the problem essentially to computing a longest path in a dag with the twist that one doesn't know edge latencies and must process the graph in the direction of edges without storing it.

The goal of the Programming by Sketching project is to make real the long-standing promise of software synthesis. In classical software synthesis, the programmer doesn't write the code; instead, he only gives a functional specification and the desired code is automatically generated for him. Not surprisingly, this problem turns out to be too hard, so the key idea in sketching is to make the life of a synthesizer easier by providing a sketch of the desired code. The sketch is an outline of the desired implementation, a kind of subprogram with holes; the synthesizer fills in the holes such that the completed sketch implements the given spec. In one effort, sketching was used to synthesize provably correct high-performance cipher implementations. Because the completed sketch was guaranteed to implement the reference cipher, the programmer was allowed to explore clever implementation ideas without worrying about introducing bugs, without reasoning about tedious details, and even without being certain that these ideas were sound.

In another effort, sketching ideas are used to develop a code-synthesizing "programmer's search engine." The problem addressed here is how to reuse the functionality available

in rich software libraries, which often contain tens of thousands of procedures. The problem is hard even when the libraries are carefully designed for reuse: like LEGO pieces, library components snap together nicely--if you can find the right ones. Prospector is a tool that, metaphorically speaking, looks through this bottomless box of LEGO's, finds the right pieces including suitable connectors and connects them all together in a such a way that the result can be directly inserted into the construction that is being developed. Prospector does this for software, relying on what is called jungloid mining.

Ras has also been active in course development. In particular, he has been evolving the undergraduate compiler course into a course targeted to the many future software engineers, rather than to the very few future compiler writers. In his course, students still learn how to build a compiler, but they develop their own "lex" and "yacc." The idea is that these two tools are examples of small languages and code generators, which, unlike writing a compiler, are common and very beneficial uses of compilation technology in practice.

Ras is the proud father of Hugo, a curious two-year old. In their time together, they fix their house or hike in the canyons of Berkeley hills.

## Alumni News Briefs:

**Atif Memon**, who received his PhD from our department in 2002 and is currently an Assistant Professor at the University of Maryland, was recently awarded the prestigious NSF Career award for his work on *Enhancing Testing Techniques for Event-driven Software Applications*.

**Yassir Khalifa**, a recent graduate of the department, is joining our faculty as a Lecturer.

---

## Faculty News Briefs:

**Mark Kahrs** is joining our department as a Visiting Lecturer for one year, starting in the Fall.

**Youtao Zhang** will join our department in the Spring, as a tenure-track Assistant Professor. His research interests are program analysis and profiling, compiler optimization, computer security, computer architecture, and data compression.

**Kirk Pruhs**, and **Bala Kalyanasundaram** (now the Craves Professor of Computer Science at Georgetown University) past research on online matching has found application in Google's auction of Ad words, as was mentioned in the April 2005 issue of SIAM News.

## Taulbee Award

In 1966, Orrin Taulbee founded Pitt's Department of Computer Science and served as its chair until 1984. 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 Anandha Gopalan. Anandha's PhD advisor is Taeib Znati. Congratulations, Anandha!

## Student Awards and Fellowships

**Jonathan Beaver** received a Pennsylvania Space Grant Consortium Fellowship.

**Anandha Gopalan** was selected as the TA Mentor for the 2004-05 academic year.

**Carol Nichols** was selected to participate in the CRA-W distributed mentoring program for women undergraduates during the summer of 2004.

**Cosmin Rusu & Mohamed Sharaf** were awarded the Andrew Mellon Predoctoral Fellowships for 2004-05.

## ACM Student Chapter Activities

**The 2005 Carnegie Mellon Invitational Programming Contest** Mar 19, 2005, Pittsburgh, PA

Two teams from the University of Pittsburgh participated in the second CMU Programming Contest. The Pitt Gold team, consisting of Pavel Puchkarev, Shyamal Chandra and Nicholas Morsillo, placed second. Placing fifth was the Pitt Blue team, consisting of Jason Kessler, George Nychis and Bill Morris.

**3rd Annual CS Games** Mar 4-6, 2004, Quebec, Canada

The CS Games is a national inter-university competition involving computer science, computer engineering and software engineering students. Students compete in a multitude of competitions, from web design to A.I. to trivia. Our team (the University of Pittsburgh Pumping Lemmas) consisted of Team Captain Shyamal Chandra, George Nychis, Nicholas Morsillo, Bill Morris, Andrew Morsillo and Ryan Sullivan. They placed 11<sup>th</sup> overall in the competition, up from 23<sup>rd</sup> place last year.

## Other Events

The Chapter also hosted a series of invited speakers such as Ron Vetter, Dennis Frailey, Yale Patt and Richard Stallman. Company talks included Google, Vivisimo, Perioptimum and Novaurora.



## 2005 Upsilon Pi Epsilon Honor Society Inductees

This year the CS Department formed a chapter of Upsilon Pi Epsilon, an International Honor Society for the Computing and Information Disciplines. The charter members of our chapter are Anna Nys, David S. Essary, Christopher J. Santamaria, Michael F. DaParma, Gregory Nicholas, Shyamal Suhana Chandra, Patrick Joseph Isaac, Ezra Walker Smith, Carol L. Nichols, and Adam M. Piechowicz.

The President of the Honor Society is Shyamal Chandra, and the faculty advisor is Dr. John Arnonis.

## Moyé Information Technology Initiative Summer Research Experience

This year marks the first offering of the Moyé Summer Research Experience award by the CS Department. The objective of the Moyé Information Technology Initiative Fund is to significantly increase the number of socially, educationally or economically disadvantaged students graduating with BS degrees in computer science from the University of Pittsburgh.

The awardee this year is University of Pittsburgh CS major Tonya Groover. For her research experience she is focusing on the "Digital Divide," or the gap between those with access to computers and technology and those without it. Her research goal is to determine "what type of technology, resources and training is most needed in low-income communities and school districts so they can survive in a technology-driven society."

Said Groover, "This research is part of a bigger research project that I am doing called the Ujima Project. Ujima is an African word meaning collective work and responsibility. 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 technology-driven society, and those without access and training will continue to fall behind."

## Outstanding Computer Science Undergraduate Student for the 2004-2005 Academic Year

Carol L. Nichols

The Outstanding Undergraduate Student Award is presented annually to the graduating senior who best represents the Computer Science Department and its standards of excellence in the classroom, in research and in extracurricular activities.

## Computer Science Undergraduate Honor Roll for the 2003-2004 Academic Year

Joshua S. Albrecht	Jason M. MacAllister
Christopher M. Aumiller	Carol L. Nichols
Shyamal S. Chandra	Gregory D. Nicholas
Adam A. Halbrock	Adam M. Piechowicz
Patrick J. Isaac	John Pome
David J. Kleinman	Steve A. Robbibaro
Patrick J. Koshar	Christopher A. Santoro
Thaddeus M. Lange	Ezra W. Smith

Requirements for the yearly honor roll: (1) Full time status for the past academic year (Fall, Spring), and (2) Qualifying CS GPA of 3.75 and overall GPA of 3.5 during that period.



## New CS Graduates Honored

New graduates of the Computer Science program were once again honored during the CS Graduation Brunch, held on commencement day. At this event, we celebrated the accomplishments of our students and wished them well in their future endeavors.

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](mailto:links@cs.pitt.edu).

You can find back issues of LINKS at the CS Department's web page: <http://www.cs.pitt.edu>

### LINKS Editors:

Alexandros Labrinidis and John Aronis

### Copy Editor:

Nathaniel Soltesz

### Contributors:

Bunny Bernfeld,	Kate Ledger,
Ras Bodik,	Rami Melhem,
Don Bonidie,	Daniel Mosse,
Shyamal Chandra,	George Novacky,
Sangyeun Cho,	Kathy O'Connor,
Panos K. Chrysanthis,	John Ramirez,
Robert Daley,	Carrie Sparks,
Karen Hoffman,	Siegfried Treu,
Rebecca Hwa,	Matt Wolfson
Nancy Kreuzer,	

LINKS Newsletter  
Department of Computer Science  
University of Pittsburgh  
Pittsburgh, PA 15260  
USA