
University of Pittsburgh

LINKS

Department of Computer Science

Fall 2002

From the Chairman

Rami Melhem

With the successful move to Sennott Square, all the members of the department are very excited about the new state of the art facility and the momentum that the department has gained recently. This excitement is further fueled by the record research funding achieved last year, by a major gift to the department from Eli Lilly, and by the addition of five new members to the faculty, namely, Ahmed Amer, José Brustoloni, Jackson Carvalho, Alex Labrinidis and Markus Mock.

Another type of development took place last year, namely the retirement of two very active members of our faculty, Bruce Buchanan and Sig Treu. We already miss them and their contributions to the department. This issue of LINKS features an article on Sig Treu; the next issue will feature an article on Bruce Buchanan.

This year, Computer Science Day will have a special meaning since it will take place in our new home. CS Day will be part of a two-day Inaugural Celebration which will start on Friday, November 15th with a Celebration of Alumni Workshop and an alumni dinner, followed by CS day activities on November 16. Naturally, all alumni are invited to this celebration.

Celebration of Alumni Day

All computer science alumni are invited to attend a Celebration of Alumni workshop on Friday, November 15. Details are available on the Web at <http://www.cs.pitt.edu/CSDay>, or call Nancy Kreuzer at 412-624-8422. Alumni are also welcome to a dinner the evening of November 15. Call Nancy Kreuzer by November 1 to reserve your place.

Computer Science Day

Computer Science Day brings together educators, graduate students, parents, alumni and industry representatives to exchange ideas and information about computer science and the career opportunities available. Scheduled events include a student panel discussion, an industry marketplace and exhibit, an industry panel, the presentation of several awards, and a keynote speaker. Come join us from noon to 4:30 p.m. on Saturday, November 16 at Sennott Square. Details are available at <http://www.cs.pitt.edu/CSDay>, or call Nancy Kreuzer at 412-624-8422.

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What do
you think of
us? We want to
know! Please fill out
the CS Alumni survey at
<http://www.cs.pitt.edu/survey>
and tell us if you want a
permanent CS e-mail
forwarding ac-
count.
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Sig Treu Retires

Mary Lou Soffa

After 35 years at the University of Pittsburgh, Professor Siegfried (“Sig”) Treu has decided to retire. In those 35 years, he has had a profound impact on undergraduate and graduate students, colleagues in the CS Department, the University of Pittsburgh community, and his professional research community. As a teacher, he was dedicated to students, teaching many and varied courses at both the undergraduate and graduate levels. His research resulted in many influential publications and was funded by a variety of research grants and contracts. He successfully mentored both M.S. and Ph.D. students to completion. He unselfishly performed many forms of service to the University, to other area institutions, and to his professional community.

Sig was a pioneer in the field of computer science in a number of ways. He attended the University of Wisconsin in Madison, where he earned a B.S. in applied mathematics and physics in 1962 and an M.S. in mathematics in 1963. At Wisconsin he took a single course in computer programming, based on a newly acquired IBM 650. After graduation, he fulfilled a 2-year ROTC obligation by serving as an officer in the U.S. Army Corps of Engineers, stationed in W. Germany. His wife Erika and their newly born baby son accompanied him on that tour of duty. Upon return to the U.S., he found employment at Goodyear Aerospace Corporation, where he tested and evaluated computer systems designed to store and retrieve intelligence information. Besides security and reliability concerns, major design issues included responsiveness to the users (intelligence analysts).

That work led to Sig’s desire to pursue formal studies in computer science. Consequently, he came to the University of Pittsburgh, one of the few universities offering an M.S.-level degree in CS at the time. Very influential in this decision was Professor Orrin E. Taulbee, who had founded Pitt’s CS Department a year earlier, in 1966. But, because the Ph.D. degree was not yet available, an interdisciplinary Ph.D. program in “human-computer interaction” (HCI) was tailored for him by a high-level faculty committee under the direction of the Provost. It combined computer science with psychology and utilized associative storage and retrieval techniques that were being developed in information science. In 1970 he completed the prescribed program, capped by a dissertation entitled “Supplementing Human Memory by Means of Interactive, Computer-Based Associative Storage and Retrieval.” On the basis of this research, he was awarded a “National Research Council - National Bureau of Standards Postdoctoral Research Associateship” in Washington, DC for 1970-71. He then joined the faculty of Pitt’s Department of Computer Science in 1971. Having had the opportunity to work in the military, private industry, government, and academia, he decided that the last of these was unquestionably the preferred choice for his career.

Sig was an early visionary who recognized the importance of interdisciplinary research and helped to pave the road for the important interdisciplinary work being done today. However, during the 1970s, a professor with an interdisciplinary research orientation in any major CS department was somewhat like a fish out of water. Research involving the effects of human psychology on the design of user-computer interfaces had not yet gained credibility. Computer technology was dominant, and CS faculty were expected to analyze computer-internal efficiencies (in both hardware and software) and their theoretical underpinnings. The visible user interface was secondary at best. However, in the 1980s this attitude changed. Major computer manufacturers as well as top universities in the country began to recognize that, as users became more numerous, knowledgeable, and sophisticated, the characteristics of the user-computer interface and their impacts on the user were absolutely essential to learning how to create more effective and “usable” computer systems. By the end of the century, many universities had added HCI experts to their faculties and formed HCI programs in CS. Sig’s numerous technical publications in the HCI area include research papers and two books, one on “User Interface Design” and one on “User Interface Evaluation.”

He also provided valuable administrative service to both the CS Department and the University of Pittsburgh. He was elected Department Chair for one term in the mid-1980s and then again, for two terms in 1994-2000. Just prior to reassuming that position in 1994, he was selected to serve as Acting Dean of the College of Arts and Sciences for half a year. He found these experiences to be very challenging and rewarding.

Sig expresses considerable gratitude for the opportunities that he and his family were provided in this country. His views were undoubtedly influenced greatly by his background in wartime Germany, starting with early childhood experiences that he is reluctant to discuss in much detail. He was born on a farm in East Prussia, which he left at age five during World War II, fleeing with some members of his family in a covered wagon drawn by horses across a frozen bay, and then onward by ship, to Western Germany. There they remained as refugees for the next several years, reuniting with Sig’s father, who had escaped from a Russian prisoner-of-war camp, and Sig’s oldest brother, who was released from military duty after (fortunately) being wounded. The family was finally permitted to immigrate to the U.S. after relatives in Kansas agreed to serve as sponsors. Sig was 11.

In the U.S., the Treus lived first on a farm in Kansas, then in Nebraska, and finally in Wisconsin, where other relatives had moved and where good work could be found. Despite the many relocations, Sig did well in school, achieving grades that earned him a four-year scholarship to college. He also adjusted socially, joining in extracurricular activities, including competitive

swimming and band. One of his most thrilling experiences as a teenager occurred when he was selected drum major and directed his high school band in Milwaukee in playing the national anthem at sports events, even though he was not yet an American citizen. He became a naturalized citizen during his freshman year at the University of Wisconsin. In 1962, he married Erika, a fellow German immigrant. By the time he finished the Ph.D. degree, they already had their four children. Those children are now all married, and Sig and Erika are delighted to have ten grandchildren.

The Treus have developed a perspective about this country that recognizes its problems and weaknesses but, above all, values its remarkable strengths and its superiority over all other countries in the world. They feel fortunate to live here and obliged to work hard, in return for the many privileges and benefits they have enjoyed. “I deeply appreciate that I was able to come to the U.S.,” Sig says, “and to take advantage of its freedoms and the opportunities of obtaining an advanced education and working in an exciting field”—namely, computer science.

He will be sorely missed in the department. His friendship, service, values, sense of fair play, and unselfish dedication are impossible to replace. We wish him the very best and hope that he will enjoy his much deserved retirement. We know he will immensely enjoy spending time with his grandchildren. We also hope he will remain in touch with the Department.

Our New Home

In April of 2000, construction started on Sennott Square at the University of Pittsburgh. After two years of work the project is complete. This \$35 million building houses Pitt’s Department of Computer Science on the 5th and 6th floors. The building is equipped with state of the art facilities and holds both graduate and undergraduate offices, faculty offices, classrooms, and laboratories. Pictures of the new building and its facilities can be seen on the CS Department’s Web page at <http://www.cs.pitt.edu>.



Ahmed Amer

Ahmed Amer joined the faculty of the Computer Science department, coming from Santa Cruz where he completed his Ph.D. at the University of California. Dr. Amer received his bachelor’s and master’s degrees in computer science from the American University in Cairo. His research interest in operating systems began as an undergraduate when he worked on the design and development of a micro-kernel operating system. His master’s thesis focused on the design of high-performance distributed file systems. After receiving his master’s degree, and having worked for three years in industry, he moved to Santa Cruz and joined UCSC’s Storage Systems Research Center (SSRC) under the supervision of Prof. Darrell Long. During this time he also worked at IBM’s Almaden Research Center.

While his research and teaching interests lie generally in operating systems, distributed systems, and storage management, Dr. Amer’s most recent work specifically involves I/O and storage issues. His dissertation focused on predictive grouping, which is the analysis of data access behavior to improve system performance by predicting groups of items likely to be accessed together. In addition to predictive grouping, he has also worked on reducing the power consumption of disks and studying the best ways to utilize future storage technologies. His work has also included data access prediction, improving the automation of distributed file management and generally investigating the self-tuning and automation of systems algorithms. While effective predictive techniques are crucial to improved storage systems behavior and automation, an understanding of the nature of I/O is equally (if not more) important, and so he is also interested in the visualization and analysis of data access patterns.

Dr. Amer currently teaches undergraduate operating systems, and will teach the graduate operating systems course next term. He is always happy to talk about his work and looks forward to working with students.

José Brustoloni

José Carlos Brustoloni received his Ph.D. in Computer Science from Carnegie Mellon in 1997 and recently joined our department as an Assistant Professor after five years as a researcher at Bell Labs (Lucent Technologies). Dr. Brustoloni’s research interests include networking, operating systems, and security. His recent projects include VIPnet, a network-based defense against distributed denial-of-service attacks, and MicroISPs, a system for providing Internet access to nomadic users at public “hot spots” securely, conveniently, and without subscriptions. Dr. Brustoloni is excited about teaching and looks forward to advising and working with students. He is teaching CS 3520 (Advanced Topics in Computer Networks) this term.

Jackson Carvalho

Jackson Carvalho is a lecturer in computer science at the University of Pittsburgh. He earned a B.S. in electrical engineering from Universidade Federal do Rio Grande do Norte (Brazil) and a master's degree in electrical engineering from the University of Maine. Mr. Carvalho is a Ph.D. candidate in computer science at the University of Western Ontario, Canada. His teaching interests include both undergraduate- and graduate-level computer science and computer engineering courses. Particular areas of teaching interest include man-machine interfaces, compilers, programming languages, computer architecture, digital signal processing, object-oriented programming and database systems. Mr. Carvalho's teaching experience has been acknowledged by the UFRN and both by The University of Western Ontario and University of Windsor where he taught courses related to human-computer interaction, construction of language processors and computer programming.

Mr. Carvalho's research interests are in the field of human-computer interaction, specifically in the application of computers to aid blind and visually impaired people. He is working on the definition and implementation of a system to provide the necessary means for both capturing and representing the semantics of mathematical notation in multi-purpose documents in a dynamical fashion. His research extends the conventional interface for mathematical notation beyond the usual visual form.

Alexandros Labrinidis

Dr. Alexandros Labrinidis joined the Department of Computer Science in September of 2002. He completed his Ph.D. in Computer Science at the University of Maryland, College Park in 2002. His research interests are in the area of Database Systems, with particular emphasis on web-aware database servers and data warehousing. Specifically, Dr. Labrinidis' work recognizes the importance of both performance and data freshness in scalable, database-driven Internet servers. He introduced WebView Materialization to improve performance for dynamic Web content, without sacrificing data freshness. He also developed an update scheduling framework for tolerating update surges and maintaining high data freshness. Finally, he focused on the Online View Selection problem: in the presence of continuous access and update streams, dynamically select which WebViews to materialize, so that both performance and data freshness are maximized. Dr. Labrinidis is an Associate Information Director for ACM SIGMOD and also an Associate Editor for SIGMOD Record (responsible for the Career Column).

Markus Mock

Before starting the Ph.D. program at the University of Washington, Seattle in 1994, Dr. Mock obtained an M.S. in Computer Science from the University of Karlsruhe, Germany in 1992, where he worked with Walter Tichy on compilers for parallel computers. At the UW, his advisors were Craig Chambers and Susan Eggers.

Broadly speaking, Dr. Mock's research interests are in compilers, program analysis and optimization, and their interaction with computer architecture. More specifically, the goals of his research are the development of techniques and algorithms to effectively exploit run-time information for program optimization and for practically useful software tools.

Exploiting run-time information becomes increasingly important because today software is deployed in new ways (e.g. applets), written in novel languages (e.g. Java) and executed on new computer architectures (e.g. VLIW/EPIC), all of which make traditional static analysis and optimization techniques often ineffective. It has been shown that exploiting run-time information can both improve performance and facilitate the use of desirable abstraction in programs by removing performance overheads. Moreover, run-time information can augment static analyses when their results are too imprecise to be useful in practice. This creates potential applications beyond optimization, most conspicuously in the maintenance and evolution of software.

Dr. Mock believes that there are many exciting and fruitful research questions in these areas, which makes him particularly excited about working with students to solve them together.

Outside of work, Dr. Mock enjoys spending time with his family; in particular, his daughter Andrea is keeping him busy. He likes playing badminton, which balances nicely with his hobby of baking (and eating!) yummy German cakes and pastries. Other hobbies for which he would like to have more time are reading, travel, listening to classical music, and chess.

Our own Bob Hoffman has been on the Internet longer than anyone else currently on campus! He was on the net when the Computer Science Department went online nearly twenty years ago. Bob is still here, and he is now joined by thousands of faculty, staff, and students in cyberspace.

Gift from Eli Lilly

Think of it as a great way to say thanks. When Eli Lilly and Company recently donated \$350,000 for a new video conferencing center in the computer sciences department, the gesture was the pharmaceutical giant's way of rewarding the University for producing outstanding graduates and job recruits.

"If you go to Lilly's IT department, you'll find 38 Pitt grads there," says Tom Crawford, assistant vice chancellor of corporate and foundation relations. "Some of those people have worked their way up to high positions in the company. In terms of recruiting strength, we're among the top three schools in the country [where Lilly recruits]. In a nutshell, Lilly is rewarding us for supplying them with excellent graduates."

To be located in the new Sennott Square building at the intersection of Forbes Avenue and Bouquet Street in Oakland, the video conferencing center will allow Pitt computer science students and faculty to have real-time, face-to-face meetings with colleagues around the world without ever leaving Pittsburgh. Equipped with cutting-edge capabilities, the center will contain wall-mounted 42-inch video monitors, table- and wall-mounted cameras, ceiling speakers, table microphones, and other audio/video gear. While the center will help reduce travel costs and times, its potential for use is limitless.

"We can use it for almost anything we want," says Rami Melhem, chairman of the department of computer science. "Along with video conferencing, we can use the center for webcasting conferences, courses, and other events. And the possibilities for teaching are good, too. We can offer classes to students in other locations, as long as they have access to a video conferencing center. We can do all that and never even be in the same room with the other parties involved. It saves time and money. It's a much better way of conferencing."

As the first facility in the new building to be named after a corporation, the Eli Lilly Video Conferencing Lab will improve the department's conferencing efficiency and effectiveness. Previously, 1977 Pitt graduate Debbie Gillotti established a fund in her name to provide equipment for the Interactive Learning Suite of the Sennott Square building. While the relationship between Pitt and Eli Lilly is a long one, the new video conferencing center will strengthen the commitment between the University and the company.

"There's a history of interaction between Pitt and Lilly," says Crawford. "Lilly commercialized the Salk vaccine for polio. And the Lilly family and endowment have supported the Stephen Foster collection and other things on campus. This unprecedented grant will help build a more formalized research relationship between us and Lilly."

A strategic plan for that relationship is already in the works. Every two weeks, Bill Swisher, director of outreach technology, places a conference call to the Lilly company to review goals and plans. He says the ongoing

communications help increase the breadth and depth of the relationship.

"We'd like to establish a broader relationship with Lilly," Swisher says. "Right now, Lilly deals with us in specific areas such as information science, telecom, computer science, and computer engineering. But there are multiple points of mutual interest and benefit throughout the University which may be further developed." Those points of opportunity include the chemistry and biological sciences departments as well as health sciences, pharmacy, and the business school.

Scheduled to open in September, the video conferencing center will provide members of the Pitt staff with a more immediate method of conducting business with their counterparts at Lilly headquarters.

"For instance," explains Melhem, "we can have a meeting with the Lilly people while they are in Indianapolis and we are in Pittsburgh. We can discuss recruiting strategies, research, and other issues. The potential is endless."

Initially, Pitt approached Lilly with the video conferencing center idea about a year and a half ago. Though Lilly representatives immediately warmed to the center, plans idled until recently. When the proposal was raised again, the company was ready to fund the project. The timing couldn't have been better. Along with moving to its new home in Sennott Square, which also will house the psychology department and undergraduate business school, the computer sciences department will be upgrading its equipment and capabilities because of the money.

"The center will be a state-of-the-art, Lilly sponsored laboratory," says Crawford. "It's the next wave of doing business. And it exemplifies Lilly's commitment to helping the University of Pittsburgh student have access to the newest and best technology available." When you think of rewards, they don't get more valuable than that.

Reprinted from "World of Giving: A Publication of the Campaign for the University of Pittsburgh," Spring 2002.

The level of sponsored research in the department has been growing over the years. Grants and contracts from government and industry totaling more than \$3.3 million have been awarded to the department during the last fiscal year (July 2001 to June 2002) and the total research expenditure during that period approached \$2 million. As a result, the faculty is able to support almost all Ph.D. students and many M.S. students on research assistantships.

Accolades

Dr. Kurt VanLehn's article, co-authored with former ISP student Cristina Conati and post-doc Abigail Gertner, was awarded the James R. Chen prize by *User Modeling and User-Adapted Interaction: The Journal of Personalization Research* for the best journal paper in 2002.

Dr. Diane Litman was re-elected for a second two-year term (2002-2003) as Chair, North American Chapter of the Association for Computational Linguistics. ACL is the major international scientific and professional society for people working on problems involving natural language and computation.

Dr. Markus Mock was a co-author of the article "An Evaluation of Staged Run-time Optimizations in DyC," which has been chosen as one of the 50 most influential papers published in Programming Language Design and Implementation, the premier conference in that field, from 1979 through 1999.

Dr. José Brustoloni is co-chairing the High-Speed Networks Symposium (HSN'2002), sponsored by IEEE as part of Globecom'2002.

Dr. Sig Treu was invited to present the keynote speech at the annual meeting of the Pennsylvania Association of Computer and Information Science Educators (PACISE). Sig's talk was entitled "A User's Mental Involvement in Interaction with Computers."

Dr. Panos Chrysanthis is the Demo Program Chair for the IEEE International Conference on Data Engineering, 2003 (ICDE 2003).

Graduate Student Research Awards

The second annual CS Department graduate student research competition took place on Friday, April 5. This year's winners are Mohamed A. Sharaf and Dakai Zhu.

Graduate Student Wins DAC Award

Congratulations to Jason Bakos for the design competition award from the Design Automation Conference. Jason placed second for his design of a prototype system for optoelectronic technology and will be receiving a \$2,500 award at the June DAC in New Orleans.

Undergraduate Student Awards

Juliya Litman received the Outstanding Computer Science Undergraduate Student Award for the academic year 2000-2001.

Honor Roll for the Academic year 2000-2001:

Miguel J. Abele
Jonathan L. Beaver
Michael A. Capone
Brendan M. Deeb
Molly C. DesJardin
Michael R. Durbin
Thomas C. Kane
Juliya Litman
Tomasz Miaskiewicz
Richard C. Pelikan
Michael D. Rosburg
Mariya Shikher
Jason M. Woolfrey
Mark W. Yost

If you are in a position to consider making a contribution to support the programs of the Department of Computer Science, please contact the Department Chair, Dr. Rami Melhem, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA 15260, or e-mail him at melhem@cs.pitt.edu.

LINKS is published by the Department of Computer Science, University of Pittsburgh. Please e-mail requests to be placed on our mailing list, address changes, comments, suggestions, and Alumni News to links@cs.pitt.edu, or send a letter to LINKS Newsletter, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA 15260.

*The University of Pittsburgh Computer Science Department
and Eli Lilly and Company present the 2002-2003*

Computer Science Distinguished Lecture Series

October 18, 2002

A New Generation of Systematic Programming Tools
Jim Larus – Microsoft Research

November 1, 2002

Myths, Fads, and False Economies:
How NOT to Get Secure Systems
Eugene Spafford – Purdue University

December 6, 2002

Low Power Systems: Hardware to Software
Mary Jane Irwin – Pennsylvania State University

January 24, 2003

Browsing and Searching Audio Data: SCANMail
Julia Hirschberg – AT&T Research/Columbia University

February 7, 2003

Social Network Analysis: Algorithms and Applications
Prabhakar Raghavan – Verity Incorporated

Reception and Refreshments: 10:00 a.m. in Room 5319 Sennott Square
Lectures begin at 10:30am in Room 2400 Sennott Square
For more information visit <http://www.cs.pitt.edu>

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