



## NEWSLETTER

Fall 2007

### Goodbyes

At the end of this academic year, we will say goodbye to three special members of our CS faculty: Jennifer Stephan, Mark Sheldon and Daniel Bilar. We thank all of them for their many wonderful contributions to the department and wish them well in their future endeavors!

#### Jennifer Stephan



Jennifer has been teaching in our department for 13 years. She will be fondly remembered by her students as a gifted teacher who cares deeply about them and by the CS faculty as a dedicated colleague committed to making the CS Department a better place.

Through our introductory courses *CS110 Computers and the Internet* and *CS111 Computer Programming and Problem Solving*, Jennifer has helped to draw numerous students into computer science. As a woman trained in electrical and computer engineering at Johns Hopkins and Carnegie-Mellon University, she has been a strong role model for students in our hardware and systems courses, *CS240 Machine Organization*, *CS341 Operating Systems*, and *CS343 Advanced Computer Organization and Design*. Over the past few years, Jennifer and Jean Herbst have completely redesigned *CS240* and *CS343*. Jennifer has taught *CS231 Algorithms* several times as well. Spread the word that Jennifer will teach *CS110* and *CS343* one more time in Spring '08!

Throughout her teaching career here, students have raved about Jennifer's clear and organized lectures, her engaging and inviting teaching style, and the genuine way that she reaches out to all of her students. A hallmark of Jennifer's teaching is that she is always responsive to student needs both inside and outside the classroom. Students uniformly express their appreciation for the special efforts that Jennifer makes to ensure that all students in the class are following the lecture material and feel comfortable participating in her class. They also value the advice and guidance Jennifer gives outside the classroom, whether it be on graduate schools, jobs, or balancing work and family. As one student put it, "Jennifer rocks my world!"

Over the years, Jennifer has been invaluable to students as a mentor, major/minor advisor, and supervisor for projects and presentations. She made special efforts to engage first-year students, acting as faculty advisor to many, leading the orientation activity *Why are you (we) here?*, and lecturing to visiting admitted students and their parents during Spring Open Campus.

In the past few years, Jennifer, together with Scott Anderson and Marilyn Sides, led a group of about forty Long-Term Non-Tenure-Track faculty at Wellesley that successfully campaigned for improved benefits for this group of faculty.

The CS faculty will miss having Jennifer's balanced perspective at our department meetings. Our department spirit owes much to her role as our CS social events coordinator. We'll also miss Jennifer's warm and friendly nature, her infectious laugh, and her extraordinarily neat office! ☺

#### Mark Sheldon



Mark joined our department as a Lab Instructor in Spring 2004 and has been a Visiting Assistant Professor since Fall 2004. Mark frequently teaches our introductory courses *CS110 Computers and the Internet* and *CS111 Computer Programming and Problem Solving*. He has also taught advanced classes in his area of expertise, programming languages and systems: *CS251 Theory of Programming Languages* and the new *CS249 Topics* course on *Systems Programming* that Mark developed in Spring '05. Mark taught this course again in Spring '07 and will be teaching it one last time in Spring '08.

Mark has been a supervisor for several student projects, including Rebecca Shapiro's '07 Honors thesis on cooperative system administration. He also served as a major advisor, senior seminar advisor and first-year advisor for many students.

Mark is in the final stages of a new book, *Design Concepts in Programming Languages*, that he is writing with Lyn Turbak and David Gifford (MIT), to be published by The MIT Press.

Mark's other focus is competitive ballroom dancing: he and his partner, Didi von Deck, were 5-time US Senior Ballroom champions 2000-2004, and he continues to coach MIT and Harvard Ballroom Dance teams. We wish him luck in his future endeavors, and will miss having a dancing professor in our department!

#### Daniel Bilar



Daniel is our first Hess fellow, and is now in the second year of his two-year position. Daniel has enhanced our curriculum in his areas of expertise: computer security and networks. Last fall, he taught *CS342 Computer Security* with Lyn Turbak, and he is currently teaching *CS242 Computer Networks*. Last spring, Daniel developed a new *CS249 Topics* course on the *Science of Networks* that he will teach again in Spring '08.

Daniel's current research focuses on the detection and containment of highly evolved malicious software, risk analysis of networks, and quantum computing. He recently published several papers on new ways to detect malware and argues that

the signature-based approaches used in most current virus-detection packages are ineffective at catching the newest virus strains.

Daniel's work on malware is gaining him an international reputation and has led to trips across the globe. Daniel recently gave talks at the Black Hat Conference in Las Vegas, at conferences in Lucerne, London, and Wales, and at two German universities (University of Dortmund and Ruhr University Bochum). Daniel's Dortmund visit has an especially interesting story. As part of his malware research, he tracked down the last remaining copy (locked in a vault!) of a 1980 Dortmund thesis by Jürgen Kraus on self-replicating programs. Daniel realized that the ideas in this thesis predated what was previously thought to be the earliest work on certain aspects of computer viruses. Daniel and Lt. Col. Eric Filiol at the INRIA-ESAT Virology Lab in Rennes, France, translated Kraus's thesis from German to English and are publishing it in a special issue of the *Journal in Computer Virology*.

Some special things we'll miss about Daniel are his keen intellect, repartee on many issues, and of course his Swiss chocolates!

#### Welcome



We're delighted to welcome **Dr. Brett Pellock**, a postdoctoral fellow working with Brian Tjaden. Brett has joined us for a two-year position funded by a grant from the Howard Hughes Medical Institute, as part of a cross-disciplinary collaboration between the Computer Science and Biological

Sciences Departments. Brett received bachelor's and master's degrees from the University of Georgia and a Ph.D from MIT. Before coming to Wellesley, Brett worked as a postdoctoral fellow at MIT and Massachusetts General Hospital.

Brett conducts basic cancer research using the fruit fly, *Drosophila melanogaster*, as a model organism to identify and characterize genes that restrict cell growth, cell division, and cell survival. He will be co-teaching the *CS303/BISC303 Bioinformatics* course with Brian Tjaden next spring.

On a personal note, Brett loves to play tennis and was the Assistant Coach for the MIT women's varsity tennis team from Fall '99 to Spring '07.

#### Faculty Notes

**Brian Tjaden** recently returned from his junior sabbatical leave, where he spent the year at Harvard University in the Department of Molecular and Cellular Biology doing genomics research. Together with biologist collaborators, he investigated computational approaches for characterizing genes in the genomes of various bacteria, including human pathogens and bacteria with bioremediation potential. Brian is delighted to be teaching again and working with Wellesley students!

**Scott Anderson** is teaching a new *Writing 125* class on *Popular Science Writing* – what are the elements of the best of popular science writing, and how can we communicate complex ideas both vividly and accurately? Scott presented his work on the development of the QR overlay course, *CS199 Simulation:*

*An Interdisciplinary Tool*, at a meeting of the *Special Interest Group on Computer Science Education* last March.

**Lyn Turbak** is teaching *CS235 Languages and Automata* for the first time. He is integrating into the course exercises that use the Forlan system developed by Alley Stoughton (father of Cleo Stoughton '11) at Kansas State University. Forlan is a workbench for designing and testing regular expressions, finite automata, and context-free grammars.

**Randy Shull** is on sabbatical leave this year. Collaborating with Ann Trenk and Alan Shuchat of the Mathematics Department, he is studying several mathematical measures of the level of “fairness” achievable when it is necessary to extend a partial order to either a linear order or a weak order. In addition, they propose to characterize important classes of orders in terms of these measures.

The CS Department continues to foster strong connections to interdisciplinary programs: **Ellen Hildreth** serves on the advisory committees for the *Neuroscience* and *Cognitive and Linguistic Sciences* programs, **Brian Tjaden** advises students pursuing the *Bioinformatics* individual major, and **Takis Metaxas** co-directs the *Media Arts and Sciences* program with Judy Black in the Art Department. **Scott Anderson** also teaches in the MAS program.

**Takis Metaxas** is our current CS chair. He participated in the Liberal Arts Computer Science Consortium that published *A 2007 Model Curriculum for a Liberal Arts Degree in Computer Science*. The CS Department is a new member of the Computing Research Association, for which Takis serves as the Wellesley representative. Last summer, Takis conducted research with Lilia Ivanova, a MSc student from Paris VII (Diderot) University. Their paper entitled, *Coverage and Independence of Web Search Results* was accepted in the recent WWW/Internet conference. Last March, Takis became a Research Associate in the Developmental Biopsychiatry Research program at Harvard Medical School's McLean Hospital, where he is working on an expert system for rapid titration of medication.

In September, **Mark Sheldon** and Ishrat Chaudhuri '83 became proud parents of Maya, their new adopted daughter.



After years of waiting and a host of bureaucratic snares, they were delighted to travel to China with their daughter Raina to pick up their bundle of joy from an orphanage. Maya is thriving with her new family and celebrates her first birthday on Dec. 24.

### Student Jobs and Internships

Computer Science students shared their summer research experiences at Wellesley's Tanner Conference in November, in their session, *Too Much Information? Technological Innovations in the Information Age*. **Chloe Fan '09** and **Catherine Grevet '09** spoke about their summer research internship in their presentation, *Reinventing Our Future at Virginia Tech: Exploring Graduate School through Research in Human-Computer Interaction*. Chloe and Catherine spent eight weeks at Virginia Tech's Center for HCI as part of a Research Experience for Undergraduates (REU) program funded by the National Science Foundation (NSF). We learned about *The TWiki™ Revolution: A Multi-Enterprise Tool* from **Nandini Dookeran '09**, who implemented TWiki™ at Lehman Brothers, Inc. last summer. In *Helping Biologists Help Themselves: Experience in an Interdisciplinary Lab*, **Ayla Solomon '09** discussed her NSF REU project developing software for a lab at the University of Santa Cruz that uses biological nanopores to capture and manipulate DNA polymers.

As part of the Computing Research Association's Distributed Mentorship Project for Women, **Lauren Benson '09** undertook a research project at UMass Amherst, where she developed a GUI for the CoGenT project. **Caitlin Levenson '10** participated in the Carleton Summer Women in Mathematics Program, a month-long program in which students interested in math are mentored by women scholars who are passionate about mathematics. **Natasha Kellaway '10** learned PHP and SQL while working on the website for the Wellesley Centers for Women. **Lili Shi '10** worked at the Clapp Library HelpDesk, where she helped to redesign some Wellesley College websites. **Sarah Shiplett '09** took courses in the Aerospace Engineering Department at the University of Minnesota.

Several CS students worked in industry last summer.

**Cassie McLeod '09** participated in a 12-week information technology internship at Cargill, a Minnesota based agriculture company, where she developed a website optimized for Blackberry devices. **Maui Moore '08** was a Quality Assurance Engineer at FUNDTech Corporation in Burlington, MA.

If you're a CS student interested in an internship for next summer, now is a good time to start looking. Most programs have deadlines in February and March. Some good places to start your search are the websites for the NSF CS REU program and the CRA Distributed Mentor Project:

[http://www.nsf.gov/crssprgm/reu/list\\_result.cfm?unitid=50491](http://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=50491)

<http://www.cra.org/Activities/craw/dmp/>

### Student Research Project

**Oly Fernando**, Neuroscience major and Computer Science minor, is working on an Honors thesis that explores the visual cues that people use to judge the motion of objects undergoing free-fall motion, combining perceptual experiments and computer modeling. Oly started this work last summer as a Science Center Summer Research Project funded by the Howard Hughes Medical Grant and supervised by Ellen Hildreth. Her thesis is also supervised by Mark Goldman in the Physics Department and Neuroscience program.

### Cirque du CS

The 3<sup>rd</sup> annual Cirque du CS last March was a great success! The E-Wing of the Science Center was teaming with students, alumni, faculty, families and friends. Dozens of CS and Media Arts & Sciences students presented demos of projects, robotics, games, animations, web pages, research and independent study projects. Students and faculty entertained us with the new CS musical, *Wendy in Buggleland*, created by the Wellesley Association for Computing (WAC).

For a great collection of photos, visit:

<http://cs.wellesley.edu/~cs/Events/cirque2007/index.htm!>

In Spring '08, we'll be taking a hiatus from the Cirque, but we're already looking forward to the next Cirque in Spring '09.



### Talks

Our CS Colloquium Series, organized by **Stella Kakavouli**, had three speakers this fall. In September, we were very excited to have a visit from **James Gosling**, the father of the Java programming language, when he was on campus to visit his daughter, Katie Gosling '10. Dr. Gosling, a Vice President and Sun Fellow at Sun Microsystems, held a "town meeting" style discussion of the past, present, and future directions of Java in particular and information technology in general.

In October, we had two speakers. **Dr. Amitabha Roy**, from the Computer Science Department at Boston College, gave a talk on his research on *Symmetry-Breaking Formulas for Search Problems*. **Rachel Cobleigh**, from the Computer Science Department at UMass Amherst, presented her work on *Propel: An Approach For Helping Developers Specify Properties*.

We also had a wonderful two-day visit in November with **Dr. Daniel Huttenlocher** from Cornell University, where he teaches in the Computer Science Department and the Johnson School of Management. Dr. Huttenlocher's visit was part of the Phi Beta Kappa Visiting Scholar program that selects a dozen distinguished scholars each year who visit college campuses to foster intellectual exchange with students and faculty. As a guest lecturer in Ellen Hildreth's *CS332 Visual Processing by Computer and Biological Vision Systems* class, Dr. Huttenlocher shared his experience as a faculty advisor for the Cornell team

that designed a fully-automated vehicle that recently competed in the 2007 DARPA Urban Challenge. We had a full house at his public talk on *Computational Social Science: Large-Scale Studies of Wikis, Blogs, Social Networking Sites*. His visit also included two informal lunches: one with CS students, to answer their questions about CS research, jobs, and grad school; and one with CS faculty members, to discuss curriculum issues.

Stay tuned for the *Senior Seminar Series*, which features talks by our CS seniors in the Spring!

### *Other Department Events*

Last April, there was a strong representation from Wellesley College at the annual meeting of the *Consortium for Computing Sciences in Colleges in the Northeast* held at Rochester University. The Wellesley contingent (two carloads worth!) consisted of Scott Anderson, Brian Tjaden, seven CS students, and former faculty member Allen Downey (now at Olin). At the conference, Brian talked about his development of the interdisciplinary Bioinformatics course, the Wellesley programming team (**Sarah Lafrance '08**, **Miranda Dobbs '09**, and **Lili Shi '10**) performed well, and four students presented their thesis work in a poster session for undergraduates: **Sarah Abraham '07**, **Vasumathi Raman '07**, **Rebecca Shapiro '07**, and **Hitomi Yoneya '07**. In a competition for best research, Hitomi won 1st place for work on *Reputation in Evolutionary Prisoner's Dilemma*, and Rebecca won 2nd place for her work on *Cooperative and Democratic System Administration*. Congratulations!

In October, we once again fielded a team for the Boston-area ACM programming Contest. Members of the team, **Cassie McLeod '09**, **Ayla Solomon '09**, and **Anna Tang '09**, placed 6th out of 17 teams in the preliminary round, the best showing by a Wellesley team in many years!

The weather did not cooperate for our traditional CS student-faculty Frisbee game, but we had a fun dinner in Sage lounge and an evening of card games (Set, of course!).

### *In the News*

On a sad note, the students, faculty and staff of the CS Department are dealing with the arrest of one of our students, Anna Tang '09, for physically assaulting an MIT student. We have had several gatherings to share our feelings and concerns about the events, and appreciate the kindness and consideration that everyone has given to us during this troubling time.

### *New CS Labs*

Two new labs were constructed for the CS Department this past summer as part of the Science Center renovation work funded by the Faroll bequest. SCI 160 is a small student research area. SCI 160A is a new lab outfitted with 15 Macs, a whole-wall whiteboard, and a state-of-the-art computer display system. It was used for CS110, CS111, CS230, and CS332 labs this semester. Because Macs can display remote X windows



from our Linux workstations, 160A displaces the micro-focus as the primary room for teaching labs requiring Linux.

Both labs are located across the hall from the CS Lounge (SCI 173) and feature windows that look out to the hallway.

### *Coming Soon*

The CS Department is conducting searches for two faculty positions for the next academic year, 2008-09. The first is for a tenure-track Assistant Professor in Computer Science; the second is for our second two-year Hess Fellowship, which is generously funded by the Norma Wilentz Hess Faculty and Program Fund in Computer Science. For both positions, we are considering candidates in a wide range of areas of computer science, but are especially interested in attracting applicants in computer systems, computer security, architecture, software engineering, artificial intelligence, and interdisciplinary fields such as human/computer interaction, bioinformatics, educational computing, and ethical, social, and legal aspects of computing.

We are excited that these positions will help us to maintain a flexible Computer Science curriculum that explores interdisciplinary learning and new directions of special promise.

If you know any promising candidates for these positions, please encourage them to apply!

### *Keep in Touch!*

Consider reaching out to our students and each other by putting your names/contact information on the alumnae page, <http://cs.wellesley.edu/~cs/People/alumnae.html>. Visit our redesigned web pages at <http://cs.wellesley.edu>, to learn more about what's going on in the department. We haven't heard from many of you in a long time! Let us know what you're up to by emailing Takis Metaxas at [pmetaxas@wellesley.edu](mailto:pmetaxas@wellesley.edu).

Also, we're exploring the development of a system that will enable our alums and students to communicate more effectively. If you have any ideas about such a system, please email Lyn Turbak at [fturbak@wellesley.edu](mailto:fturbak@wellesley.edu).