The stunning new HCI Lab

Our most exciting news is our wonderful newly constructed Human Computer Interaction lab. Orit Shaer and her students were thrilled to move into the new lab at the end of the summer, after an extensive renovation of E125.

An anecdote
Overheard while passing by the HCI lab:

Student1: Wow, look at that!
Student2: That space is sooo cool!
Student1: Maybe I should become a CS major!

The details
The new laboratory has 3D holographic displays, gesture-based user-interfaces, colorful furniture that can easily be rearranged for group work, and writeable surfaces covering most of the three walls. The fourth wall is floor-to-ceiling glass, making the science easily visible for curious passersby.

The donor
The renovation was made possible through the generous donation of Wellesley Alumna Amy Batchelor ’88 (English major) and her husband Brad Feld.

The ribbon cutting
On Wednesday, October 23, a ribbon cutting ceremony was held to celebrate the official opening of the HCI lab. President Kim Bottomly and Dean of Academic Affairs Dick French were part of the ceremony, as well as the donor, Trustee Amy Batchelor ’88. Orit and some HCI lab members spoke about how the new lab has already had a positive impact on their work.

HCI ribbon cutting
Amy Batchelor ’88 and Orit Shaer at the Ribbon Cutting Ceremony for the new HCI lab

Wellesley Winners
Michelle Ferreirae ’13, Erin Davis ’14 and Emily Erdman ’13 were the first all-female team to win the CESCNE Student Programming Contest in April of 2013.
We welcomed Darakhshan Mir and Rhys Price Jones.

Darakhshan Mir

Darakhshan is our new Hess Fellow. She has a B.Tech from the National Institute of Technology (India), M.S. from George Washington University, and Ph.D. from Rutgers. Passionate about increasing the participation of women in science, she was a graduate mentor at Rutgers in a residence for women majoring in STEM fields. Darakhshan’s research is focused on questions of how to quantify and preserve the privacy of individuals when their data is used for scientific, research or commercial purposes. Darakhshan will be teaching a new course this Spring semester, 2014, called CS349A: Quantifying Data Privacy.

Rhys Price Jones

Rhys joined us this fall as a Visiting Lecturer. He has a B.A. and M.A. from Oxford, M.Sc, from the University of Calgary, M.Sc. from Indiana University, and Ph.D. from the University of London. Rhys has taught at Indiana University - Purdue University Fort Wayne, Oberlin College, Rochester Institute of Technology, George Washington University, Stanford University and Grinnell College. His interests include Computer Science education, bioinformatics, genetic algorithms, game theory, graph theory, programming languages, artificial intelligence and real intelligence. He is co-author of a popular textbook, BioInformatics: A Computing Perspective. Rhys will be teaching a new course in Spring 2014 called Computing and Life.
New faculty searches
The Wellesley College Computer Science department is growing! The increasing enrollments that started a few years ago are continuing. We currently have an all-time high of declared majors and tremendous demand for computer science courses from both majors and non-majors.

One of the long-term goals of our department is to encourage women to discover and be empowered by Computer Science, so we are very excited about this trend!

To respond to this increased interest, we plan to expand our faculty next year. Searches are underway for two new professors and a lab instructor. We hope that our new faculty hires will provide new research and teaching opportunities in important areas such as computer systems and artificial intelligence.

New Engineering program
Amy Banzaert, the first faculty member of our new Wellesley Engineering program, held a We-Lab Exhibit on May 9, to demonstrate the final projects from Fundamentals of Engineering, which showcased ideas that make a difference through Engineering.

Farewell Consuelo Valdes
The HCI lab and the CS department bid a sentimental goodbye to HCI research fellow Consuelo Valdes ’12, and wish her only the best as a UX designer at Imprivata, Inc.

New Senior Fair
In the past, as part of graduation requirements, CS senior majors presented a formal technical talk on a topic of their choice (e.g. project work, research, internship experience, a particular CS topic or technology of interest). Talks were presented at the Cirque du CS, Ruhlman, and in lunch or community-time seminars.

Our graduating seniors are brimming with wonderful things to share with other students and faculty. This Spring, we are exploring a different presentation forum: a new Senior Fair where each student will present a poster about a CS related topic or experience.

Other students and faculty will be invited to attend, and will move around to see the various posters and associated demos, and talk to the seniors about their work, in a more informal and interactive setting than the formal seminars that we’ve hosted in the past.

Pinanski Prize Winner
The Pinanski Teaching prize was awarded to Orit Shaer at the 2013 Commencement. The prize is awarded annually to members of the Wellesley College faculty to honor outstanding teaching.
Orit Shaer and Eni Mustafaraj were individually recognized by Google with App Engine Education Awards, for innovative projects built on Google's infrastructure.

Orit Shaer was honored for Green Touch, a collaborative environment that enables novice users to engage in authentic scientific inquiry. Green Touch uses a mobile user interface for capturing data in the field, a web application for data curation in the cloud, and a tabletop user interface for exploratory analysis of heterogeneous data.

Eni Mustafaraj was honored for work in her course, CS249 Web Mashups, in which students used Google App Engine and MIT App Inventor to build apps to collect, host, and remix data about their life on campus.

Ellen Hildreth became Co-Coordinator of Education for a new NSF funded Center for Brains, Minds and Machines based at MIT (cbmm.mit.edu). Wellesley College is a broadening participation partner for the Center, which will create research and education opportunities for our students in the science and technology of Intelligence.

Sohie Lee was part of a 5-woman panel at the Grace Hopper Conference in October, titled: “Faculty Careers in CS at Liberal Arts Colleges: Myths and Reality.” The panel was focused on computer science teaching and research at liberal arts colleges, in contrast to careers at larger universities.

Stella Kakavouli was appointed Chair of the ER&D Committee at the College, responsible for the evaluation of proposals and dispensation of small grants for faculty research and development projects.

In June, Takis Metaxas, Eni Mustafaraj, and Samantha Finn ’12 participated in the NetSci ’13 (International School and Conference in Network Science) in Copenhagen, where they presented two posters related to their "Trails of Trust" research.

Takis Metaxas presented the paper “The Rise and Fall of a Citizen Reporter” at the ACM Web Science conference in Paris, co-authored with Eni Mustafaraj.

Brian Tjaden is on sabbatical leave this academic year and is engaged in research on computational methods for analyzing high throughput DNA sequencing data. He was recently awarded a three-year grant, entitled “System and Methods for Analysis of Bacterial Transcriptomes” from the NIH National Institute of General Medical Science that is supporting his research during his sabbatical.

Lyn Turbak is spending his sabbatical year at the MIT Center for Mobile Learning. He has been instrumental in the release of a new version of App Inventor that runs entirely in the browser. He also co-taught a Software Engineering course at MIT, which was attended by several Wellesley students.

Takis Metaxas, as a member of the Board of Directors of the Computing Research Association (CRA) visited Washington DC in February and September to inform members of the importance that computing plays in the economy and job creation in this country. Takis met with the staff of Senators Warren and Markey and Congressmen Kennedy III, Cicilline and McGovern and shared the data below:

62%
The Bureau of Labor and Statistics predicts that until the year 2020, 62% of the newly created jobs will be in STEM fields.

20%
Only 20% of the STEM-related ads can be filled by graduates of STEM fields.
Student Research & Activities

2013 Ruhlman conference presentations included:

- Kelsey L Tempel '13, Sirui Liu '13, Veronica Lin '15, Casey E Grote '14, Michelle N Ferreirae '13, Taili Feng '13, Linda Ding '14, Kara Y Lu '14, and Wendy M Xu '13 presented “Utilizing Innovative Interactions to Foster Collaborative Learning in Biology”, in which they discussed HCI research.

- Johanna Okerlund '14, Karishma Chadha '14, Erin L Davis '15, Emily L Erdman '13 participated in a panel on “App Inventor Development at Wellesley,” in which they described projects to improve App Inventor, an online blocks-based programming environment.

- Michelle Ferreirae '13, Erin Davis '15, Emily Erdman '13, Taili Feng '13, and Margaret T Ligon '13 related their experiences at the MIT-LL Capture the Flag competition and work in their final projects in CS 342 Computer Security with “Sparkly Hats and Cookie Dough: Stories from Computer Security.”

- Akoka Ahiable '13 presented a talk on “Technology and Wall Street,” in which she outlined a computer program that she designed that simulates Wall Street technology applications.

- Hye Soo Yang '13 discussed a “User-customizable Game Environment in iPhone,” an app which allows users to recreate their physical space into a gaming environment.

- Carolyn Kim '13 presented “The Detection and Representation of Foreground vs. Background Objects”, describing her honors thesis work on perceptual experiments and modeling of human stereo vision.

- Alessandra Saluti '16, Christina Pollalis '16, and Z. Jenny Pang '13 presented their work on “Binders Full of Voters: How Information Gathered Through Tracking was Used to Target Voters in the 2012 Presidential Election.”

The International Conference on Mobile Learning provides a forum for the presentation and discussion of mobile learning research which illustrates developments in the field. The 2013 conference was held in March in Lisbon, Portugal. Christina Pollalis '16 and Simone Deslarzes '13 attended based on research they had performed in CS 114 The Socio-Technological Web.

- Takis Metaxas and Eni Mustafaraj led research on “Trails of Trust” with Susan Tang '15 (transferred to Brown), Laura Zeng '15, Megan O’Keefe ’16, and Lindsey Tang ’15.

Several students participated in summer REUs (Research Experience for Undergraduates) at other campuses:

- Lulu Ye '15 worked at the University of Maryland’s College Park campus with Dr. Leah Findlater, creating a wearable device for the visually impaired.

- Hannah Bond ’15 spent her summer at the Future Computing Lab at UNC Charlotte. She helped to design a system for visualizing tracking data obtained via ceiling-installed security cameras.

- Mary Beth Kery ’15 worked in the Liquid Narrative Research Group at North Carolina State University in AI-assisted virtual crime scene reenactment.

- Orit Shaer directed an active group in the HCI Lab, including Linda Ding ’14, Nicole Francisco ’14, Casey Grote ’14, Kara Lu ’14, Heather Petrow ’14, Joanna Bi ’15, Cassie

Hoe '15, Evan Segreto '15, and Sravanti Tekumalla ’16.

- Students working on AppInventor with Lyn Turbak were Bhargavi Ramanathan ’16, Johanna Okerlund ’14, Joanna Bi ’15, Shirley Lu ’15, and Tori Brown ’15.
The Grace Hopper Conference was held on October 2-5 in Baltimore this year. Wellesley faculty, students, and alums, included Sohie Lee, Karyn Benson ’06, Erin Davis ’14, Lia Napolitano ’10, Megan Strait ’10, Alex Gendreau ’12, Monica Feldman ’14 and Irene Kwok ’14.

The Tanner Conference on October 30 showcased the internship experiences of Wellesley students. A large number of CS students shared valuable insights about their internships:

- Stephanie Lee ’14, Lindsey Coleman ’14, and fellow panel participants presented “Empowering Women Through Code: Closing the Gender Gap in Technology Fields.” Stephanie and Lindsey reflected on their experience with GirlsWhoCode, in which they taught an 8-week intensive course to inner-city Detroit teenaged girls.

- Veronica Lin ’14, Erin Davis ’14, Linda Ding ’14, Olivia Kotsopoulos ’14, Alex Poon ’14, and Yi Tong ’14 discussed their internship experiences in technology companies in “From Wellesley Computer Science to the Technology Industry.”

- Yu Mei Lay He ’14, Amy Hu ’14, Irene Kwok ’14, and Karen Su ’14 talked about the variety of jobs that are available in industry with “What You Can Do with Computer Science: Beyond the Code.”

- Casey Grote ’14, Joanna Bi ’15, Heather Petrov ’14, Elina Segreto ’15, and Sravanti Tekumalla ’16 described their experiences in the summer research program in the HCI lab in “Designing, Encoding, and Searching: Advancing Synthetic Biology Through Human-Computer Interaction.”

- Gabriela Lanza ’14 spoke about her work at Hubspot and what she has learned about web design and development both in the classroom and the real world.

- Yesenia Trujillo ’14 talked about research she has done with Eni Mustafaraj, funded by a grant from the Spanish Department, using social media to observe Spanish speaking communities.

The CCSCNE Student Programming Contest in April was won by the Wellesley College programming team of Emily Erdman ’13, Michelle Ferreira ’13, and Erin Davis ’14, at the annual conference of the Consortium for Computing Sciences in Colleges Northeastern Region (CCSCNE), which was held this year at Siena College in Loudonville, NY.

Michelle, Erin, and Emily were the first ever all-women team to win the contest, and the only team to solve 5 of the 6 problems!

The ACM Programming Contest (Boston-area preliminary) was hosted on October 19 at Wellesley College:

The event was coordinated by Lyn Turbak and Scott Anderson. A total of five teams competed, including an amazing four teams from Wellesley!

The third annual MIT-LL Capture the Flag contest was held in Lexington at Lincoln Labs, October 25 - 27. This year, the Wellesley team included Karishma Chadha ’14, Sheridan Sunier ’15, Nicole Francisco ’14, Layla Gardner, Margaret Perry ’14, and Kathy Levine ’15.

The CTF competition tests teams’ ability to defend their system and attack other teams’ systems, using knowledge of computer security.

The team did not have much experience (only Karishma and Erin had taken the Security class), but it was fun. Sheridan and Kathy are excited to come back next year after taking the Security class.
The International Genetically Engineered Machine (iGEM) 2013 World Championship Jamboree was held on Nov. 1 – 4 at MIT. The Wellesley HCI Lab won the Gold Medal for their software suite! Team members: Evan Segreto ’15, Heather Petrow ’14, Joanna Bi ’15, Sravanti Tekumalla ’16, Casey Grote, MAS ’14, Tiffany Chen ’13, Cassie Hoef ’15, Catherine Guo ’13, and Daniel Worstell (Johns Hopkins University).

The paper “Locate the Hate: Detecting Tweets against Blacks” co-authored by Irene Kwok ’14 and Vivienne Wang ’14 for their CS232 Artificial Intelligence course, was published in the 27th conference of Association for the Advancement of Artificial Intelligence (AAAI 2013), a top AI conference.

Johanna Okerlund ’14 presented the poster “A Learning Analytics System for Introductory Programming Classes with App Inventor” at the 26th International FLAIRS conference in St. Pete Beach. This was joint work with Lyn Turbak and Eni Mustafaraj.

Wendy Xu ’13, Kimberly Chang ’12, Nicole Francisco ’14, Consuelo Valdes ‘11, R. Kincaid and Orit Shaer presented “From Wet Lab Bench to Tangible Virtual Experiment: SynFlo” at the 7th International Conference on Tangible, Embedded and Embodied Interaction in Barcelona last February.

Last March, Kathy Liu ’13, Kara Lu ’14 and Linda Ding ’14 presented their work on “Reality-Based Interfaces for Bio-Design” at the Annual Conference of the Institute of Biological Engineering in Raleigh, NC.

A First Year Seminar, CS118 Creative Computing, developed and taught by Lyn Turbak and Sohie Lee last spring, was very successful and we are eager to transform this experience into our new Python-based CS111 Computer Programming and Problem Solving to be launched next fall.
Colloquia

The CS department provides frequent opportunities for faculty and students to learn about interesting topics in computer science, through talks by visiting faculty, scholars, graduating students, and alums.

The HCI Lab hosted Oded Nov, NYU, who came to discuss his work on “Personality-Targeted Design” and a team from zSpace who gave a demo and presentation on “zSpace: Transforming Ordinary PCs into Powerful Holographic Workstations.”

Andreas Jungherr, University of Bamberg, Germany, presented his research on “Twitter Data as Information Source on Political Communication and Political Campaigns: Examples from Germany.”

Joel Katz, an internationally known, award-winning information designer, gave a talk entitled “Design for Understanding: Information Design and Communication.” Joel’s talk was hosted by the MAS program and supported by the CS and Art departments.

Ingman Weber visited from the Qatar Computing Research Institute to discuss “Secular vs. Islamist Polarization in Egypt on Twitter.”

Kristine Amari ’05 visited and gave a talk on techniques she has used in her work for the government for deciphering malicious code: "A Malware Puzzle: Understanding Software Without Source Code.”

Rebecca Shapiro ’07 discussed her interests in computer security and experiences as a PhD student at Dartmouth.

Sucheta Soundarajan from Cornell University visited to discuss “Small Worlds, Preferential Attachment, and Communities: An Overview of Social Network Analysis.”

Paul Ruvolo from Bryn Mawr presented “Tools for Building Machines that Interact Effectively with People,” in which he discussed his work on development of robots with human-level perceptual and motor abilities.

Beenish Chaudhry, Indiana University, described her design of a food portion size estimation mobile user interface for people with chronic kidney disease in her talk “Designing Mobile Interfaces for Low-Literacy and Chronically Ill Users.”

Catherine Welsh from the University of North Carolina presented “The Design and Development of a Genetic Reference Population,” about her work designing fast, low-cost simulation techniques for monitoring the genomes of generations of live mice.

Our new Hess Fellow, Darakhshan Mir came to us from Rutgers University to discuss the meaning of data privacy and how to protect it, in “Quantifying privacy: How I learned to Stop Worrying About Privacy and Start Measuring It Instead.”

Our current Visiting Lecturer Rhys Price Jones, then from Grinnell College and George Washington University, described models of computation in his talk on "Life, Turing's Universe, and Everything."

We enjoyed a Senior Seminar with three graduating seniors in March:

- Taili Feng ’13 presented ”Quick and Dirty Prototyping,” about the advantages and importance of prototyping a design before its implementation.
- Gabrielle Goodwin ’13 explored computers in fabrics, and the challenges involved in creating these materials, in “E-textiles: An Overview.”
- Ljubica Ristovska ’13 talked about how she learned about exploiting systems using penetration testing software in "Hacking 101: Offensive Security using Metasploit."

Four of our seniors presented at our Cirque du CS celebration in March:

- Elize Huang ’13, "Choosing College Courses Like You Choose Netflix Movies"
- Jacqueline Killenga ’13, "The Taxonomy of Twitter Uses: What are you?"
- Sachi Shah ’13, "Big Data and Distributed Computing"
- Shelley Wang ’13, "Online Message Boards and Implementing One"
Special Events and Activities

Our bi-annual Cirque du CS was held on Sunday, March 3. About 90 students presented their work and many more helped out with cotton candy, popcorn, face painting and other fun activities.

At the Cirque du CS, Chesley Hooker '17 and Nina Broocks '17 demonstrate their python animations built in CS118 Creative Computing.

There was an amazing turnout, with over 200 attendees -- our best ever! It was a great afternoon of student project demos and senior seminar presentations, with lots of mingling among current students, alumnae, faculty, family, and friends. And, of course, chocolate chip cookies!

A CS Internship Panel was held on September 27, to share information about internship experiences. Presenters included Erica Dohring '15, Olivia Kotsopoulos '14, Veronica Lin '14, Linda Ding '14, and Emily Tohir '14. It was a huge success, with nearly 100 attendees!

The Hour of Code events were held during reading period in December. The Hour of Code was a worldwide event spearheaded by Code.org to increase awareness of coding. Wellesley’s Computer Science Department partnered with Library and Technology Services to host the activities. Over 30 computer science students volunteered their time during reading period to lead 36 hours of coding over three days in four locations. The event was directed by faculty members Eni Mustafaraj and Darakhshan Mir.

The full day, hands-on workshop on using computing skills for open source software projects was sponsored by OpenHatch, and initiated and coordinated by Kristian Tran '13.

Student volunteers teaching fellow Wellesley students how to code during the Hour of Code, December 2013. The photo above was taken in the Science Center; there were also Hour of Code booths at Pendleton, the Lulu Wang Center and Clapp library.
Fun and Festivities

Senior Class Decorations
The 2013 Green class built a marvelous tree fort in the Science Center’s Microfocus to celebrate their last day of class.

On May 15, the second annual **CS vs. Math Ultimate Frisbee** challenge was held on Munger Meadow. The Math team seemed to have had on edge on the CS team this year!

An informal **reunion** of CS alums, faculty, and students was held on Saturday, June 8, at the Science Center. Sravanti Tekumalla ‘14, Joanna Bi ‘14, and others led outreach activities during Reunion Weekend, on learning with PicoCrickets and exploration with a tabletop computer and zSpace 3D holographic display.

**Smaranda Sandu ’14** organized CS/Math movie nights last Spring. Last November, a group of CS faculty and students went to see “Gravity” -- thanks to **Rita Purcell** for arranging the outing!

Our annual **CS/MAS Holiday Get-Together** was held on December 10, the last day of classes. We had our annual Holiday party in the Science Center Sage Lounge. Students and faculty members and their families enjoyed delicious dipping from a chocolate fountain, plus tons of CS games and activities, organized by **Eni Mustafaraj, Jean Herbst** and CS and MAS students. The party was a welcome respite between the end of classes and final exams.

New Official CS T-shirts
Thanks to Margaret Ligon ’13 for organizing a CS T-shirt design contest. The winning design is shown above. Congratulations to **Casey Grote ’14**, for her artwork (see the Buggles?).
When Wellesley graduated its first CS majors in 1983, the faculty had in mind that anniversaries would be celebrated in “powers of two” years. As the 2^5 anniversary approaches, we indeed have much to celebrate.

As I reflect on the past year, I am struck not only by how much we have grown within the College, but also by the impact that our faculty and students are having beyond our campus, on families from the town of Wellesley enjoying a day of fun at the Cirque, teenaged girls from Detroit empowered by learning to code, or the makers of technology policy in Washington. We are impacting the technology itself, through the further development of App Inventor and creation of apps that improve peoples’ lives, and advancement of the state-of-the-art in HCI technology and methodology.

It is heartening to see the confidence and passion of our students grow as they engage with the broader computer science community through professional conferences, regional and international competitions and Hackathons, and share their enthusiasm with the Wellesley community through Ruhlman, Tanner, the Cirque du CS and the Hour of Code. At the core of these activities is a kind of experience that was expressed so eloquently by Eni Mustafaraj in Hour of Code Comes to Wellesley:

**Coding a computer is an act of creativity. I and others compare writing beautiful programs that make abstract ideas come alive on our screen to the act of creating poetry and fiction. This is why computer science needs to be a part of the liberal education of every college student. It’s not about becoming computer scientists,** it’s about the joy of creation and the journey to get there.

- Wellesley news archives, December 12, 2013

The CS department is very appreciative of the financial support that we have received from alumnae, friends, family, and corporations. The “Academic Wellesley” campaign raised over $18,000 to support new academic and research opportunities for our students, and a special fund for student travel to professional conferences, such as the Grace Hopper Celebration of Women in Computing, has raised over $9,000. We continue to rely on the generosity of our extended family of supporters for the many activities described in this newsletter that help us to provide an excellent liberal arts education for women studying computer science at Wellesley. Every gift makes a big difference. Non ministrari sed ministrare.

Gifts can be sent to Gift Processing, Wellesley College Office of Resources, 106 Central Street, Wellesley, MA, 02481 with a note designating the gift for the CS department. Your gift to Wellesley CS is tax deductible.

Thank you for your support!

**JOB OPPORTUNITIES**

The HCI (Human-Computer Interaction) lab currently has an open post-doctoral position available. Please contact Orit Shaer (oshaer@wellesley.edu) if interested.