

**UNDERGRADUATES DESIGN MULTI-ROBOT SYSTEM TO STERILIZE HOSPITAL ENVIRONMENTS**  
SEE ARTICLE PAGE 12 & 13

## BIG DATA ANALYTICS AT ROCHESTER

By Henry Kautz



Big Data is big news—we often hear how it is transforming science, business, and our everyday lives. Yet for all of the excitement, stories about Big Data often overlook what is most important about the field—not just that we are swamped with data, but that scientists and engineers are creating powerful new techniques for collecting, managing, and analyzing huge data sets. The generality of these methods breaks down traditional barriers between disciplines. For example, the data structuring and management methods originally developed for displaying and linking text on the World Wide Web turn out to be a key technology for integrating large scientific databases.

Big Data analytics has emerged from the combined efforts of researchers in computer science, statistics, and economics and in the physical, life, and social sciences. The area goes by several different names—for example, it's called “machine learning” or “data mining” in computer science and “predictive modeling” in finance. However, the researchers at Rochester share an every-growing, common toolkit of mathematics and computational methods. It is not uncommon to find physicists on a team working on problems in finance or for techniques developed for processing natural language text to find a use in genetic analysis.

At Rochester, we have researchers working together from a broad spectrum of disciplines in the College of Art, Sciences & Engineering and the School of Medicine & Dentistry, including political science, computer science, brain and cognitive sciences, psychiatry, biostatistics and computational biology, biomedical engineering, and from our Simon School of Business. In the fall of 2012, the University hosted a national forum on Big Data, which brought renowned researchers from across the nation, leaders of federal research funding agencies, representatives of high-technology companies, and faculty and students from the University of Rochester together for three days of presentations, discussions, and networking. We will be hosting another Big Data forum in October 2013. For details, visit [www.rochester.edu/rocdata/](http://www.rochester.edu/rocdata/).

Many of our recent undergraduate alumni have entered graduate programs in fields that use data analytics, such as financial engineering and computational science. Computer Science alumni are also attractive to businesses doing data analytics (see class notes starting on page 16). Two young alumni have recognized the importance of big data ideas and created start-ups. (See the featured undergraduates article on page 14 for one such venture). Big Data is the future and the University of Rochester is helping make it happen.



# Haas '82 Remembered

**Andrew (Andy) Haas, PhD '82** passed away on January 23, 2013 after being stricken with a brain aneurysm. Andrew was born in the Bronx, and raised in Kings Park, Fairfax County, Va. He was a graduate of Yale University, and earned his doctoral degree in computer science at Rochester in 1982. He was employed for seven years by BB&N Computer Research in Cambridge, Mass., and then until his death as a professor of computer science at the University at Albany. His passion within computer science was the study of artificial intelligence.

Andy entered the doctoral program at UR in 1977 in the very early years of our department. He and his fellow classmates developed a tight bond, and many of them came from around the country to attend his funeral services in Albany. Advisor James Allen remembers that Andy was quick to engage anyone in lengthy philosophical discussions simply because he enjoyed the intellectual sparring. As was the style in the late 1970s, long hair and beards were in vogue, and Andy always was a mass of curly hair. Jill Forster, department administrator for many years, remembered one particular Halloween party toward the end of Andy's studies. Jill responded to the doorbell, opened the door, and there stood a clean-shaven, manicured man in a stylish three piece suit. She greeted him politely, and let him enter without recognizing him. It was nearly half an hour before anyone at the party figured out it was Andy without the beard, long hair, flannel shirt, and jeans. He had come in costume as a businessman and fooled everyone!

As a professor at University at Albany, Haas's research interests included several



First year PhD students 1977: Front row L-R: Ed Smith, Peter Selfridge; Second Row: **Andy Haas**, Klaus Gradischnig; sitting behind: Mark Kahrs, Clinton Parker; standing: :L-R: Dan Russell, P. Rajaram, Jerry Feldman (chairman), Arun Arya, Danny Sabbah, and faculty member Dana Ballard. (photo provided by Ed Smith)

branches of artificial intelligence, including syntax, semantics and parsing of natural language, knowledge representation (especially the representation of the notions of belief and knowledge), and

planning. Andy leaves behind his wife JoAnn Russo Haas, and his daughter Katherine Haas, as well as his many computer science friends.

## NEW FACULTY: EHSAN HOQUE



Photo by Manohar Srikanth

### COMPUTERS HELP CONVERSATIONS



Ehsan Hoque defended his PhD titled, "Computers to help with Conversations: Affective Framework to enhance Human Nonverbal Skills" in July at the Media Lab of the Massachusetts Institute of Technology (MIT). Ehsan's research focuses on developing computational systems that understand and respond to human emotions. His work on

nonverbal behavior understanding and recognition has been published in IEEE/ACM Journals, received best paper nominations in the Intelligent Virtual Agent (IVA) and Face and Gesture (FG) conferences, and appeared in the popular press including *Time Magazine*, *MIT Technology Review*, and PBS.

His research prototypes include the first autonomous Disney Animatronics that can "see", "hear", and make their own decisions, and the MIT Mood Meter, a computer vision system that counts

smiles on the MIT campus and converts the data to an MIT "smile heat map" in real time. Ehsan was the recipient of the IEEE Gold Humanitarian Fellowship in 2009 for his work on introducing technology to help people with Autism overcome their speaking deficiencies.

As part of his PhD thesis, Ehsan developed a system that allows people to practice human interaction with a computer-controlled virtual agent. The system allows users to practice in their own environment, control the pace of the interaction, and practice as many times as they wish. This is particularly useful for people diagnosed with social difficulties who desire help to improve their interactions skills (e.g., poor eye contact, and inflection of voice), but fear social stigma. The software, called MACH (short for My Automated Conversation coach), uses a computer-generated onscreen face, along with facial, speech, and behavior analysis and synthesis software to simulate face-to-face conversations. It then provides users with feedback on the interaction.



Ehsan's PhD dissertation work can be used to help people practice their interpersonal skills until they feel more comfortable with situations such as a job interview or a first date. Designed to run on an ordinary laptop, the system uses the computer's webcam to monitor a user's facial expressions and movements, and its microphone to capture the subject's speech. The MACH system then analyzes the user's smiles, head gestures, speech volume and speed, and use of filler words, and other attributes. The automated interviewer, a life-size, three-dimensional simulated face, can smile and nod in response to the subject's speech and motions, ask questions and give responses.

Interpersonal skills are the key to being successful at work and at home, Ehsan says. How we appear and how we convey our feelings to others define us. But there isn't much help out there to improve on this aspect of interaction. Many people with social phobias, Ehsan says, like the possibility of having an automated system so that they can practice social interactions in their own environment. They desire to control the pace of the interaction, practice repeatedly, and own their data. The MACH software offers all those features, Ehsan says. In randomized tests with 90 MIT juniors who volunteered for the research, the software demonstrated significant value.

First, the test subjects—all of whom were native speakers of English—were randomly divided into three groups. Each group participated in two simulated job interviews, a week apart, with MIT career counselors.

But between the two interviews, unbeknownst to the counselors, the students received help. One group watched videos of interview advice, while a second group had a practice session with the MACH simulated interviewer, but received no feedback other than a video of their own performance. Finally, a third group used MACH and then saw videos of themselves

**“Interpersonal skills are the key to being successful at work and at home,” Ehsan says. “How we appear and how we convey our feelings to others define us. But there isn’t much help out there to improve on that segment of interaction.”**

accompanied by an analysis of such measures as how much they smiled, how well they maintained eye contact, how well they modulated their voices, and how often they used filler words such as “like,” “basically,” and “umm.”

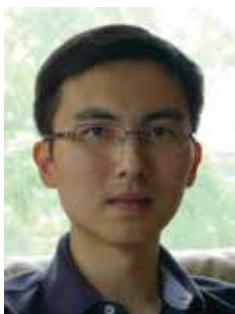
Evaluations by another group of career counselors showed statistically significant improvement by members of the third group on measures including “appears excited about the job,” “overall performance,” and “would you recommend hiring this person?” In all of these categories, by comparison, there was no significant change for the other two groups.

Ehsan intends to continue his research agenda of inventing the future of emotion technology and enabling new interaction possibilities in the areas of health and assistive technologies. He is excited about doing research that makes a real-world impact, and he feels that the Computer Science department of University of Rochester is the right place to do it. U of R wants its faculty members to “think big” and “take risks”, which is nearly unique in his experience.

Ehsan will teach Human Computer Interaction in the fall, and hopes to teach a follow-up multimodal signal processing course on nonverbal behavior understanding and recognition, “deblurring” the boundary between computer science, digital media studies and assistive technologies. He is excited about the possibility of collaborating with the University of Rochester School of Medicine and Dentistry Medical School, Electrical and Computer Engineering, Brain and Cognitive Science and Psychology departments. He is also looking forward to raising his family in Rochester, which has great cultural amenities, a stable economy, low cost of living, and a high level of education.

## NEW FACULTY: PHILIP GUO

### EXPANDING POSSIBILITIES OF DIGITAL LEARNING FACILITATING LIFE-LONG LEARNING OUTSIDE THE CLASSROOM



Philip J. Guo will join the faculty in Computer Science as an assistant professor in Fall 2014 after spending 2013–14 as a visiting research scientist at edX and MIT. He received a PhD in Computer Science from Stanford University in 2012 and S.B. and M.Eng. degrees in Electrical Engineering and Computer Science from MIT in 2006.

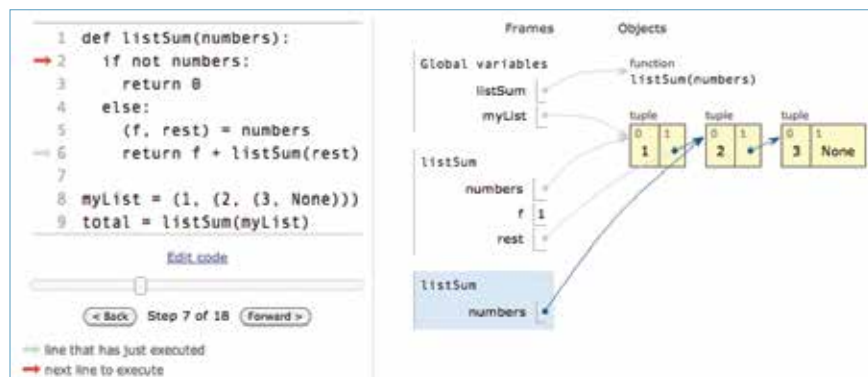
Outside of academia, he has worked as a software engineer and researcher at Google, Microsoft, and Teradyne.

Philip plans to research and teach topics in human-computer interaction (HCI) with a focus on building user interfaces to support informal learning. He's fascinated by the fact that most learning is now done outside of formal classroom settings. Some analysts estimate that 90% of American adults do over 500 hours of informal learning per year and that 70% of learning in the workplace is informal. Thanks to the rapid growth of free web-based learning resources over the past decade—Wikipedia, K-12 lessons from Khan Academy, university-level courses from Coursera, edX, and Udacity, and discussion forums on topics ranging from computer programming to music—it's now easier than ever for people to maintain a lifelong pursuit of knowledge.

In his research, Philip wants to understand how people learn informally in online settings and then apply those insights to build new tools to facilitate such learning. Specifically, his work aims to address three main questions:

- 1.) How can software tools help bring the ideal of one-on-one mastery-based tutoring to people around the world who don't have access to an in-person tutor?**
- 2.) How can software tools augment in-person teaching in traditional classrooms and workplaces?**
- 3.) How can software tools make it easier for researchers to learn and use computer programming, which is now vital for making many kinds of scientific discoveries?**

Philip first developed an interest in online learning while tinkering on a side project in graduate school. In 2010, he created Online Python Tutor ([www.pythontutor.com](http://www.pythontutor.com)), a Web-based educational tool that enables a teacher or student to write a Python program directly in the Web browser and visualize what the computer is doing step-by-step as it executes the program. More than 200,000 people have used Online Python Tutor in the past four years. It's been adopted in a dozen university CS courses, embedded within three popular digital textbooks, and used in online courses from Coursera, edX, and Udacity.



Online Python Tutor ([www.pythontutor.com](http://www.pythontutor.com)) helps students understand basic CS concepts by visualizing the execution of computer programs.

Before becoming interested in online learning, Philip worked on a diverse set of CS research projects across HCI, software engineering, programming languages, and computer systems.

During his PhD years at Stanford, Philip noticed that professionals in fields such as science, engineering, business, finance, public policy, and journalism often write computer programs to extract insights from data. These people far outnumber professional software engineers, yet few researchers have investigated the unique kinds of problems they face while programming. For his PhD dissertation, Philip developed five new tools to address some of these problems. Here is a summary of three such tools:

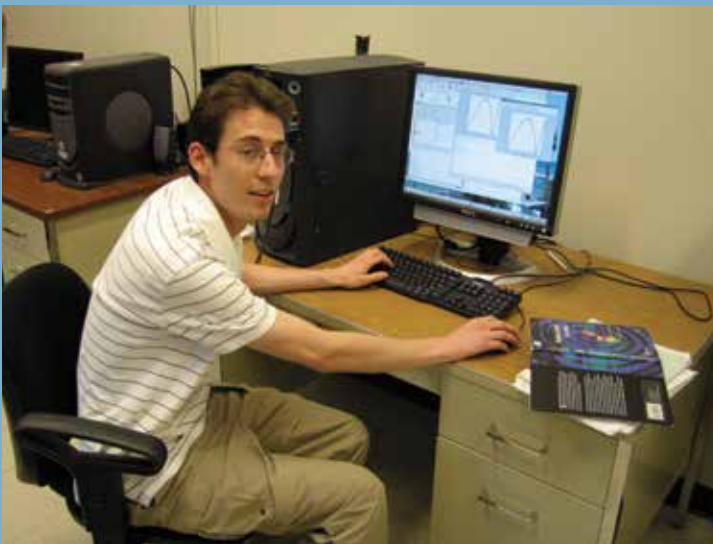
- **IncPy** is a custom Python interpreter that speeds up the data analysis scripting cycle using automatic memorization and persistent code and data dependency management.

- **Burrito** is an activity monitoring and note-taking tool that helps researchers organize, annotate, and recall past insights about their computational experiments.
- **CDE** is a software packaging and dependency resolution tool for Linux (with over 10,000 users) that makes it easy to deploy, archive, and share experimental code.

In addition to research, Philip is passionate about teaching computer science. As an undergraduate at MIT, he was a lab assistant for three project-based courses: introductory CS, software engineering lab, and digital electronics lab. As a graduate student, he was a teaching assistant for software engineering lab, programming languages, and two advanced compilers courses. He also spent three months teaching programming to biologists, writers, and business analysts at a biotech startup company, and nine months teaching Web programming to a mid-career businessman who had no prior CS background.

At the University of Rochester, Philip plans to teach hands-on, project-based courses in HCI, Web programming, educational technology, open-source software development, and HCI research methodologies.

Philip loves writing in his spare time. In 2012, he wrote a popular free e-book called *The Ph.D. Grind* ([www.phdgrind.com](http://www.phdgrind.com)), which is the first known detailed account of an entire PhD experience. So far, over 100,000 people have downloaded it, and hundreds of readers around the world have sent him heartfelt email responses. His personal website contains 150 articles on topics ranging from computer programming to advice for students. It gets 250,000 visitors per year, and the most popular articles each have around 100,000 page views. Visit [www.pgbovine.net](http://www.pgbovine.net) to learn more about Philip's personal and professional interests.



Many modern-day scientists spend less than 5% of their time in the field collecting data (see photo of oceanographer on a research ship) and 95% of their time in front of the computer writing programs to clean up, transform, process, and extract insights from their data (see photo of that same oceanographer inside of the computer lab). For his PhD dissertation, Philip developed five tools to make scientists more productive when programming.

## GRADUATE ALUMNI NOTES

**Altman, Art MS '87**—"I have moved from San Carlos, California to New York City. I live in Manhattan now. Currently I'm self-employed."

**Cottrell, Gary PhD '85**—"I went to the memorial service for Andy Haas in Copake, NY on June 1, where I saw Peter Selfridge and Jim Mayer. I am going on a year-long sabbatical to Dijon starting in July! Other than that, there is no news..."

**Haas, Andy PhD '82** passed away on Wednesday, January 23, 2013, at the Albany Medical Center after being stricken with a brain aneurysm (see article page 3).

**Heliotis, Jim PhD '84**—"My daughter Alexandra ("Sasha") gave birth to our first grandson, Noah James Meseke, on February 22. Given that she is a wedding photographer, we're blessed with lots of weekend babysitting opportunities! And just to make my contemporaries feel their age, Alexandra turned 30 this spring, and I completed 30 years as a faculty member at RIT!"

**Hoebel, Lou PhD '98**—"I will retire at the end of March. (>27 yrs. with the USAF and GE). I will still live in Burnt Hills but look to resume my careers in agriculture (I used to have a small farm) and also in the arts. I once went to music school and studied mime in Canada."

**Kramer, John MS '03**—"I am currently Product Manager—Enterprise Security Solutions at Comodo in Clifton, N.J."

**Lall, Aswin PhD '08**—"My main news is that I just completed my third year at Denison University in Granville, Ohio. I was named a Bayley-Bowen fellow (similar to a named chair for untenured faculty)."



Lu '07

**Lu, Pin '07**—"Until recently I was a Senior Software Engineer at Microsoft, working

on various platform/relevance fields of Bing search engine. However, I accepted an offer from Facebook Seattle and started working there in July. My wife and I had our first baby boy last Thanksgiving, named Luca Luxing. He is a little over 10 months now and becomes more and more active each day."

**Meira, Wagner PhD '97**—"I was promoted to full professor of Computer Science in 2012 at Universidade Federal de Minas Gerais, Brazil."

**Meltzer, Cliff MS '77**—"I am now Executive VP, Solutions Development at Allscripts, Inc."

**Pearson, Jonathan MS '07**—"New job: Software Engineer at Google, NYC."

**Ringger, Eric PhD '00**—"In 2012 I received tenure at Brigham Young University and was promoted to Associate Professor. Not long thereafter, Kirsti and I directed the BYU study abroad program in Vienna for summer term. Not bad for a computer scientist. We took the whole family and a great group of students. My first PhD student defended last fall as well: Daniel D. Walker IV, PhD, is now a researcher in the Bing division at Microsoft. Please tell James Allen he has a new academic grandson."

**Russell, Dan PhD '85**—"I'm still working at Google in Mountain View, CA. I've been there now for 7.5 years, happily engaged in trying to understand why & how people search for information, and once having found it, what they do with it. It's the human side of search. I also recently won an award—the UC Irving Distinguished Alumnus (Engineering) for 2013. Not quite a Fields Medal, but very nice to be honored for my computer science research work over the past several years."

**Sabbah, Danny PhD '82**—"At the end of 2012, I had intended on 'retiring' from my long career at IBM. They had different ideas and asked me to stay on till the end of 2015. I did leave day-to-day operational and P&L responsibility in the software business and moved to a more CTO like position across IBM for all Next Generation computing platforms, mostly focused around the



shift in the market to Cloud, mobile, and big data. Basically this is more in line with (and back to) my roots as a technologist. I work with IBM Research a lot more again. Fun Fun. My kids are grown and off on their own. My daughter is married and living about 15 minutes away from us. My son is living in Portland, Oregon making his way and not married yet."

**Schudy, Bob PhD '82**—"I've been promoted to Director of the large MSCIS online program and to two University governance committees. Personally a lot has happened. Liz Watson and I were married May 5th 2012 after many years and buying a house together. We liked our first short honeymoon so much that we decided to do at least ten more. I'm writing this from the shore in Seward, Alaska, on our latest honeymoon. We both love Alaska. Also, I was able to attend Andy Haas' remembrance and was delighted to reconnect there with Peter Selfridge and Gary Cottrell, who came from San Diego. Such a loss."

**Weber, Jay PhD '89**—per Art Altman: "I happen to know that Jay Weber bought a Tesla S. It would be cute to put that as an alumni update for Jay since everyone seems to want at Tesla S these days."

**Wisniewski, Bob PhD '96**—"I am working as the Chief Software Architect for Extreme Scale Computing at Intel Corporation (see article on page 10)."

**Zhang, Chengliang PhD '07**—"I joined Google starting last August. I am working on a project called Google Compute Engine."

**If you graduated in a year that ends in 8 or 3, please join us *Meliora Weekend*, Oct 11, 3:30–5:30 p.m., for the Computer Science Undergraduate and Graduate Reunion Open House in room 601 of the Computer Studies Building.**

## RECENT PhDs

### **Bin Bao**

Peer Aware Program Optimization  
*Adobe Systems*

### **Chetan Bhole**

Conditional Random Fields for  
Segmentation for Image Sequences  
*A9, Palo Alto, CA*

### **Tagyoung Chung**

Interpreting the Temporal Aspects  
of Language  
*Nuance Communications,  
Mountainview, CA*

### **Xiaoming Gu**

Dynamic Scripting Languages  
*Azul Systems, Sunnyvale, CA*

### **Daphne Liu**

Combining Self-Motivation with  
Planning and Inference in a  
Self-Motivated Cognitive Agent  
Framework

### **Curtis Menton**

Attacking and Defending Popular  
Election Systems  
*Google*

**Please join  
"URCSD Alumni" on  
LinkedIn and  
Facebook**



# ACM Distinguished Scientist and the Chief Software Architect



Bob Wisniewski PhD '96 is an ACM Distinguished Scientist and the Chief Software Architect for Extreme Scale Computing and a Senior Principal Engineer at Intel Corporation. He has published over 60 papers in the area of high performance computing, computer systems, and system performance, and has filed over 50 patents. Before coming to Intel, he was the chief software architect for Blue Gene Research and manager of the Blue Gene and Exascale Research Software Team at the IBM T.J. Watson Research Facility. There he was an IBM Master Inventor and lead the software effort on Blue Gene/Q, which was the fastest machine in the world on the June 2012 Top 500 list, and occupied 4 of the top 10 positions. Prior to working on Blue Gene, he worked on the K42 Scalable Operating System project targeted at scalable next generation servers and the DARPA HPCS project on Continuous Program Optimization that utilizes integrated performance data to automatically improve application and system performance. Before joining IBM Research, and after receiving a PhD in Computer Science from the University of Rochester, Bob worked at Silicon Graphics on high-end parallel OS development, parallel real-time systems, and real-time performance monitoring. His research interests lie in experimental scalable systems with the goal of achieving high performance by codesign between hardware and software. He is interested in how to structure and design systems to perform well on parallel machines, and how those systems can be designed to allow user customization. Bob was gracious enough to answer our editor's questions.

**Ed:** *What inspired you to go into this field?*

**RW:** Growing up, I was always fascinated by the internals of calculators. I would take them apart and examine the green circuit boards and wonder how the wires and chips could produce the computation results. As personal computers developed, this interest grew into wanting to understand them, and from there wanting to be able to understand and program supercomputers.

**Ed:** *What is the most interesting part of your research?*

**RW:** There are a couple axes worth defining to best describe the areas I like best. The first is how pure versus connected to usage the research is, and the second is at what level the work occurs, spanning vision, strategy, algorithms, and implementation. I believe there are interesting challenges that cross the dimensions on both axes. What I have personally, and it has been a bit of a migration over time, come to find most reward on the first axis, is research is targeted at solving particular users challenges. In computing this is a roughly a five-year time horizon. For example, on Blue Gene/Q, five to seven years before it was released, we were meeting with users, understanding the problems they were trying to solve, and then trying to understand how the coming new hardware architecture as driven by technologies were going to change their model. To me, it was rewarding to spend a couple years with the hardware and software teams brainstorming about how to address the challenges, put forth some strategy for directions that may pan out. And then as the architecture starting solidifying, to translate the vision and strategy into algorithms and implementations that solved those original problems we identified. I most enjoy the middle stages of the project involving the strategy about how to tackle the problems (architecture), and then high-level algorithmic design to realize that architecture. I also appreciate the opportunity as a system's software researcher to impact the hardware architecture, and feel fortunate that I had the Blue Gene experience where we did that, and I am currently involved in such a role.

**Ed:** *You've been working on optimizing software and hardware throughout your career. Now that there is such an emergence of big data/data science, how will the work that you've done with large-scale systems help with improving data science moving forward?*

**RW:** We should separate two things. In HPC (High Performance Computing), we have been doing big data for a while. Petabytes of information is nothing that frets an HPC user, though the size of the HPC data does continue to grow, and without the advent of new hybrid memory we would have reached a tipping point.

However, the big change is the type of data and therefore what we are trying to do with it. In particular, the amount of unstructured data has massively increased demanding AI-like techniques to help filter and analyze that data, e.g., Watson. Just like big cloud computing and HPC supercomputing have not converged (yet?), I think it remains an open issue how much convergence there will be between unstructured data analytics and classical HPC computing. To be sure though, many of the techniques we have worked on in HPC for large data will be helpful, including the parallel I/O, distributed reduction, and synchronization.

**Ed: What are your thoughts on careers in industrial research?**

**RW:** Industrial research has changed dramatically in the last two decades. The days of Xerox PARC, AT&T Bell Labs, or IBM Watson providing researchers with funds unattached to their customers or product divisions have past. Instead, what has replaced that model is a keen interest in ensuring researchers are positively impacting customers' needs. I believe that research in industry is exciting because through that customer focus we work on tackling problems that will drive technology and society forward. As an aside, I continue to believe in long-term or pure research for science, but I understand the driving forces of corporations. Thus, I remain supportive of foundations like the NSF or NIH in driving academic research. Some of my most enjoyable interactions are meeting with customers to learn what challenges they are facing, and then coming back to the team to brainstorm about what initiatives we could undertake to overcome them. Some are shorter term, say two years, but others are more long term, i.e. more than five years out.

**Ed: Why the recent move from IBM to Intel?**

**RW:** It was the opportunity to create and drive a software HPC systems effort at

Intel. Intel is focusing on the increasingly important area of HPC with a systems-design methodology including system software input, which is my area of expertise. Intel has not historically had a system focus, so while this will be a challenging task, it presents a great opportunity since Intel processors are dominant on the Top 500 list of fastest computers. In fact, on the latest list, which was released June 2013, a Xeon Phi machine was number 1. I am in the Path Finding group, which has a research focus, so I will be able to continue to focus on my research initiatives.

**Ed: How do you balance work and family?**

**RW:** Since high bandwidth has become widely available, it is easy to work effectively at home. There has also been an increased recognition of the importance of work-family balance. Together these forces allow me to spend time with my family at times when they are available, and work off hours. Also, companies nowadays tend to be international, meaning that meetings occur at all hours and that also drives an understanding that people need to be flexible with their work hours. In short, I still work many hours, but at times when I choose.

**Ed: You always enjoyed competitive sports and games while at Rochester. How do you satisfy that these days with such a busy work life?**

**RW:** Ah yes, those care-free graduate days. I do continue to play tennis, swim, and ski, but I have to say I have not been in my hockey gear since graduate school. Teach games to your kids, though the nature changes, it can still be competitive. In Boggle, I only get credit for five letter words and up, or four letter words my daughter doesn't know the meaning of. Scrabble easily lends itself to a multiplicative factor to equalize abilities. I've learned roller blade wheels are a good match for a seven year old's strength and bike tire size.

**Ed: If you could design an app to make your life easier or better, what would it be?**

**RW:** I'm going to take this question a bit broader. Have you ever listened to our parent's generation saying how good we have it, what with the internet and cell phones. I wonder to what technology we will say that of our children when they are 30 or 40. Without a crystal ball it is of course difficult to say, but I think self-driving, (Jetsons style), energy-efficient cars may be one. And while I'm wishing, what about a good green source of energy, did anyone say fusion, it's only fifteen years away, just like it's always been.

**Ed: What are you up to now?**

**RW:** With my move to Intel I am in the process of building a world-class HPC system's software team and am looking forward to working on the challenges HPC is presenting researchers. The directions I am looking at is first, continuing to understand where technology is driving future hardware architecture and working with the HPC hardware architects to provide capabilities that will best allow software to utilize future machines. Second, I am working on establishing a cohesive system software strategy to move HPC software into the exascale era. Third, our group works on interesting and longer-term government research grants. Fourth, I am spinning up a research effort that I will be personally involved in looking at operating system kernels for future HPC machines. And finally, figuring how we can leverage all the above work to provide the next best class of supercomputers.

I hope everyone who is or was at University of Rochester is doing well, and would be happy to hear from you at bobww123@gmail.com.

## INTERDISCIPLINARY TEAMS COMPETE AT CORNELL CUP LEARNING WHILE SOLVING REAL-WORLD PROBLEMS

**Two teams of HSEAS students traveled to Walt Disney World in Orlando, Florida, on May 3–4 to participate in the 2012–13 Cornell Cup USA competition. This event is sponsored by Intel & Cornell University, and is defined as “a college-level embedded design competition created to empower student teams to become the inventors of the newest innovative applications of embedded technology” ([www.systemseng.cornell.edu/intel/](http://www.systemseng.cornell.edu/intel/)).**

Teams submitted proposals for innovative projects last fall. Those selected for participation received state-of-the-art Altera embedded system boards (containing Intel ATOM processors and FPGAs), funding to purchase additional hardware components, and support for travel to the Orlando Conference. 30 Teams from 18 Universities across the United States participated. This was the first time the University of Rochester submitted proposals.

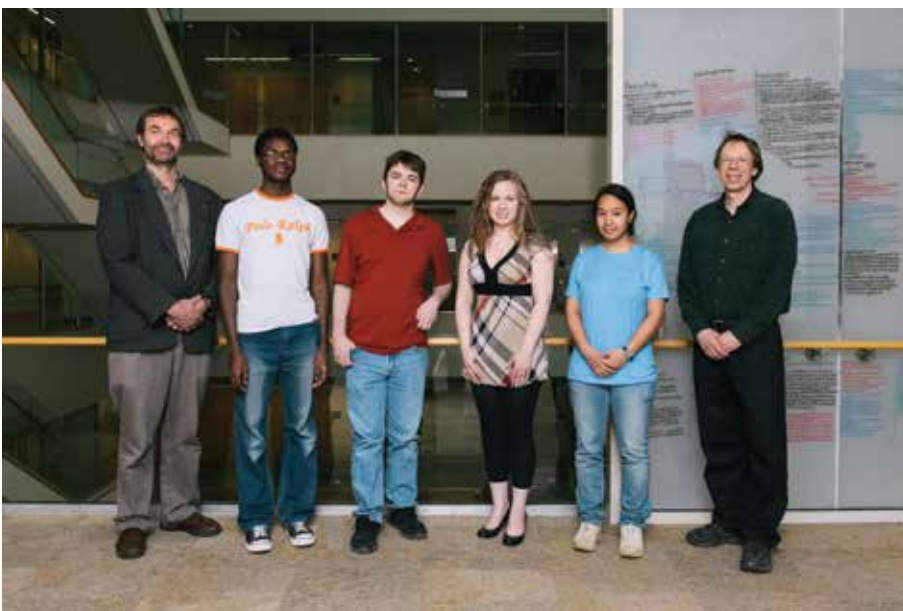
**URCS Team 1 (URead Braille)** consisted of Christina Kayastha (CSC/ECE) (electronic design), Samantha Piccone (CSC) (mechanical design and fabrication), Douglas Miller (CSC) (board programming, Braille translation), and Zanga Ben Ouattara (CSC/ECE) (electro-mechanical, Braille layout). The project was to create an electro-mechanical display that

could render Web documents for blind users as full pages of Braille. The large number of programmable “tactile dots” required made this a challenging design problem. The team’s solution centered on the “off-label” use of multi-layer printed circuit board fabrication technology to create a large array of very small solenoids that could be used in pulsed-power mode to drive tiny rare-earth magnets to produce configurable tactile dots. The team’s effort won Honorable Mention in the competition, and was also mentioned (albeit briefly) in the Huffington Post.

**URCS Team 2 (Swarm UV)**, consisted of Eric Frank (CSC) (team leader), Morgan Sinko (ME) (hub design & construction), Andrew Hevey (ECE) (UV sterilizer design & construction), Benjamin Vespone (BME) (machine vision),

Alexander Kurland (CSC) (robot navigation programming), and Nate Book (CSC) (board and robot programming). The project was to create a portable system for sterilizing hospital environments using a swarm of small robots (as shown on cover emitting LED light for tracking) that would cooperate to efficiently disinfect all reachable floor areas of a room. Each robot would be equipped with a high-intensity ultraviolet lamp. The robots would have substantial autonomy, and would be coordinated by a central hub that would monitor task progress visually by observing the movement of individual robots using an omnidirectional machine vision system based on a large, hemispherical mirror. The team produced a fully working system to demonstrate at the Orlando conference. Andrew Hevey of Team Swarm UV said, “Some of the most challenging parts of the project were continually planning and re-planning around a changing design. As we learned more about what we were trying to do, we changed our goals, and vice versa. In the context of a group, this is even more difficult, and this project gave me some hands-on experience that I fully expect to use.” Their efforts were also featured locally on WHAM 13 Television.

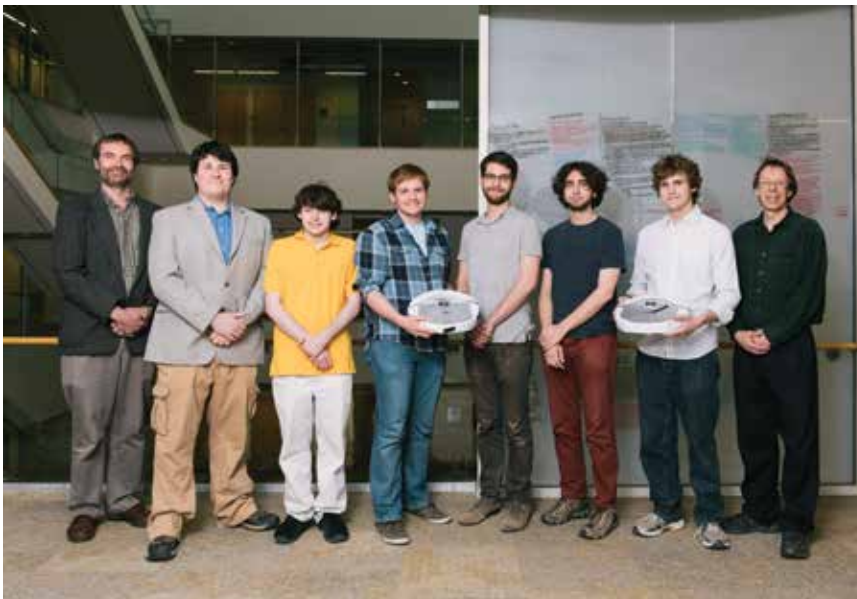
The experience was invaluable according to a team member’s observations. Eric Frank commented, “We learned how to turn a vision into a finished product, I don’t think there’s a better lesson than that. Part of that was learning how to apply everything we’d learned in class.” Professors Christopher Brown, Ted Pawlicki and Randal Nelson (who the teams appreciated



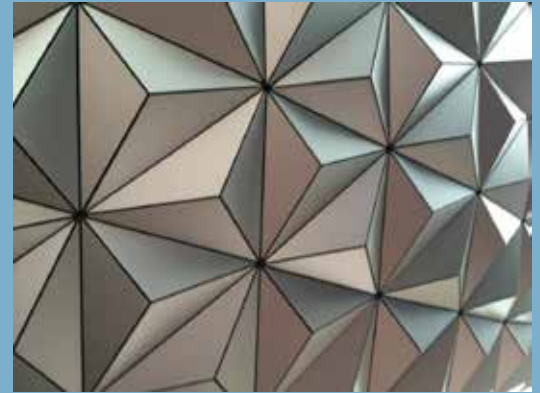
URCS Team 1 (URead Braille); L-R: T. Pawlicki (coach), B. Ouattara, D. Miller, S. Piccone, C. Kayastha, R. Nelson (Coach)

because “he’s a jack of all trades”) provided technical support for both teams. Marty Guenther and Eileen Pullara provided logistical support for travel, shipping, entertainment, and purchasing.

Even though the competition was held during reading period just prior to exams, students still had some free time to relieve stress during the conference and enjoy some of the high tech entertainment at Walt Disney World. The 3D graphics in the Star Wars ride and the augmented reality in the Twilight Zone gave the group fodder for discussion. The conference banquet was held in Epcot and everyone was treated to the Illuminations show, an impressive high tech pyrotechnic display with synchronized lasers. Though they returned to Rochester to face final exams and for some, graduation, the year-long effort was worth all the hard work. Kudos to all team members. You make us proud!!!



URCS Team 2 (Swarm UV); L-R: Ted Pawlicki (coach), M. Sinko, N. Book, B. Vespono, E. Frank, A. Kurland, A. Hevey, R. Nelson (coach)



Closeup of Spaceship Earth at EPCOT

“The student teams that participated in the Cornell Cup Competition at Walt Disney World were able to attack and overcome challenges that most young people don’t even consider until several years after graduation. The competition is a microcosm of an innovative new product launch. Through participation in this competition these students not only honed their technical and design skills, but also obtained immensely valuable practical experience in areas of management, scheduling, budgeting, team building, resource allocation, and tough decision making. Skills such as these are in high demand by employers and are only obtained by confronting the types of concrete engineering challenges that the Cornell Cup presented. Experiences such as these are certain to pay big dividends throughout the future careers of these students.”

—Ted Pawlicki

# Partners in Periscope

## Young Alumni Tap Big Data Market

Harry Glaser '07 and Tom O'Neill '07 met in the fall of 2003 during their freshman year at Rochester, and have been fast friends ever since. In 2012, they left their jobs at Google (Harry) and Microsoft (Tom) to form a start-up. This venture has now become their company, Periscope, and their product is a data analysis software tool. Edmund Hajim, benefactor and namesake of our Hajim School of Engineering, has spoken often about his 4 "Ps" as the keys to success in business: Passion, Partners, Principles, and Plans. In this recent interview with Marty Guenther, read how Harry and Tom are on the track to success based on Hajim's rubrics:

**MG: When did you two first become friends? Did you meet in class/workshop/lab/dorm??**

**HG:** We met the first day of freshman year on our freshman hall, Hollister 4. When I arrived and walked down the hall for the first time, Tom was already set up in his room. He was immediately identifiable as the other CS nerd because he had two flat screen monitors—in the year 2003! We became best friends, roommates and classmates all four years. (Partners)

**MG: When you graduated from UR and went your separate ways (to Microsoft & Google), was there always a plan that you'd work together at some point in the future?**

**HG:** We always knew we wanted to start a company together. Our jobs at Microsoft and Google were great opportunities to get real-world experience and make industry connections. After a few years, we felt it was the right time to leave the nest and start something of our own! (Plans)

**MG: What was the most difficult problem you've faced so far in the creation of a start-up?**

**HG:** Honing in on the right product took some time and effort. The key is not to be afraid of failure – in fact, embrace it as early as possible in the lifespan of an idea, and move onto the next thing. The most important thing was persisting until we found something that was both technically innovative and really valuable for customers. (Principles)



Co-founders of Periscope, Harry Glaser '07 (left) and Tom O'Neill '07 (right).

**MG: Why do you think your start-up will be successful?**

**HG:** We have the best team. They are all former URCS classmates and former colleagues from Google and Microsoft. We're all old friends who have worked together before, so we work (and play!) very well together. (Partners)

**MG: Since you didn't know what your product (though you wanted it to be innovative and important) was going to be when you started, how did you decide on the current concept of Periscope?**

**-HG:** Our goal was to try many different ideas quickly, and fail fast if they didn't work out. We would come up with ideas and prototype them quickly over a weekend and then have friends, former classmates, and former colleagues try them out. If they didn't stick, or if we weren't as passionate about them as other ideas, we'd move on to the next prototype. (Passion)

Periscope began as a tool that we used to analyze data from one of our previous projects. We were unable to find a data analysis tool that

was fast enough and flexible enough for our needs, so Tom built the first version of Periscope for us to use in just one day. We began to seriously consider it as a business idea after friends saw it over my shoulder and asked if they could use it for their own projects as well.

**MG: What does Periscope do?**

**HG:** Periscope uses probabilistic algorithms to analyze large quantities of data much faster than any other tool. By using a statistical sample of the underlying data, we can achieve multiple orders of magnitude speedups. In the best case, Periscope is 1,000 times (or more!) faster than naive techniques. Queries that would run overnight in SQL or a MapReduce can run in seconds or milliseconds on Periscope.

Data analysts and business people both use Periscope to answer questions like:

- What is the lifetime value of a customer that comes from Google AdWords vs. Facebook Ads vs. organic search?
- How is user retention affected by sending email, SMS and mobile phone notifications to those users?

"Many opportunities exist in the burgeoning field of Big Data science. The field of Big Data not only presents a sea of lucrative business opportunities for agile start ups like Tom and Harry's venture, but also poses a host of challenging computational questions for university researchers. —Ted Pawlicki

- What is the average revenue per paying user for each of my video games?

**MG: Who are your customers and why do they find your software attractive?**

**HG:** We sell primarily to mid-size tech companies. Video game companies tend to be especially excited about Periscope because they're so data-driven! We started out selling to small companies, and started selling to larger companies as our technology became more robust.

**MG: What competition is there in this market and how is your product different?**

**HG:** Most data tools are built on top of specialized databases called data warehouses. You have to copy all of your data into them before you can do any analysis. This typically takes days or weeks, and then you have to wait each day for the previous day's data to become available.

**HG:** Periscope is a technological shift: Using our probabilistic algorithms, we can query the customer's data stores directly, and get answers instantly, without any waiting at all.

**MG: As you grow, how do you think your company will change?**

**HG:** Ideally as little as possible! The team right now is very tight-knit, owing to us all being good friends and the small-company atmosphere. We will have to be vigilant as we add folks that they fit into the company culture. We want them to be having lots of fun with us, and we want to be having lots of fun with them around! (Partners)

**MG: What part of your UR experience was most influential in your success?**

**HG:** Most importantly: Our friendship!! The challenging and very theoretical curriculum was great. It gave us the ability (and confidence) to build a technically sophisticated product, and develop new algorithms to use in our product when necessary. The small department and small class sizes were awesome for building relationships with fellow students, professors and TAs. The sense of collaboration that was encouraged in the department led to us building several side projects. (Partners)

**MG: When you were students, you did several independent studies including a game called AwesomeCraft. How did this CSC experience prepare you for your adventure?**

**HG:** The relationships with fellow students and the early experience working on real shipping software with a team of developers was great. Seven of the eight students who worked on AwesomeCraft now work in the tech industry in the Bay Area and 3 work at Periscope! (Partners)

**MG: Did your jobs at big tech companies help you with business & management skills you might not have learned from your formal education?**

**HG:** Yes, definitely. It taught us how to lead teams of developers, and multi-functional teams including designers and businesspeople. It gave us many industry contacts that have been invaluable. And it taught us how some of the best real-world production software is built.

**MG: What are your managerial functions and how did you determine who would do what job?**

**HG:** Harry CEO; Tom CTO; this plays to each other's strengths.

**MG: Why do you believe you were successful in obtaining venture capital/investors?**

**HG:** The opening slide of our pitch package! (see Figure 1)

Venture investors are primarily betting on the strength of the team. In our case I think they saw a strong, tight-knit team with a great background. (Partners and Passion)

**MG: Did you know about URCS's push toward Data Science and becoming a Big Data Center? Do you see potential for collaboration in the future?**

**HG:** We think there could potentially be great opportunities for collaboration.

**MG: It is most CSC majors' dream to be lucky enough one day to create an awesome start-up. What would be your best advice to them?**

**HG:** First and most important: Just do it! Too many people never take the plunge. It's definitely worth it. Get your friends together and build lots of things with them. It doesn't matter what it is. What matters is the experience of building and shipping software in teams and the relationships you'll form with your fellow students. Our entire URCS friend group is out here in the Bay Area. We hang out all the time, hire each other at our companies, and work together as much as we can! Don't be afraid of failing. You can learn as you go, and as long as you're persistent, chances are you'll find something successful.

**End note:** In the commencement program each student is asked to write parting thought to friends and family. Fellow 2007 classmate Michael Rotondo wrote as his statement, "As incredible as the professors in this department are, each in their own right, I've been more inspired, invigorated, and delighted by my fellow CS majors than I ever thought possible. Shockingly bright, creative and fun, they are the future, and I can't wait to see what they do now that they've been unleashed on the world." Almost echoing Ed Hajim's four "Ps" of success, Harry Glaser and Tom O'Neill have passion for what they are doing, principles to live by, a plan for the future, and the strongest of partnerships. Up Periscope, full speed ahead!

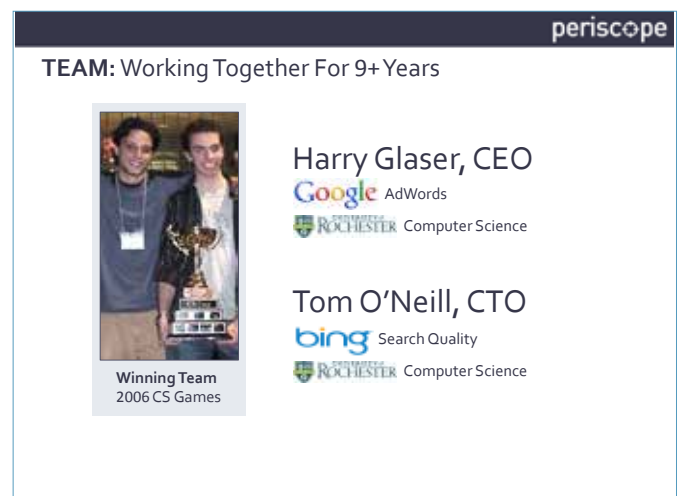


Figure 1

# PassionPartnersPrinciplesPlans

# UNDERGRAD ALUMNI NEWS

**Balconi, Charles '03** "We're expecting our first child some time in late July or early August and we're very excited. I'm still working for Siemens going on 9 years now. The company I started at (JGS) was acquired by Siemens in 2007, so even though the company name has changed I've been doing largely the same job under different titles."

**Barnett, Elliott '97** "I'm currently working a contract at Nike in their digital group. I'm still working on the StoreTraxx project; the site should be revamped soon with a cool demo. I'm hoping to get this in front of investors this summer and secure funding this fall/early winter."



Brill Albright '02

**Brill Albright, Ingrid '02** "No huge changes in my life, but our little Anneliese is getting bigger and bigger every day, and we're loving every minute with her. She turned 1 in August; she's about 9 months old in this picture."

**Chang Hiramami, Allison '01** "I'm still with the City and County of Honolulu, and I had my third baby in February. Her name is Reiko. :) And now I'm done having kids!"

**Chang, Lewis '02** "I graduated from NYU Stern business school in 2012 and moved to work for Google in 2011. I work for Google Travel in Cambridge, Mass. My wife had a baby girl on February 11, 2013."

**Cheng, Roland '06** "I'm working toward my PhD in ECE at the U of R. I recently passed my private pilot exam and I am currently pursuing



Cheng '06

my airplane instrument rating at the Rochester Air Center. I have attached a photo of myself taken shortly after passing my exam. The rental plane (background) which I initially trained is a Cessna 150."

**Clubb, David '06** "I'm working in Berlin, Germany at a company called Wooga."

**Dahlgren, Jeremy '02** "Still working remotely for TextWise LLC, currently as a principal software engineer. I've been learning a ton and having a lot of fun. Had a great experience teaching OOP in Java at Alfred State College last fall, looking at teaching the same course again this fall. I'm really enjoying being a dad, my daughter Brooklyn is five now, my oldest son Wheeler is three, and my youngest son Timothy just turned one."

**D'Eredita, Ross '04** "In May I received my MBA from Duke University's The Fuqua School of Business. On May 23, my wife Rachel & I welcomed



D'Eredita '04

Ross James II, who we lovingly call Rosco into our family. Attached is a family photo with our French bulldog—Tank. In late August, I will begin work for Accenture as a management consultant in their Finance & Enterprise Performance (F&EP) practice out of their Dallas office."

**Easwaran, David '04** "I now work as a patent attorney at Alston & Bird LLP in Charlotte, NC."

**Edwards, Kyle '12** "My current employer is Genelex, a biotech company here in Seattle, that does work in predicting adverse drug-drug and drug-gene events for patients. I really like it there; the work is interesting and humanitarian. And the environment is really laid back. It's pretty much my ideal job actually."

**Feil-Seifer, David '03** "I got married on October 26, 2012, and began a new faculty position at the University of Nevada, Reno in Computer Science this summer."

**Fischer, Luke '03** "I left the Registrar's Office at the University and took a position at Continental Services Group in Fairport, NY as a Senior Applications Analyst in November 2010."

**Ganzhorn, David '07** "I'm working at Periscope, the startup of Tom O'Neill '07 and Harry Glaser '07 (see article page 14)."

**George, Michael '03** "I will have completed my PhD thesis defense at Cornell in August (Thesis title: "The Decentralized Security Principal for Structuring Distributed Systems"), and I'm starting a position as a lecturer at Cornell in the fall."



Golden '03

**Golden, Alex '03** "I started working as an engineer at Rakuten here in Tokyo last month. Also, my wife Kay gave birth to our first child, a boy we named Kai!"

**Goldstein, Gregory '01** "I'm working at Verifi LLC in Cambridge, and I'm starting a master's program in Computational Science and Engineering this fall at Harvard."

**Guerrero, Luke '05** "My current employer is Brand Networks. I know we've been working a lot with the school (both undergrad and Simon) to boost recruiting. Mike Garsin, my boss and college buddy, is our cofounder and runs the Rochester office. Both of us want to grow the Brand Networks connection back to the school. I run our NYC office."

**Hall, Garrett '10** "My current employer is Tapad, an ad-tech company in NYC."



**He, Michael '06** "I currently work for Liberty Mutual Insurance as a Senior Product Analyst."

**Horowitz, Daniel '05** "I'm still at 1010data, VP of Engineering. I'm focusing on building the world's fastest and most accessible big data platform. I'm living in Brooklyn with my wife Lily (U of R alum). We have a French bulldog named Moofaetta that has yet to reach her lazy phase and thus consumes all our free time. When the ladies fall asleep I play late night ice hockey at Chelsea Piers—11:30 games are not infrequent in the NYC beer league."

**Inamdar, Peenak'00** "I'm working as an architect @ Huge Inc. in Brooklyn. Also, we are hiring, which may be of interest: [www.hugeinc.com/careers](http://www.hugeinc.com/careers)."

**Isman, Michael '04** "I'm now working for Ubersense (<http://ubersense.com>) in Boston, Mass. We make a mobile app to help athletes and coaches analyze techniques using video."

**Jackson, Jonathan '03** "After I left Rocket Mobile I spent a little under 3 years at Apple working on the iOS team. I left Apple in June of 2012 and am now self-employed, providing iOS Application development services to clients on a contract basis. I tend to call myself an "Independent Mobile Software Engineer" when asked for a job title. On June 30, 2012, Sarah Faso (UR 2004) and I were married in Buffalo, NY."

**Kobin, Marin '09** "My current employer is the Naval Surface Warfare Center-Dahlgren Division. This is one of the warfare centers under NAVSEA. I am a civilian scientist with the Navy. I'll be here four years in September. Time flies! As for news, I was recently admitted into Old Dominion University's Masters in Engineering Program in Systems Engineering. I am working on my Master's degree while still being able to work full time. I've also had two Invention Disclosures sent to the Patent Office. Neither has been approved as a patent yet, but they're both in the system and being processed."

**Lambe, Dennis** "I (finally) finished my BA in Computer Science and moved up to Boston to live with my girlfriend, Briana. I've been self-employed since 2008 working as a contractor writing embedded firmware. I just recently formed an LLC to work under, so I'm currently the president and CEO of Professional Firmware Services, LLC."

**Lee, JangSun (AKA Karl Lee Stratos) '11** "I just finished my second year in the PhD program at Columbia. I'm currently doing a summer internship at Microsoft New England Research and Development (NERD); We're trying to explore and derive fast optimization methods for training maximum entropy models. The application we're interested in is a language understanding system."

**Lehr, Michael '01** "My wife and I had a baby boy in September 2012 named Rhett. I also started a company a little over a year ago that provides financial technology (<http://www.maystreet.com>). On that note, my company is going to roll out a product in the near future is called BookAt. It allows users to view the market in the smallest increments over the web. I'm thinking that anyone that is interested in technical market analysis, like PhD students in financial engineering, might be interested. Or more applicable to CS: about how to detect or predict (AI) irregular behavior in the markets."

**Linsky, Kenny '05** "I'm excited to report that I'm a Software Engineer at DonorsChoose.org now. I've been here for a little over 4 months and it's great! One of the great things we've been able to do is be part of disaster relief. Most recently, we helped raise just shy of \$350,000 for the schools hit by the tornado in Moore, Oklahoma."

**Liveikis, Edward '01** "I'm living in Europe at the moment and now running a small software contracting company, Osaflly, LLC."

**Luis, Cristina '01** "I've been teaching math and science in a high school in Oslo for the past two years, but I will start a job as a Researcher at the Norwegian Meteorological Institute this August. Still living in the same place in Norway, still doing a lot of orienteering. :-)"

**Mackenroth, Adam '96** "My current employer is PnJ Machining."

**Marino, Dominic '05** "I was working at MathWorks (the MATLAB problems anyone may be having aren't my fault, I swear!), but I just accepted a new position at Akamai Technologies in Cambridge, Mass. and started there in July."

**McClosky, David '04** "I started at IBM Research last year working on the DeepQA (Watson) project after finishing my postdoc at Stanford. If you know of grad students looking for jobs or internships, please point them in my direction!"

**McCusker, Jim '99** "My current employer is Yale University, where I'm a Bioinformatics Programmer. The bigger news is that I got married on June 29th. My wife is Jessica Weinberg (non-Rochesterian)."

**Meeker, Brian '07** "It's been a busy year for me. My wife and I bought our first house. We also had our first child in March named Emily Renee. I am no longer working at Summersault. I spent a year working for a startup, Real-Life Sciences with Pam Vong, but we are now both working for InfernoRed Technology (<http://www.infernored.com/>)."

**Melnick, Sara '11** "I just finished my masters degree at WashU and am now moving back to the east coast hopefully to teach high school."

**Miller, Robin '11** "I'm still working for Microsoft, though it's now technically Microsoft Development Center in Oslo, Norway."

**Mirza, Salman '06** "I am currently working as a Litigation Associate at Rizvi, Isa, Afridi and Angell (RIAA Law—[www.riialaw.com](http://www.riialaw.com)) in Karachi, Pakistan."



Miller '11



Nur '99

**Nur, Nawrose '99** "My wife Itnia Pramanik and I were thrilled to welcome Ireena Michelle Nur on April 26th, 2013. She was born at Maimonides Medical Center, Brooklyn, NY at 9:56 a.m. at a healthy 8lb 1oz, and 21 inches."

**Oleksyn, Josh '13** "I've been married 7 years, have twin boys and a daughter. I develop telephony-related mobile apps at Allworx, a subsidiary

of Windstream. I've also started my own side business, Joko Interactive, developing Android apps. They've been successful enough (about 7 million downloads) that I've become a Top Developer on the Google Play Store, and my apps are regularly featured on the front page. My app page: <https://play.google.com/store/apps/developer?id=Joko+Interactive>."

**O'Neill, Tom '07** "Harry Glaser ('07) and I have spent the last year building Periscope, our super-fast data analysis startup." (see article on page 14)

**Orego, Brad '11** "I just accepted a full-time position as the User Experience Lead at Nextt, Inc., a startup here in Madison. I'm also dancing with Madison Contemporary Vision Dance company, also here in Madison."

**Orlando, David '03** "I just took a new job at Syros Pharmaceuticals where I am the computational biologist at the company in the Boston, Mass. area."

**Pearson, Jonathan '05** "I'm working at Google in NYC."

**Pershing, John '10** "Kate & I were married on September 15, 2012. We had a handful of URCS alums at the wedding, and we gave Ted a call during the reception to let him know two of his former students had been officially hitched (Kate and I first met when I was her CS 171 TA). I'm still working as a senior software developer at 1010data, and still in charge of the client side interfacing team, though I am also now the technical lead for our partner certification program."

**Prithviraj, Preethum '05** "Hello all, we moved to Tampa, FL where my wife is doing a fellowship in Oncology. Just a few days ago, our son, Rakesh, was born! I'm currently doing some remote IT support work for my old EMS agency while I work on a project for the company I started to write web-based EMS apps. Nothing but fun times ahead!"

**Qureshi, Omar '97** "I've left ExactTarget and I'm working at Salesforce.com in London, UK as a Technical Architect in their Professional Services practice. My wife Sherry and I have been married since 2000 and we have two children, a boy (8) and a girl (9)."

**Reynolds, Eric '02** "The state of our economy has dictated that I move to contract positions, so I move jobs frequently. Since Carestream Health, I have worked at Xerox Global Services, Harris Corporation, and now at United Technology Corp., Carrier Division. Most people would know this as the Carrier Corporation in Syracuse (Carrier Circle, Dome, etc). I am building customized project management web application software."

**Richardson, Andrew '11** "After working in medical software for the past couple of years, I moved to Boston in July to help found a game design

studio with two other U of R grads (though they're math and physics majors, not CS). We're focusing on PC games, and while we haven't published our first game yet, I plan to have more exciting news for the next newsletter!"

**Riffle, Michael '07** "I produced & narrated my first audiobook and the second is in the works. The first is Wreck of the Nebula Dream by Veronica Scott (available on Audible and Amazon).



Riffle '07

The one in the works is *The Legend of Vayrock* by Ron Washburn, and I've accepted a contract for a third, *Duncan (Green River)* by J.W. Throgmorton. I'm currently working as a PHP developer at Nero and I've graduated from the Upright Citizens Brigade Theater Improv program. I'm also performing with my improv teams Jetpack Sniper and Tiger Law in theaters around Los Angeles. I included a still photo from a film project I worked on called "Fallen Prodigy" by Michael Matteo Rossi.

**Schmitt, Ryan '09** "I am now working at Amazon Web Services, on the Glacier team."

**Seid, Michael '10** "I am currently working at NPR (National Public Radio), on their digital media team. I am working on their main site and their streaming content."

**Silverman, Michael '08** "I'm working at my start-up, Silverware Games, I've made several games, some of them featured on major game news sites like Kotaku, Rock Paper Shotgun, and Giant Bomb. Some of them are for sale on the iTunes store. I've been in talks with a publisher to try to bring my current game to other platforms like the PlayStation and Valve's Steam store."

**Snyder, Devin '09** "I got married on June 22 to Nichole England Bean. Also, my employer has changed—I am now an Application Developer at TechFlow."

**Steinberg, Justin '09** "I just graduated from dental school. I have moved to Seattle where I am doing a two-year residency in Oral and Maxillofacial Radiology at the University of Washington. There, I will be able to combine my technical background with dental training to make contributions to the field of dentistry!"

**Swier, Robert '01** "After doing an undergrad and master's degree at Rochester, I went to the University of Toronto for a PhD. However, I eventually decided to take a second master's degree and leave the program a bit early, in order to move to Japan. After some enjoyable diversions, I'm now back at grad school (doing a PhD in computer-assisted language acquisition at Kyoto University) and teaching undergraduates at Kagawa University."

**Tam, Jonathan '02** "I am the Director of Corporate Strategic Marketing at Catalent Pharma Solutions. I am responsible for driving our strategic marketing initiatives across business units, services and/or technologies and I am also responsible for our digital marketing initiatives, including



Tam '02

web, banners, search and email, and our direct marketing. I've been able to use my computer science degree to help bridge the gap between Marketing, IT, and Digital agencies to help accelerate sales growth for the company. I have two daughters, Kaylani (born November 2008) and Aliana (born June 2011)."

**Tang, Christopher '05** "I just started working at Google a few months ago on some of the back end advertiser software."

**Tang, Xiaoqing (Sean)** "I am enjoying being part of the Microsoft team and part of our product (SQL Server Analysis Services)."



Tice '11

**Tice, Christopher '08** "I got married on September 22, 2012 to Candace Chao (who also went to UR). I'm still at Facebook, now working on the Android team,"

**Tilton, Michael '08** "I am now working for Windstream (formerly known as PAETEC prior to acquisition) in Rochester."

**Tucker, Katie '11** "I am now living in the brown state, in San Francisco, and working at a company called CatapultWorks doing

data analysis. The building is really nice; it used to be a prune factory. Awesome ceiling beams, bright green and orange walls, and brick."



Uzilov '05

**Uzilov, Andrew '05** "I earned my PhD in Bioinformatics and Biomolecular Engineering from UC Santa Cruz in March of this year. Last year, my wife Kathleen (a UR alum, '05) and I welcomed our beautiful son Alexander. I'm attaching a very recent picture of me "teaching" Alex how to walk (when he was 10 months old). I started a new job as a bioinformatics scientist at Mt. Sinai Medical Center in Manhattan. We just relocated to Harrison, NY."

**Ventura, Scott '97** "I got married in September 2011 to Mara (nee Hagle) '97. We met on the Music Interest Floor in 1993, and were friends in the years after college, but didn't start dating until 2009. Our son, Ian, was born in November 2012, and we bought a house in Vernon Hills, IL three months ago. I'm still working remotely for Liudy Bukys at Allworx, developing for Android and iOS."



Ventura '97

**Walker, David '06** "I recently bought a house in Rochester and I'm still working at Thomson Reuters. My girlfriend Hilarie and I just adopted a puppy, Alice, from Joyful Rescues."

**Wang, Alex '07** "I am now at a Boston-based startup called CoachUp, a peer-to-peer marketplace for private athletic coaching. I'm building their Android app. From October to June I was at Raizlabs, a mobile development shop. I led the development of a full rewrite/redesign of the Rue La La Android app. Our three-person team built the whole app in 2 months and re-launched at Google I/O as a part of their Google Wallet announcement. If you have any students/alumni looking for jobs in Boston, I would recommend Raizlabs for recent graduates or internship-seekers interested in iOS or Android development. For people with a little more experience, CoachUp is looking for Ruby on Rails and mobile developers."

**Wheeler, Dennis '09** "I got engaged on April 23. I'm still working at Brand Networks in Rochester. I'll very likely be doing the Boston Triathlon this year, so getting ramped back up on swimming/running/cycling."

**Williams, Daniel '03** "I finished my PhD from Cornell (Jan 2013) and am now a research staff member at the IBM T.J Watson Research Center where I've been since June 2010. Funny thing: Dave McClosky (who I knew from U of R) recently joined IBM research as well. I am now a homeowner! So now I enjoy things like cutting the grass and exercising my handyman skills by making small problems with the house worse before calling a professional. I've been happily married since Sep. 2008 and have a 19 month old daughter named Frannie (born 11/2/11) and am expecting #2 in September."

**Williams, Jonathan '05** "I'm currently working for the Financial Times."

**Zhang, Chuck '04** "I just bought a new house in Englewood, NJ and I got married on April 20, 2013."

**If you graduated in a year that ends in 8 or 3, please join us Meliora Weekend, Oct 11, 3:30–5:30 p.m., for the Computer Science Undergraduate and Graduate Reunion Open House in room 601 of the Computer Studies Building.**



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## Hajim School of Engineering and Applied Sciences

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Photo caption: Class of 2013: Front row, left to right: Grant He, John Bernier, Andrew Wong, Emily Danchik, Jen Karkoska; 2nd Row: Steven Frink, Micha Fujiwara, Colin Jiang, David Klein, Garrett Rosenblatt; 3rd Row: Eric Frank, Ben Batha, Sean Brennan, Simon Luppescu, Tom Swift. Not pictured: Prakash Bhasker, Benjamin Clifford, Tao Fu, Bradley Halpern, Julian Herwitz, Amsal Karic, Alexander Kurland, Kevin Layden, Ellis Mitchell, Matthew Overlan, Daniel Pawlik, Jonathan Perez, Cameron Roy, Simon Weber and Rachel Wesley.

Thank you to all donors who have contributed to the University of Rochester in the last year. If you are interested in donating to the department or the University, please go to the alumni website and look for "Online Giving."

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