

Fall 2003

# multicast

UNIVERSITY OF ROCHESTER **COMPUTER SCIENCE DEPARTMENT** NEWSLETTER

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## Department First Lady Retires

After 43+ years at the University of Rochester and nearly 29 years in Computer Science, Jill Forster has retired! With the department since its inception in 1974, Jill had seen many changes in buildings, chairmen, students & staff. A gala event was held in late March to celebrate her time with the department. At her request, we kept it simple (much to the dismay of many of the alumni who wished to join in the salute!). A scrapbook was compiled from years of pictures and humorous as well as caring anecdotes, many submitted by three decades of the URCS family. A copy of the scrapbook has been placed in the university archives, as it is a chronological history of the department as well as of Jill's tenure.

As part of the entertainment at Jill's party, faculty, staff & grads wrote "appropriate" lyrics for several familiar songs. With sing-a-long booklets in hand, the entire department added their voices to the choruses of such songs as "Ticket to Ride" (Beatles), The Secstaff's Lament (The Kingston Trio's "MTA"), When I was a Girl (a tongue-twisting Gilbert & Sullivan tune), Magically ("Let It Be" by the Beatles) and Unchained Melody (Righteous Brothers). For memorable video footage of the party and to see the song lyrics, go to



Jill Forster, circa 1979

Jill & Jack have relocated to South Carolina, and are eagerly anticipating winter in a warmer climate. Now that they are settled in their new home, Jill is spending her free time at the beach, taking long walks or just reading near the surf on Hilton Head Island. She & Jack work out at the YMCA and they share the yard & household duties. Sounds like a perfect retirement, and well-deserved. We all wish Jill & Jack happiness & good health in their new home.



Jill, March 2003

**Lane Hemaspaandra** has joined the editorial board of the journal *Computational Complexity*.

**George Ferguson** will co-chair AAAI-2004 in San Jose, CA.

**Chen Ding** received an Early Career Principal Investigator Award from the U.S. Dept. of Energy.

**Mitsu Ogihara** has been given a joint appointment as Professor in the

Center for Aging and Developmental Biology.

**Dave Albonese** has been awarded the IBM Faculty Partnership Award for a 3<sup>rd</sup> year.

**Michael Scott** was the General Chair for SOSP 2003.

**Chen Ding** received an NSF Faculty Early Career Development Award for his work in Compiler-Assisted Data Adaptation.

**Robbie Jacobs** has been promoted to Professor, Dept. of Brain & Cognitive Sciences and Dept. of Computer Science.

**Mitsu Ogihara & Lane Hemaspaandra** published the textbook "The Complexity Theory Companion" (Spring-Verlag, 2002).

**Sandhya Dwarkadas** has received an IBM Faculty Partnership Award.

## Faculty News and Notes

### URCS Faculty Welcomes Daniel Gildea *Department Adds Computational Linguist*



*Daniel Gildea, Asst. Professor*

Daniel Gildea joined the URCS faculty this fall as an assistant professor, adding his strengths in machine translation and statistical natural language understanding to the extensive assets in our Natural Language / Knowledge Representation group.

Dan spent both his undergraduate and Ph.D. years studying at UC-Berkeley. His thesis advising committee included Daniel Jurafsky (now at Colorado-Boulder), Nelson Morgan and former chair & URCS founder Jerry Feldman. Gildea then spent two years as a post-doctoral fellow at Penn's Institute for Research in Cognitive Science prior to coming to Rochester.

Often spending his free time outdoors, Dan enjoys hiking and biking. Though he aspires sometime in his lifetime to climb the highest peak in the 48 contiguous states, Mt. Whitney in the California Sierras, his current challenge is to see how many days he is able to ride his bike to work through the icy & snowy winter months in Rochester!

## FBI Honors Bukys for Extraordinary Service

On April 24, 2003, Research Scientist Liudvikas Bukys received a commendation in recognition of extraordinary service from FBI Director William Sessions, presented by Debbra Allwell, Special Agent in the Rochester/ Buffalo FBI Office. While Liudy was working for the University administration as Associate Vice Provost, he assisted the FBI with an investigation of a nine-month series of aggressive, persistent, and deliberately destructive network security attacks that targeted UR systems and along the way also compromised hundreds of systems at other universities and businesses.

The investigation was challenging, as the attacker used compromised intermediary systems in order to hide the true origin of the attacks. Nevertheless, Liudy was able to discover some evidence about the real source of the attacks and the location and probable identity of the attacker. Liudy wasn't sure what all the fuss was about, as he was just doing the intelligent and thorough job we've come to rely on him for in our department.



**Liudy Bukys & FBI Special Agent Debbra Allwell**

## New Grants Awarded

Chris Brown received an unrestricted grant from Kodak supporting graduate student research for Scene Classification of Consumer Images.

James Allen has been given an ONR/ subcontract for Naval automation & Information Management Technology to IMMC.

Randal Nelson and Chris Brown have a 3 year subcontract from AppleAid Inc., a small Amherst-based company doing robotics. With an interest in object recognition and optic flow, a variety of faculty, graduate students and undergraduates have been working on the research.

Len Schubert has received an NSF grant for Deriving General World Knowledge from Texts by Abstraction of Logical Forms.

Amy Murphy & Kai Shen were awarded an NSF-ITR grant for Keyword Searching in Loosely-Coupled Distributed Systems.

Kai Shen has received an NSF grant for Improving the Robustness of Cluster-based Network Services Using Peer-to-Peer Design Principles.

James Allen received a DARPA/SRI award for an Enduring Personal Cognitive Assistant.

Chen Ding was given an NSF CAREER Award for Compiler-Assisted Data Adaptation.

George Ferguson was awarded a DARPA/AFRL award for Practical Temporal Ontology and Markup Language.

Ted Pawlicki was awarded a NSF/SURF grant for undergraduate study at NIST.

James Allen received an NSF award for Continuous Understanding.

# Rao Computes Brain's Mysteries

## Featured Ph.D. Alumnus



**Rajesh P. N. Rao, Ph.D. '98**  
**Assistant Professor**  
**University of Washington**

*Editor: In your young career, you've already had many successes, the ONR Young Investigator Award, the NSF Career Award, a co-authored a book, and met with the President of India. Mighty impressive. How will you keep this pace up?*

**RR:** I consider myself fortunate to be working in an interdisciplinary research area such as computational neuroscience. There are a large number of important problems that are unsolved and unlike some areas in core computer science, the tools and techniques to tackle many of these problems are within our reach. Thus, one can write research proposals that are both interesting and whose goals are achievable. I have been fortunate to have some of my proposals funded. Of course, I have Dana (Ballard) to thank for introducing me to this exciting research area during my graduate study at Rochester.

In terms of keeping the pace up, I have to admit that I am a workaholic (as my wife Anu will readily testify). The seeds for this were undoubtedly planted while trying to deal with the Herculean ordeals called homeworks in Tom LeBlanc's CS 400 class. I still remember going up to the kitchen in CSB to make coffee at 2 am,..., and 4 am, and 6 am,... This was of course just the beginning and the practice was often resorted to in the following semesters for classes such as CB's AI course, Lane's theory course, Michael's systems courses,...

*Editor: Dana Ballard was your advisor, and Dana has a unique advising style. What do you consider your style to be with the Ph.D students & undergraduates you work with?*

**RR:** I very much enjoyed Dana's style of advising, which involved mixing a generous amount of independence with helpful brain-storming sessions at regular intervals. One of my goals in graduate advising has been to strike a good balance between independence and higher-level guidance to suit each student's specific needs. Another goal has been to help build mentoring skills in graduate students by asking them to mentor undergraduates interested in our group's research. I have also been trying to develop the ability to suggest interesting research problems to students that are both cutting-edge and amenable to a solution in three to five years. Dana's always been great at picking such problems (as his track record shows). Finally, I am trying to follow Dana's example of being flexible enough to meet at almost any time during the day to discuss research (the "almost" refers to the times when he was desperately trying to save himself from being crushed by a formidable opponent across the Pacific in an on-line game of Go).

*Editor: What part of your research is the most exciting to you and why?*

**RR:** One of the biggest challenges in science today is understanding how the brain works. The biomedical benefits of such an endeavor are obvious. Philosophically, understanding the brain is, in many ways, the ultimate way of understanding ourselves, our behaviors, our capabilities and limitations as human beings, and even "our place in this world." Experimental neuroscientists have amassed a vast amount of data ranging from molecular processes involved in learning to interactions between large areas of the brain mediating behavior and cognition. However, theoretical neuroscience is still in its infancy, leaving the field in a state somewhat akin to that of molecular biology before Watson and Crick. This is therefore an exciting time to be working in neuroscience, a time in which the basic "laws of the brain" have yet to be worked out, a time in which there is a tangible opportunity to make lasting contributions. Being part of this global hunt for discovering the brain's innermost secrets is probably the most exciting and most satisfying part of my research.

*Editor: Why were you chosen to meet with the president of India? What was this experience like? Was this a very formal occasion? What did you learn from this experience?*

**RR:** The current president of India, Abdul Kalam, was a professor at a university in Madras before being selected to be president. His interests are quite broad and one of the areas he has gotten interested in is the application of computer technology to help mentally-disabled children in India. He has two doctoral students working in this area. The president apparently heard about my work from one of my father's colleagues and asked for a meeting the next time I was in India to discuss potential research strategies.

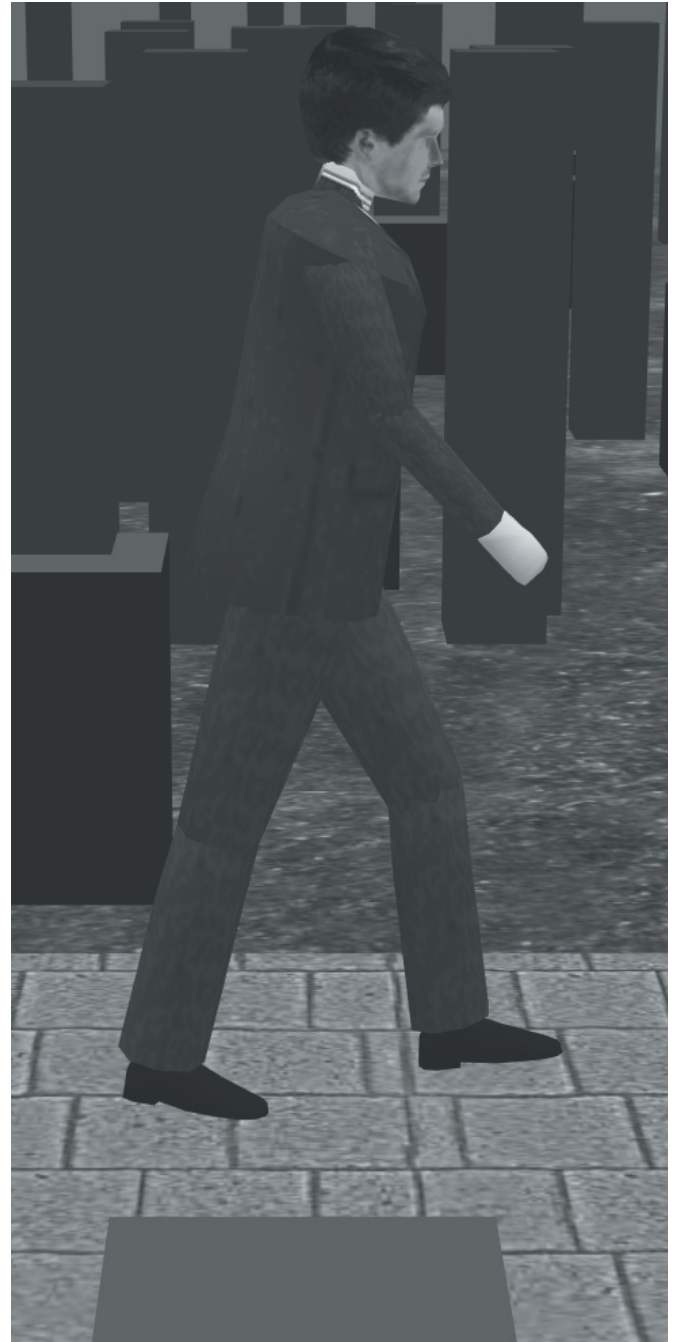
The meeting was quite informal. We met in the president's main office and I gave a short overview of my research. We spent about 3 hours discussing recent advances in neuroscience and the new field of brain-computer interfaces. It became quite clear that he is an extremely sharp intellect who is able to grasp concepts very quickly. In fact, I had given him a copy of a book I had co-edited and by the time we met again after lunch for a follow-up meeting, he had already read a few chapters and was asking some technical questions.

# Machine Learning Meets Virtual Reality

Under principle investigators Mary Hayhoe and Dana Ballard, the Virtual Reality group is currently engaged in both research and the exploration and integration of newly acquired technologies. The recent purchase of a Minolta Vivid 900 3D-Imaging camera allows the semi-automated construction of a 3D image from multiple 2D images in combination with a laser depth map. The VR lab also recently purchased a CyberGlove. Graduate student Xue Gu is currently developing software for the glove that will allow a visual representation of one's hand while in a virtual environment.

Work is also underway to develop an experimental paradigm using the VR lab's HiBall motion tracking system. This motion tracker allows individuals to walk freely within a virtual environment while providing relatively low latencies and high refresh rates. Hayhoe and Ballard use the HiBall system in behavioral studies of humans in natural tasks such as obstacle avoidance, navigation, and multitasking. Such behavioral studies may also inform an attentional model currently being developed by Ballard and graduate student Nathan Sprague. Using a "virtual humanoid", the researchers have developed a probabilistic model of attention using a lottery-based bidding scheme in combination with reinforcement learning. A virtual agent using such a scheme may successfully optimize its use of various visual/physical routines to switch between tasks in a complex environment.

Graduate student Chen Yu is developing a multi-modal learning system in which multiple sources of input (video, audio, motion data, and eye-gaze data) are used to train a system that can develop a grounded lexicon for everyday objects. This learned lexicon may be implemented into a virtual agent that is capable of identifying human actions and objects of interest in real time. Graduate student Jason Droll is using the Phantom virtual haptic feedback device to study how top-down task demands dynamically interact with visual memory, eye movements, and hand reaching. Finally, Hayhoe and post-doctoral fellow Neil Mennie are collaborating on a study researching the content and influence on human motor performance of certain eye fixations called look-ahead fixations.



## (Rao, from page 4)

*Editor: Why academia over industry?*

**RR:** My main motivation for getting into academia was the freedom such a career path offered, in terms of being able to set your own research agenda and "be your own boss" (the caveat being you need to get grants to fund the research). Another attraction of an academic career is the flexibility it offers in that one is not tied to a rigid 9-to-5 routine; the day-to-day schedule can be modified to fit one's needs or the needs of the family. There is of course a flip-side to this flexibility – one tends to spend longer hours at work on average (for example, working at night or on weekends). Finally, I have found that I really enjoy teaching and mentoring students, activities that are not available in industry. Lane (my advisor

before Dana) might be happy to hear that the class I enjoy teaching the most is the introductory Theory of Computation class!

*Editor: What do you do for fun?*

**RR:** I have always enjoyed playing racquet sports, especially table tennis, racquetball, and badminton. My not-so-fond memories are of being beaten mercilessly in racquetball by Dana, after he had been subjected to a humiliating defeat by Olac Fuentes. I have recently also become interested in Indian art and history. Finally, Seattle is an excellent city for outdoor activities. I particularly enjoy flying "fighter" kites and hiking with my wife in the various parks and lush forests in and around Seattle.

## Graduate Alumni News & Notes

**Bianchini, Ricardo** - after 5 years living in Brazil, Marcia, son Daniel & I are living in New Jersey. I have been an assistant professor at Rutgers University since 2000. I have received an NSF CAREER Award for research on energy prediction and conservation for server clusters.

**Ciaraldi, Mike** - reports that his second play, "To Keep and To Wear Forever," premiered in April as part of Worcester Polytechnic Institute's New Voices 21 theatre festival.

**Chambers, Nate** - finished his 3-2 program at UR with a thesis on stochastic natural language generation. He is working for the Institute for Human and Machine Cognition in Pensacola FL, and was married Aug. 9, 2003 to UR grad Amy Chambers.

**Crovella, Mark** - will be spending the academic year 2003-2004 at the Laboratoire d'Informatique de Paris 6 (LIP6), Universite Pierre et Marie Curie, Paris, on a fellowship from Centre National de la Recherche Scientifique (CNRS).

**Dibble, Peter** - is a Distinguished Engineer at TimeSys Corporation in Pittsburg, PA. He has co-authored 2 books in the last few years: *The Real-time Specification for Java* from Addison Wesley, June 2000 (jointly authored with many) and *Real-Time Java Platform Programming* from Prentice Hall PTR, March 2002.

**Hartman, Leo** - reports that two kids (a 2-year-old girl and a 4-year-old boy) keep him "busy and out of trouble (but into other kinds of trouble!)."

**Hunt, Galen** - Lori and I welcomed our second child, a son, Lyle Weston Hunt into the world on November 30, 2002.

**Marengoni, Mauricio** - is an assistant professor at Massachusetts College of Liberal Arts in North Adams, MA.

**Marsh, Brian** - is now at Amazon.com.

**McCallum, Andrew** - is an Associate Professor (tenure track) at U. Mass.- Amherst. Andrew says: "Amherst is beautiful, and my family is very happy: (except that they aren't seeing any more of me than when I was a VP at a start-up). We are

building a new house of our own design ---exciting, a big time-sink, a pain in the neck and incredible fun, all at the same time. The house is styled to look 1870's Victorian, and is on a cul-de-sac just across a big open field from the elementary school. Theo (4) and Lucas (1.5) love to walk with us to town and play in the woods ---both of which are nearby.

**Miller, Brad** - is now in Tewksbury Massachusetts, working for Raytheon.

**Olson, Tom** - was promoted to Senior Member of Technical Staff at TI in '99. Tom writes, "My daughter Joana, the little blond girl you may remember, is a junior at Kalamazoo College."

**Riopka, Terry** - is a postdoctoral research at Lehigh University.

**Parthasarathy, Srin** - and his wife Lakshmi had twin boys this spring and that's keeping them very busy. The twins are named Visvam and Anutam.

**Schudy, Bob** - "These days I am Chief Scientist at a 40-person company called eIQnetworks headquartered in Wayland, MA. I am having fun and working long and occasionally unusual hours designing and supervising the development of high performance data management systems for their products, and many other tasks including some teaching. My employer sent me to India last month. It was an awesome experience. Not casual travel."

**Sher, Dave** - got married to "a beautiful and wonderful woman" in January 2002.

**Smith, Ed** - is performing in plays, directing, writing for film and editing videos. He also teaches computer classes for Business Information Systems majors at Linfield College in McMinnville, Oregon and freelances on web sites.

**Weber, Jay** - as of June 2003, is at commerceNet.

**Weber, Susan** - is currently at Stanford University School of Medicine, since April 2003.

**Yamauchi, Brian** - is a Lead Robotist at iRobot Corporation and the Principal Investigator for the Valkyrie and Griffon projects, both funded by the U.S. Army. Valkyrie is a robot designed to rescue wounded soldiers and civilians from the battlefield. Griffon is a man-portable hybrid UAV/UGV that can transform from a ground vehicle into and air vehicle and back again.

## Our Newest Ph.D. Recipients

Rajeev Balasubramonian  
University of Utah, School of Computing  
"Dynamic Management of Microarchitecture Resources in Future Microprocessors"

Alina Y. Beygelzimer  
IBM T. J. Watson Research Center  
"Alternative Notions of Approximation and Space-Bounded Computations"

Rahul Bhotika  
GE Corp. Research & Development, Visualization & Computer Vision Lab  
"Scene-Space Methods for Bayesian Inference of 3D Shape and Motion"

Melissa Dominguez  
McMaster University  
"Developing Vision"

Christopher Eveland  
Equinox Corporation  
"Utilizing Visible and Thermal Infrared Video for the Fast Detection and Tracking of Faces"

Lucian Galescu  
U. West Florida, Institute for Human & Machine Cognition  
"Hierarchical Statistical Language Models for Unlimited Vocabularies"

Isaac Green  
College of Charleston  
"Experiments in Generic Object Recognition"

Christopher M. Homan  
Rochester Institute of Technology  
"Redundancy: Eliminating it, Exploiting It."

Zuohua Zhang  
University of California, San Diego Institute for Neural Computation  
"Distributed Synchrony."

Shenghou Zhu  
amazon.com  
"Learning to Cooperate"

Teresa M. Zollo  
SUNY College at Geneseo, Dept. of Computer Science  
"Detecting and Correcting Speech Recognition Errors during Natural Language Understanding"

To locate graduate alumni go to: [www.cs.rochester.edu/users/](http://www.cs.rochester.edu/users/)

## Undergraduate News

### Undergraduate Seminar Provides Hands-on Feel for Research

When the undergraduate B.S. in computer science was designed by the faculty at the outset of our undergraduate program, it was decided there should be a small seminar course to introduce students to the world of research, and specifically to the topics currently in progress in our department. All B.S. students were required to take the Undergraduate Problem Seminar with the intent they would nearly all continue on to graduate school.

The number of majors in CSC grew dramatically in the first 5 years of the fledgling program. Eleven students graduated in 1996, with 5 students receiving B.S. degrees. In 2003, 40 out of 52 completed the Bachelor of Science. Needless to say, our small seminar for B.S. students had grown out of control, and was now too big. Students in the class were more than five times as likely to enter the job market than to go on to graduate school. The curriculum committee went back to the drawing board. After much discussion, CSC 200 was changed from a requirement for B.S. students to a component of an elite honors major. Students choosing this class now would be the most motivated, with visions of Ph.D. degrees in their future. Our spring 2003 class was whittled down to a more manageable size (15 students), and the direction of the course reverted to be the small seminar it was originally intended.

In Randal Nelson's CSC200 this spring, the intention for the course was to provide students with a hands-on feel for research in computer science. A significant component of the course revolved around a set of semester-long "impossible projects". These projects were team system-building efforts with goals such as "researching, understanding and presenting the state of the art in a specified semi-open problem, grounding & solidifying this understanding by implementing a solution that approaches the state of the art, and attempting to identify areas where the state of the art might be pushed and pushing on it."

Students in the class were motivated by the open-endedness of the projects. There was no right or wrong answer and no textbook to give them clues on how to proceed. Each

team's resourcefulness, creativity and ability to work together made the challenging projects come alive. Evan Merz '04, working on the project team to determine if food & drink were being consumed in the lab, found the unusual nature of the project to be very motivating. Using pan-tilt-zoom cameras, and an array of specially equipped computers that acted as computational sensors, the state-of-the-art equipment at the team's disposal in the computer vision lab gave them the tools to perform on par

**For more information on the "Impossible Projects". [http://www.cs.rochester.edu/~nelson/courses/csc\\_200/assignments/projects.html](http://www.cs.rochester.edu/~nelson/courses/csc_200/assignments/projects.html)**

with the grad students and faculty using the same lab. Pretty cool for an undergrad!

Many of the students commented about the benefits and challenges of working in groups. Preethum Prithviraj '04 said "Both the inconveniences and the pleasures of working with people having different mindsets and different methods of accomplishing things is very .... enlightening." The students feel this teamwork is a skill that will carry with them wherever they might go. Peter Barnum '05 commented "I've learned a lot about how to successfully plan and put together a big project with a team of people, which is something that could be applicable anywhere."

The unique & creative nature of the projects assigned, the control given to the team as to the direction to proceed, the exposure to cutting edge research papers on the topics under discussion, the push for the team to do better than any one person, and the ability to use high-end equipment to accomplish the tasks made this course a big hit with the students. Regarding the thrill of tackling the "unsolvable" problem, Merz said he felt like he was on an Indiana Jones adventure. Perhaps that's why some of our URCS faculty members sport those familiar hats!

Benjamin Atwood  
Charles Balconi  
Umang Beri  
Andrew Burke  
Diana Calarese  
Ross Camara  
Jason Carlberg  
Jacob Clever  
Samual Dost  
David Feil-Seifer  
Luke Fischer  
Joshua Frankel  
Andrew Frueh  
Michael George  
Alexander Golden  
Richard Golden  
Yuan Fang Gu  
Blake Harris  
Samuel Hathaway  
Jonathan Jackson  
Justin Jonsson  
Jason Keck  
Morgan Kleene  
Dennis Lambe  
Brian McCann  
Eric McCarthy  
Eric Meeks  
Eric Meisner  
Matthew Nettleton  
Joshua Oleksyn  
David Orlando  
Temmy Park  
Daryl Reisfeld  
Veneet Sawhney  
Jonathan Schmid  
Kurt Schwanda  
Anand Shahi  
Victoria Sweetser  
Elizabeth Thi  
Matthew Tong  
Jenine Turner  
Cartic Vengkatraman  
MengZhu Wang  
Justin Ward  
David Weissler  
James Wexler  
Daniel Williams  
Lauren Wood

**Congratulations to the Class of 2003!**



# Are We Putty in his Hands?

## '98 Alum Discovers Techies love Thinking Putty!

*This year's featured alumnus is Aaron Muderick, '98. Aaron worked in the computer consulting industry after graduation, but has since found more enjoyment in his current endeavor, Crazy Aaron's Thinking Putty ([www.puttyworld.com](http://www.puttyworld.com)). Those who remember Aaron would not be surprised that he's ventured into something off the beaten path. Marty Guenther interviewed "Crazy Aaron" about his exciting project:*

**MG:** *How did putty become such a focal point in your life?*

**AM:** After graduation, and in the midst of dot com mania, I was a software engineer building web applications. Most of my colleagues were about the same age and our office was classic geek. Nerf guns all over. Quake matches every afternoon. I even had a Maquarium (old Mac SE turned aquatic home) in my cube.

I wanted to step things up a notch and impress my coworkers with my true inner geek, so I decided that the coolest thing I could do was buy 100 lbs. of bouncing putty stuff and bring it into work. I had always had a "can never get enough" thing with those tiny eggs and I thought, maybe 100 lbs. would quench my thirst for it.

Well, after I dropped the 100 lb. lump on my buddies, they all wanted their own piece. In a few days the whole 100 lbs. had been cut up and sold. Hmmmm, I thought, maybe there's something to this putty!

**MG:** *Most upperclass CSC students would tell freshmen to never procrastinate on homework assignments. Was Crazy Aaron's Thinking Putty developed as merely a procrastination instrument from your consulting work?*

**AM:** It definitely became that. After the dot com bomb the kind of consulting work I was doing got a lot less interesting. My clients were taking fewer risks overall and the systems I was designing weren't challenging. I found that after a full day of slogging away at code I hated, it was hard to focus my ideas on my own software ideas at home.

I needed to detach myself from the keyboard for a while.

**MG:** *What experience at URCS gave you the courage to become a successful entrepreneur?*

**AM:** What I learned in the URCS program was that it takes a long time to go from idea to completed invention. By watching the progress of different professors' research over four years, I really got a sense of how long it took to think out all the angles and all the variables on a complex problem.

It really gave me a sense of patience that I needed to get Thinking Putty off the ground. The end product seems simple enough. But, I had to explore so many different possibilities and test each one before I could reach the end result.

**MG:** *Your website shows that avid putty fans are quite creative with their use of putty. What is your favorite way to pass the time with putty?*



**AM:** Everyone does something different with their Thinking Putty. Back when I was consulting, we used to pass the stuff out at kick-off meetings with new clients. We'd observe what they did with it, construct a little pop psychology profile, seal it in an envelope, and allow the business relationship to proceed.

Well darn it, what people did with the stuff really says a lot about them as people.

You have your sniffers (they don't touch, just sniff it and then put it down), your hand washers (touch it to be polite and then run to wash up), your model makers (they take it and immediately sculpt some crazy creature), your imitators (they sculpt right away but always something recognizable, like a Disney character), your engineers (making geometric shapes and then endlessly straightening them as the putty melts), your poppers (they quickly discover you can catch air bubbles in it and make bubble gum popping sounds during meetings), your stretchers (they get hypnotized by how it can become as thin as spider silk when you stretch it), your squeezers (just kneading away in their hands), and a few other types.

My favorite thing to do (and the best "perk" of the job) is to lay out about 500 lbs. and take a nap on it. Sounds silly. The stuff molds to your shape, is cool to the touch, and is actually pretty comfortable. Maybe that's why so many kids fall asleep with it in their hair.

**MG:** *Do you have a vision for the future of putty?*

**AM:** The vision is simple: To make the world a better place by spreading the love of putty. Putty is fun. Putty makes people happy. Putty breaks down social barriers. I have lots of customers who use it when the office from Seattle has to meet with the office from Japan, and they don't speak the same language.

It sounds corny. The future is more people, more fun, more happiness. I believe Thinking Putty can make the world a better place.

Ok, I lied. The future is Total World Domination through the use of mind control agents I place in each lump of Thinking Putty. Ack! Did I just say that out loud?

**MG:** *I'm sure that developing a putty empire has been a "stretch" for you both emotionally & financially. What has been your biggest challenge?*

**AM:** "Putty Empire", hmmm, I like the sound of that...

I always have faith that the money side of things will take care of itself. That's not to say that starting a business and taking on so many financial risks isn't terrifying (it is!).

(continued on Page 11)

# Undergraduate Alumni News

**Bakken, Luke '98** - is still working for Getronics & playing the Spokane Symphony. In his spare time he cooks snooty gourmet food, hikes with his wife Margaret and trains for marathons.

**Blumberg, Josh '97** - moved into Boston and started working at The Rivers School, a private 7-12th grade school, teaching AP Computer Science and maintaining their computer network.

**Bulatewicz, Tom '01** - received his M.S. at Univ. of Oregon this spring, and will continue towards his Ph.D. in Comp. Sci this fall.

**Chambers, Nate '02** - finished his 3-2 program at UR with a thesis on Stochastic Natural language generation. He is working for the Institute for Human and Machine Cognition in Pensacola FL, and was married Aug. 9, 2003 to UR grad Amy Chambers.

**Chan, Candy '02** - is working at Eastman Kodak as a development engineer, working on face recognition.

**Chang, Allison '01** - is working for the city and county of Honolulu.

**Clever, Jacob '03** - began his job at BAE Systems in Nashua, NH in June. He will be attending Bentley College's part-time MBA program beginning this fall.

**Colwell, Brian '95** - married Donna Partridge on 10/11/2003. They have also purchased a home in Chili, NY.

**Czajka, Tomasz '01** - received his M.S. from Purdue University in May and was recognized as the best Graduate Level Computer Science TA for his work in their graduate Operating Systems course.

**Dahlgren, Jeremy '02** - is nearing completion of his M.S. at RIT. His work has focused on failure detectors for distributed systems.

**Fischer, Luke '03** - is working for the UR Registrar's office as a Programmer/Analyst.

**Forney, Zeb '01** - is employed by User Technology Associates in Fairmont, WV.

**Frankel, Joshua '03** - is working for Ethany, a small software company in Scottsville, NY and volunteering at the Henrietta Ambulance.

**Hamilton, Jeff '01** - works for PalmSource as a software engineer, and has moved to Austin, TX.

**Harman, Craig '00** - This fall - Take 9! Craig is a research programmer for the Center for Future Health & the Dept. of Dermatology at URMC.

**Heavey, Brendan '02** - is working at University of Buffalo in their Cardiology Research Lab. The research focus is Cardiac Sudden Death. He routinely witnesses open heart surgery, which is a big change, considering he couldn't even give blood 2 years ago without fainting!

**Hill, Brandeis '00** - received her M.S. at RPI in May 2003 and continues her Ph.D. work.

**Jackson, Jonathan '03** - began working at Rocket Mobile, Inc., as a software engineer. He is living in San Jose, CA.

**Komarov, Kirill '98** - received his M.S. from Duke in 2000 and is working for Bloomberg, LP in NYC.

**Ku, Jason '01** - is working for Bloomberg, LP in London, UK.

**Lewis, Steven '00** - has recently bought a house in Rochester and continues to work at SUNY Brockport.

**Luis, Cristina '01** - has completed her M.S. in Geosciences, and will be teaching 8th grade science for one year. Next summer she will enter the Air Force Officer Training School in Alabama.

**Meyer, Jason '00** - New York City's most eligible bachelor, is working for the big man, Citigroup, and having a great time!

**Miller, Cynthia '99** - is working as a contractor for Microsoft in Carson City, NV.

**Mohan, Shailan '99** - has moved from NYC to D.C. and is now working at Macrosys Research & Technology, a consulting firm for the U.S. Dept. of Transportation. His current assignment is at the Office of Airline Information, helping them migrate from a mainframe to a UNIX-based environment.

**Moldover, Jonathan '99** - is in his 2nd year at Frog City Software, doing audio design, programming and production using his CS degree and his musical knowledge from his Take 5 program in music. He's still playing ultimate frisbee and is in a band called "Jam Bastards".

**Rogers, Jennifer '02** - has been working in the Soft-

Please consider the Department of Computer Science and UR in your giving plans. For information on how to make a gift, please contact the University's Gift Office at 585-275-8602 or [giftoffice@admin.rochester.edu](mailto:giftoffice@admin.rochester.edu).

## UG Alumni News (continued)

ware Group at IBM in North Carolina doing software testing.

**Ross, Kiana '01** - works for Northrup Grumman (formerly TRW), attending classes at UCLA and living in Redondo Beach, CA.

**Rutar, Nick '01** - started the Ph.D. program at U. of Maryland, College Park this fall.

**Sankar, Nandini '97** - has moved back to India as Head of India Implementation for GlobeOp Financial Services (India) Pvt. Ltd.

**Srinivasan, Gururaj '97** - has finally invested in some furniture, isn't married (though not for the lack of his parents trying) and has his green card.

**Tam, Jonathan '02** - is working at Comprehensive Identification Products, Inc, in Burlington, MA.

**Thibodeau, Bryan '01** - is a Ph.D. student at UMass Amherst in the Laboratory for Perceptual Robotics.

**Tong, Matthew '03** - has begun his Ph.D. studies at

**Send news & notes to:**  
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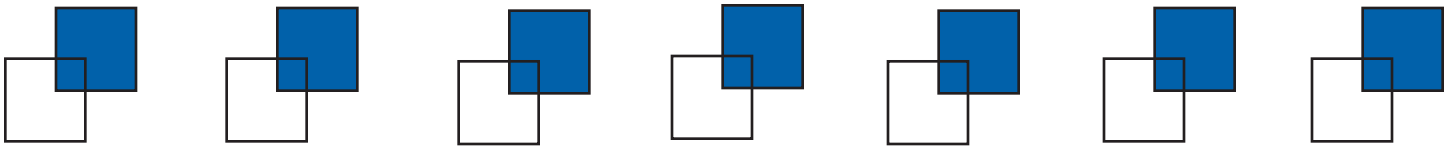
**Keep us informed!**

UCSD.

**VanDurme, Ben '01** - is continuing his studies at CMU for one more year - who knows after that!

**Vengkatraman, Cartic '03** - is looking for work and gigs in NYC. His band Ablaze has a new CD available on <http://www.cdbaby.com/ablaze> for those Ablaze fans among the alumni!

**Ward, Justin '03** - is working for [midrangeserver.com](http://midrangeserver.com) in Rochester.



## PUTTY (continued from Page 9)

The biggest challenge was making the decision to leave "computers". Obviously, I had invested a lot of hard work (and years) in software and computing. It was a big mental leap to go from Thinking Putty as a side business towards making it the whole pie.

**MG:** *What advice would you give to CS students looking for something unconventional for their life's work?*

**AM:** Go for it! Obviously.

Just remember that ideas are a dime a dozen and actual execution is everything. If you are really really into your idea, that force of belief will rub off onto others and start the snowball rolling down the hill. Be honest with yourself though, if you're not that passionate, maybe you should find another idea ( is a good source if you need a creative jumpstart!).

Remember: If you want to be the best at what you do, then do something no one else is doing. You can start out at the top!

**MG:** *Any final thoughts?*

**AM:** Sometimes you don't realize you've been exposed to something really great until you leave it behind.

After I graduated and started working with CS graduates from other schools, I was amazed that we really hadn't taken the same classes. So many schools had taught CS with a "software for business" focus: "Here's how to write software for the big company you'll work at one day".

The theory and foundations of Computer Science that I learned at URCS got me thinking on a different level. It served me well when I was designing software and it still serves me today.

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## Multicast

A newsletter from the  
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### *Undergraduates Receive Honors*

Gautam Altekar was named 2003-2004 Barry Goldwater Scholar for his research work and his academic record.

Albert Robinson, Jonathan Schmid, Victoria Sweetser and Jenine Turner received Honorable Mention in the Computing Research Association’s Outstanding Undergraduate Awards.

Our Robot Team took first place in the Robot Host event at the International Joint Conference on Artificial Intelligence ‘03 in Acapulco, Mexico in August. The team consisted of members Jonathan Schmid, Tom Kollar, Dasun Peramunage, Chikita Purav (graduate student), Tori Sweetser, Eric Meisner & Jenine Turner, though not all attended the conference. Eric Meisner led the team to a 3rd place in the Robot Rescue event as well.