First Undergraduate Entrepreneurship Competition

The first annual NEST competition was designed to foster a startup-like environment within the university. Undergraduate students formulated product ideas, built teams, and then designed and developed their ideas into working prototypes. Students presented their ideas and projects at two key milestones, and got feedback from the organizers on how to refine their ideas into products.

Thirteen teams totaling 30 students competed for $20K in prizes, generously donated by Microsoft, Epic Systems and the CS department to help inspire the students’ entrepreneurial spirit. Judges included Scott Button of Venture Investors, Carl Dvorak of Epic Systems and Greg Tracy of Sharendipity.

Most of the prize money is being used to take the ideas to actual commercial realization. For example, Jonathan Mumm, the winner of the $10K first prize award (pictured left), says the NEST competition inspired him to take an idea that he had been kicking around and within 6 months convert it into a working prototype.

He is in the process of forming a company to commercialize his project, a Web portal for creating and sharing strategy commentaries for popular competitive PC games.

The second-place team created an AI-driven system that builds a process tracking database (such as a bug tracker) by analyzing posts made to a social network. Team leader Max Lynch had this to say about the long term benefit of the NEST competition: "Participating in the contest certainly improved not only my programming skills, but also my presentation, user experience, system administration, and project management skills."

Tim Swast, Amanda Fahrenbach and Michael Maynord won third place and the Wisconsin Idea Prize for their graphing calculator for the One Laptop Per Child (OLPC) platform. Tim said, "NEST was great! It gave me the motivation to try something new that I certainly wouldn’t have been able to do in class."

The NEST competition will have a lasting effect on all the competitors. Tim puts it this way: "The leadership experience that I had through NEST is invaluable. The way I work with others has changed for the better through this."

The NEST competition, organized by Assoc. Prof. Jignesh Patel, has instilled the joy and challenge of entrepreneurship in all its participants. What better way to launch the successes of tomorrow?
Message from the Chair

Dear alumni and friends of the department,

It is my pleasure to introduce myself and to have this opportunity to write this note to you. Despite the challenges of a difficult economy, the department continues to thrive, and it remains a dynamic and vibrant place in which to study and work. Since our last issue of Badger Bytes, we have hired seven new faculty. Four of them (Shan Lu, Bilge Mutlu, Chris Re, and Benjamin Recht) are profiled in this issue. The other three (Tom Ristenpart, Efty-chios Sifakis, and Ben Snyder) will be joining us in Spring ‘11 and will be profiled in a later issue of Badger Bytes.

It is an honor and a privilege to serve as chair. As I begin this service, I would like to thank my predecessor, Mary Vernon, for her tireless efforts on behalf of the department and especially for her passionate, creative, and tenacious advocacy of computer science in general and our department in particular.

I would also like to take a bit of space here to once again call out how important our alumni are to what we do. One unavoidable fact of being a non-student member of the department is that over the years, the students come and go (and become alums!), yet we faculty and staff remain. Oddly enough, for me, and I suspect for many of my colleagues as well, I am never surprised to see an alum in our building, perhaps because I never really feel that any of you have left. So if you are visiting, and I don’t seem surprised and excited to see you, it is just because I expect you to be here!

If you visit the department these days, and I hope you will, you will see that it is indeed an exciting but crowded place. We are bursting at the seams, and running up against the limits of just about every resource you could mention. While this makes things challenging on a day to day basis, it is actually a very good problem to have — it only arises because we continue to hire faculty and staff, we continue to successfully compete for research funds, and undergraduate and graduate students keep deciding to attend the UW-Madison and enroll in CS courses. Focusing on the last point for a moment, while one data point does not make a trend, our course enrollments are up by about 500 students Fall 2010 over Fall 2009 (about 2000 vs. 1500.) In a very real sense, all of this is only possible because of our alumni, past and future. We remain grateful for your support and continue to value our ongoing connection to you.

In closing, I would like to invite and encourage you to stay in touch. Visit our web site (a new, redesigned version will be appearing “any minute now”), drop us an email, or attend one of our alumni functions. We love to hear from you, whether it is learning about what you are doing, sharing with you what is happening in the department and our thoughts about our direction for the future, or just recalling stories about your time when you were a student.

Bay Area Alumni Reception
Computer History Museum
1401 N. Shoreline Blvd.
Mountain View, CA
March 30, 2011

Mary Vernon is once again pledged to match all individual donations to the CS Department - thank you!

On The Cover

New construction is bursting out all over campus. Right next door to the venerable CS building there are exciting things afoot.

At the left of the cover image, the new Union South can be seen under construction. Scheduled for completion in 2011 the new building will offer more than 276,000 square feet of recreational and meeting space as well as many retail and dining options.

At right is WID/MIR - the Wisconsin Institutes for Discovery and Morgridge Institute for Research. This state-of-the-art facility will bring together researchers from a broad spectrum of disciplines.

MIR is named for great friends of the CS Department, John and Tashia Morgridge.

The Morgridges have once again pledged to match all individual donations to the CS Department - thank you!
Welcome to four new faculty!

The Department is pleased to welcome four new faculty members. Shan Lu joined the Department in Spring 2009, and Bilge Mutlu, Chris Ré and Ben Recht joined in Fall 2009.

**Shan Lu** (upper, right) joined the Department’s Systems Group after receiving her Ph.D. from the University of Illinois at Urbana-Champaign.

Her research interests are in computer systems reliability focusing on concurrent programs. With increasing numbers of cores on the desktop, it is essential that we understand how to more effectively develop concurrent programs. Unfortunately most programmers are trained to write sequential programs and have a difficult time writing (correct) multi-threaded applications. Shan developed tools to help detect common concurrency bugs and is researching new ways to help programmers write high-quality concurrent applications.

Shan is also interested in software manageability and the related problems of security and privacy. Shan sees the rise in prevalence of web applications, mobile devices and cloud computing as opportunities for future research in systems dependability.

**Bilge Mutlu** (above, left) joins us from Carnegie Mellon University, where he earned a Ph.D. in Human-Computer Interaction. Bilge directs the Department’s newly formed Human Computer Interaction Laboratory and has affiliate appointments in the Psychology, Industrial & Systems Engineering Departments and at the Eye Research Institute.

Bilge’s research interests are in human-computer interaction (HCI) and human-robot interaction (HRI), particularly in designing interactive agents and robots. His past work on designing social behavior for humanlike robots has received best paper awards and international press coverage. His new work bridges many aspects of computer and social sciences, combining computational and social-scientific methods to better understand human social and cognitive processes and using this understanding to design human-centered technologies that offer people social and cognitive support.

Bilge is collaborating with researchers across campus to explore how these technologies might benefit research and clinical practice in brain injury, autism, education, and alcohol addiction. His latest research explores how an educational agent might facilitate learning by adapting its instruction to a student’s level of attention.

**Chris Ré** (below, left) joined the Department’s Database Group after receiving his Ph.D. from the University of Washington. His research seeks to understand and manage the ever larger volumes of data now available to individuals, businesses, scientists, and governments.

Each year brings not only more data, but increasingly diverse types of data. These data may lack or have dissimilar structure, forcing systems to consider many alternative meanings. Chris’s research has developed theoretical techniques to address this problem using probability theory and practical techniques that are able to efficiently process huge volumes of these new types of data.

As more sciences and businesses transition from data poor to data rich, they will generate new sources and types of data that will be used in a wide range of applications -- some of which we would find hard to imagine today; Chris believes that being positioned at the University of Wisconsin, one of the powerhouses of data management research, is the ideal place to continue to contribute to this exciting transition.

**Ben Recht** (below, right) was previously a senior postdoctoral fellow at the Center for the Mathematics of Information, a multidisciplinary center established to promote the information sciences and technologies at the California Institute of Technology. Ben received his Ph.D. in 2006 from the MIT Media Laboratory, working under Neil Gershenfeld in the Center for Bits and Atoms.

Ben is the newest member of the optimization cluster at the newly founded Wisconsin Institute for Discovery (WID).

Ben’s research focuses on scalable computational tools based on convex optimization and randomized algorithms for large-scale data analysis and machine learning. Specifically, Ben studies how to exploit structure and domain specific knowledge in data analysis, increasing robustness to both noise and missing data. Ben and his colleagues recently established the existence of provably efficient algorithms for discovering low-rank models in data with applications in a diverse set of fields including online recommendation systems, molecular crystallography, dynamical system identification, and control design. Ben has also developed a function fitting framework that leverages prior information about dynamics for pattern recognition tasks in human-computer interaction and computer vision, and a suite of randomized algorithms for very large-scale classification and regression tasks.

Please join us in welcoming Shan, Bilge, Chris and Ben to Madison!
Alumni Focus – Pamela Zave
From English major to ACM Fellow

Pamela Zave (M.S. ‘72, Ph.D. ‘76) was an English major at Cornell when she decided to study computer sciences in graduate school.

At the time UW was one of the few universities with a graduate program in computer sciences. And Wisconsin seemed like home: her mother was born in Oconto, and she had visited relatives in Neenah every summer of her childhood.

During her last two years at Cornell, Pamela took half her courses in the math and computer science departments. Still nervous about switching fields, she was delighted to be accepted by UW, and to be offered a WARF fellowship for her first year.

"Everyone at Wisconsin was friendly," Pamela recalls. The other students helped her fill the holes in her background. "David Wise (M.S. ’69, Ph.D. ’71) fixed my bicycle," she adds.

Pamela joined Bell Labs in 1981 and still works in the research lab of AT&T, despite many vicissitudes and reorganizations of the telecommunications industry in the meantime. She finds the long view to be a useful antidote to the concept of "Internet speed," because fundamental trade-offs, principles, and problems still change very slowly.

Distributed Feature Composition (DFC), which is her modular architecture for telecommunication services, was used to build the advanced features for AT&T’s first consumer voice-over-IP service. Because of DFC, she reports, "we delivered complex features with unprecedented speed and quality, and the service won several industry awards." Her group now produces open-source tools for building IP-based multimedia services.

Her most recent work concerns specification and verification of network architectures. "Today it is too difficult to build and maintain Internet services," she says, "and insights from formal modeling can help us fix that."

Pamela is a Fellow of the ACM, awarded in 2001 for "the use of formal methods in the development of telecommunications software." During her distinguished career she has won two ten-year most influential paper awards and three best-paper awards. She has won the AT&T Strategic Patent Award (for the original DFC patent) and the AT&T Science and Technology medal (for her "ground breaking research" and "long-term fundamental contributions" to voice-over-IP services). She holds 14 patents and is currently chair of IFIP Working Group 2.3 on Programming Methodology.

Pamela encourages current students to find their own special talents and viewpoints, and use them to bring something new to the field. "I got the best advice from Edsger Dijkstra," she says, which was, "Only do what only you can do."

Faulkner Receives Honorary Degree

Judy Faulkner (M.S. ’67), founder and CEO of Verona, Wis.-based Epic Systems Corporation, was awarded the honorary degree Doctor of Science. Honorary degrees are awarded in recognition of extraordinary accomplishment and achievement and require approval by the UW-Madison chancellor, UW System Board of Regents and the UW-Madison Faculty Senate.

Faulkner received her master’s degree from the University of Wisconsin in computer science and founded Epic Systems in 1979. The company’s software systems help health care institutions become safer, more patient-centered, efficient and quality-conscious. Epic employs more than 3,300 people, and 175 health care organizations use the company’s electronic medical record and application software. President Obama has advocated for improved health care information technology and has praised facilities that are using Epic’s systems.

Epic’s leadership in health care information technology can be seen in the first-place awards it has received from an independent monitoring organization in the areas of overall vendor, acute care and ambulatory electronic medical records. Faulkner is also one of 13 representatives selected to serve on the U.S. Health Information Technology Policy Committee, which makes policy recommendations to Congress.

Faulkner has been involved with UW-Madison’s Computer Sciences department by serving on its board of visitors and supporting a new program for first-year Computer Science graduate students.
The department continues its efforts to engage its alumni and help foster active alumni networks. Over the past two years, the department has hosted five alumni receptions, including in the Bay Area (twice), Seattle Area, Washington D.C. Area, and Madison. These events provide an opportunity for alumni to network with each other as well as catch up on what’s new in the Computer Sciences department. At the most recent event, new color-coded name tag stickers helped match alumni who were looking to hire with those who were exploring new job opportunities.

The Madison event was the first-ever Computer Sciences Department Reunion, which drew an attendance of roughly 100 alumni from all over the world. Sunao Tanimoto (M.S. ’72, above right) traveled all the way from Japan and shared with us his fond memories of his time in Madison and told of a surprisingly large and active UW alumni network in Japan. Epic Systems CEO Judy Faulkner (M.S. ’67) shared her experiences in starting the largest Madison-area high tech firm, which provides software that nearly one in four American doctors depend on for their medical records. But the highlight of the day was a visit by Bucky Badger and the Wisconsin Pep Squad, who helped even the cynics get in the game day spirit!

The Bay Area reception has become an annual event, with roughly 100 alumni attending each of the past two years. In Spring 2009, Professor Jignesh Patel described his research on Biological Databases and Gene Amdahl (Ph.D. ’52) shared stories of the many computers he has designed, from the WISC (the Wisconsin Intelligently Synchronous Computer) to the machines at IBM, Amdahl Corporation, and Trilogy. In Spring 2010, Professor Li Zhang presented his work that combines computational photography with emerging camera technology and Peter Winer (B.A. ’81) gave an inspiring talk on being a serial entrepreneur.

2009 saw the second, and now biannual, Seattle Area reception with over 60 people in attendance. Emeritus Professor David DeWitt spoke about his transition to leading the Microsoft Jim Gray Systems Lab in Madison. Spring 2009 also saw a smaller reception in the Washington, D.C. area, with keynotes by Alan Merten (Ph.D. ’70), President, George Mason University and Pamela Zave (Ph.D. ’76), Distinguished Member of Technical Staff, AT&T Labs.

Interested in helping organize an alumni reception in your area? Contact alumni@cs.wisc.edu for more information.

Alumni contributions help the Department develop new programs, attract and support top undergraduate and graduate students, recruit and retain outstanding faculty members, and communicate with and engage our alumni.

In 2009, John and Tashia Morgridge continued their generous offer to match all gifts made by individuals, leading to total contributions to the department of nearly $100,000. These gifts allowed the department to award eleven new Alumni Scholarships to incoming graduate students, support ten undergraduate and graduate summer research assistantships, and support exciting new initiatives like the NEST Competition. Your donations also help the department host alumni events, keeping alumni in touch with the department and each other.

The Computer Sciences department seeks to extend the tradition of excellence that has produced so many successful alumni. Please consider supporting the department’s educational, research, and outreach missions via a gift to the Computer Sciences Annual Fund or one of the department’s targeted funds. All individual gifts in 2010 will again be matched by John and Tashia Morgridge, thereby doubling the impact of your gift.

Donations to the UW Foundation can be made on-line or by mail. See http://www.cs.wisc.edu/invest.

Please contact us at:

alumni@cs.wisc.edu

if you would like further information about gifts to the department.

Thank you!
Greetings from your Department of Computer Sciences Board of Visitors (BoV)! The BoV, founded in 2006, is a group of UW alumni and friends of the department that works closely with the department chair on opportunities to build departmental excellence. With generous assistance from a broad group of alumni and friends, the BoV has helped:

- **To attract the most talented graduate students:** The BoV, working with the department and the UW Foundation, has helped to establish the “Alumni Scholarship” program. These scholarship grants help to supplement the standard Wisconsin graduate student stipends provided by the state—and allow the department to offer more competitive financial support to the top incoming graduate students.

- **To attract and retain the most talented faculty:** The BoV has worked with Gary Sandefur, (Dean of the College Letters and Science) to lobby for additional faculty positions for the department. Due in part to the BoV’s efforts, the department was able to hire 3 additional faculty in 2009, and this year was able to extend offers to 5 candidates, 3 of whom have accepted and will arrive in January 2011!

- **To enable many alumni to re-connect with each other, and with the department:** The BoV has sponsored a series of alumni receptions around the country. Each Spring we host an annual reception in the Bay Area (at the Computer History Museum). We have also held receptions in Seattle, the Washington DC/Northern Virginia area, and of course in Madison! At these events, we’ve had great updates from the department (outgoing department chair Professor Mary Vernon, and past chair Professor Guri Sohi) and we’ve heard talks from Professors Miron Livny, Jeff Naughton, and Li Zhang, who have given us glimpses into the exciting research they are conducting in Madison. We’ve also heard talks from distinguished alumni at these events—such as John Morgridge (Chairman Emeritus of Cisco), Gene Amdahl (founder Amdahl Corporation), Alan Merten (President of George Mason University), Peter Winer (Cisco), and Pamela Zave (AT&T Labs).

None of these efforts would be possible without the generous support from our department alumni! The CS Department and the BoV really appreciate your support and hope that you will continue to help us build department excellence!

This is a great time to renew your support for the department, because once again John and Tashia Morgridge, distinguished UW alumni and major benefactors of the university, have agreed to MATCH our gifts to the Computer Sciences department made through the end of 2010. The generosity of John and Tashia Morgridge over the past few years has effectively doubled our gifts to the department, significantly enhancing the beneficial impact of our support.

We are looking forward to working with the incoming department chair Professor Jeff Naughton and wish him good luck as he takes over the reins from Professor Mary Vernon.

And we hope to see you at one of our alumni receptions soon!

Viggy Mokkarala
Chairman, BOV

Viggy Mokkarala
Executive Vice Chair, BOV

In the background is a CDC 1604 like the one used on campus a long time ago...
Professor Charles Fischer joined the Computer Sciences Department in 1974 and served as Chair from 1984 to 1987. During his 35 years on the faculty, Fischer conducted research in the fields of programming languages, compilers, software-development environments, and computer architecture, publishing two major compiler textbooks and 49 papers in journals, refereed conferences, and books. He has supervised the Ph.D. dissertations of seventeen students and his textbooks have sold over 50,000 copies.

Fischer was an active leader in the programming languages community, serving as Program Chair for both flagship conferences of the ACM Special Interest Group on Programming Languages (SIGPLAN), namely the Symposium on Principles of Programming Languages (POPL) and the Conference on Programming Language Design and Implementation (PLDI). He later served as General Chair for PLDI, and was also a program-committee member for eight other major conferences.

Fischer served as Editor-in-Chief of ACM Letters on Programming Languages and Systems (LOPLAS), and then as a member of the Editorial Board of the most prestigious journal in programming languages, ACM Transactions on Programming Languages and Systems (TOPLAS).

Dr. Fischer is remembered as one of the department’s best teachers, with consistently high teaching evaluations. He also won the SACM Student’s Choice Professor of the Year Award (the “COW Award”) twice, in 1988 and 1989. 🐾

After a combined 75 years of service to the State, Department Manager Melody Bakken and Benefits and Payroll Specialist Ginny Werner retired this Fall. A send-off was held in the building’s lobby on January 29th. Department Chair Mary Vernon presented Ginny and Melody with plaques from the new UW Chancellor Biddy Martin and from Wisconsin Governor Jim Doyle.

Ginny Werner started with the University in 1968 as a pharmacy technician and later worked as a laboratory technician. She had a strong desire to learn more about computers and jumped at the chance to join the Department in 1994. Ginny served in an administrative support role for a number of faculty. In 1998 she started managing Condor support agreements. "I had finally found my niche," Ginny said. In 2003 Ginny added the role of Payroll and Benefits specialist for the whole department. Says Ginny: "Work in CS was never dull and the variety of work that I did made it a wonderful work environment. I am grateful for the opportunity to be a part of such a great department. I have truly enjoyed working with each and every one of you in the department and the visitors that I have met. It has been memorable!"

Melody Bakken started with the department in 1998 after 23 years in the accounting department of the UW Press. There was a large learning curve associated with the shift from the more commercially oriented UW Press to the academic setting, but Melody "really enjoyed it." One of Melody’s first jobs was moving furniture upon the arrival of all of the Department’s lobby and lounge furnishings. "I remember at the time wondering what I had gotten myself into," she said. Says Melody: "I have really enjoyed my time in the Department. I have met and worked with some great people and will miss you all. I would like to thank you for making the last 10 years a very rewarding work experience."

Please join us in thanking Ginny and Melody for their years of dedication to the department and wish them luck in the next phases of their lives. Also, please welcome Mary Flessert and Sherrie Gates-Hendrix, who have bravely taken on the challenge of filling Ginny and Melody’s positions. 🐾
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