



# Badger Bytes

Transformation

University of Wisconsin-Madison  
Computer Sciences Department

Fall 2008

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## Events

**What:** *CS Alumni Reunion  
All years, all degrees  
welcome*

**When:** *Saturday, October 11, 2008  
Reception 3:30-6:30pm*

**Where:** *The Pyle Center  
702 Langdon Street*

**RSVP & Hotel Information:**  
*<http://tinyurl.com/3puot7>  
Reservation cutoff dates  
vary from 9/1 to 9/12*

**Evening option:**  
*Badger Football v. Penn  
State  
7pm kickoff  
Limited tickets available,  
first-come first-served*

**What:** *CS Alumni Reception*

**When:** *Spring 2009*

**Where:** *Washington DC /  
Northern Virginia Area*

**Details:** *Coming soon!*

*Make sure we have your email address!*

## About

The Badger Bytes is the alumni newsletter for the Computer Sciences Department of the University of Wisconsin - Madison.

Perry Kivolowitz	Editor
David Wood	Alumni Relations Committee Chair
Mary Vernon	Department Chair
Jude Shavlik	Department Associate Chair

Visit us online at  
[www.cs.wisc.edu](http://www.cs.wisc.edu)

## Madison Welcomes Microsoft and Google Offices

The Department, along with the City of Madison and indeed all of Wisconsin are pleased by announcements by Microsoft Corporation and Google that both companies will open offices here.

Microsoft's Jim Gray Systems Lab will be headed by Dr. David DeWitt (whose retirement from the Department is covered on page 5 of this issue) and will develop leading edge data management technologies.



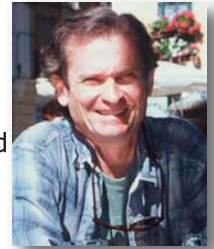
The lab is named for Jim Gray, a person who had an enormous impact on DeWitt. "Jim was a very close friend and my mentor from very early on in my career as a beginning assistant professor. Having his name on the lab is a way of honoring his family, his technical contributions to the field as a Turing Award winner, his support of education and research, and his relationship with the Department. His contributions were countless," DeWitt said.

The Jim Gray Systems Lab will be unusual for its close association with the Department. According to DeWitt, "By being a part of the systems and database community in Madison, the lab will be able to contribute to and feed off of that community's energy and thought leadership. We also intend to draw on the faculty of the University of Wisconsin-Madison Computer Sciences Department as consultants." The Lab will also

provide real-world opportunities for students to participate in the development of large, high performance systems.

Google has opened an office near the Capitol. Said Google representatives, "We are opening an office in Madison because the city offers an excellent quality of life, a deep local talent pool and commitment to education at all levels, including the University of Wisconsin."

The office will be headed by retired Computer Sciences Department and Electrical and Computer Engineering Department professor, Jim Smith and UW-Madison Electrical and Computer Engineering graduate Jim Laudon.



The Google office has been active since October 2007, and is targeting hardware and software systems design. The Google Madison team is currently operating out of temporary quarters downtown and plans to move to the Harvester Plaza building on Blount Street this fall. ■

**You're Invited!  
to the first-ever  
CS Alumni Reunion  
(all years, all degrees)  
Madison,  
October 11, 2008**

# From The Chair

Greetings to all CS alums, supporters, and friends! As I start my tenure as Chair, I am inspired by the strength, energy, dedication and achievements of our alumni, students, faculty and staff. I am happy to share with you just a few of the many significant new honors and accomplishments that have occurred since the Spring 2008 issue of Badger Bytes.

Our alumni continue to flourish, as Peter Spiro (MS '85) received the Microsoft Technical Achievement Award in April and Sarita Adve (MS '89, PhD '93) received the 2008 ACM SIGARCH Maurice Wilkes Award in June. Please share your accomplishments by sending further items to [pubs@cs.wisc.edu](mailto:pubs@cs.wisc.edu).

On the faculty front, Prof. Stephen M. Robinson was elected to the National Academy of Engineering and Prof. David DeWitt was awarded the very prestigious 2009 IEEE Emanuel R. Piore Award for his fundamental contributions to innovative database systems.

Profs. Paul Barford and AnHai Doan have been promoted to Associate Professor. We also welcome two new faculty. Prof. Jignesh Patel (databases), previously on the faculty at Michigan, joins us as an Associate Professor this summer. Shan Lu (systems) is finishing her PhD at Illinois and will start as Clare Booth Luce Professor in Spring 2009. Our undergraduate students are thriving, with graduating seniors taking positions at an impressive variety of companies and competitive graduate programs. Graduating senior David Hoffert was awarded a three-year scholarship for graduate study at Stanford as well as the 2008 UW-Madison Herfurth-Kubly Award given annually

to one senior man and woman on campus. Also, junior Andrew Hanson was awarded the 2008 DeWitt Undergraduate CS Scholarship.

Our graduate students also have had many recent successes. For example, Junghee Lim was one of two students in the U.S. awarded Symantec Research Labs Graduate Fellowships, and Lakshmi Bairavasundaram and his co-authors were awarded Best Student Paper at FAST 2008. Also, recent alumni donations have provided special new merit-based CS Alumni Scholarships for eight incoming graduates students.

Around campus, new Chancellor Carolyn (Biddy) Martin, previously Provost at Cornell University, arrives in August, and construction has begun on the new large Wisconsin Institutes for Discovery (WID) across Johnson Street. WID will foster collaborations between computer and information sciences, the biological sciences, and medical research.

You can read further notable news in the Recent Highlights column on our home page, <http://www.cs.wisc.edu>.

As incoming chair, I seek to engage our deep talent pool to tackle a number of important new initiatives that we are defining this summer. To engage students, I am creating a new Chair's Undergraduate Student Council and Chair's Graduate Student Council to provide their perspectives. To engage alumni, I am working with our Board of Visitors to continue our semi-annual alumni receptions and to host our first-ever CS Alumni Reunion here in Madison. Please attend our alumni reunion on Saturday October 11th in Madison to catch up with friends, meet



the students serving on these councils, and to learn more about our activities and plans. We value your input, and we will outline ways in which you can participate in fostering our continued growth.

I would also like to thank outgoing Chair Guri Sohi for his very capable leadership during the past four years. Among his many accomplishments, Guri established our new CS Board of Visitors, worked with the Board to create and foster our semi-annual alumni receptions, hired eight new CS faculty, and has been a tireless advocate for the Department. We wish him a very successful and well-deserved sabbatical.

Finally, four faculty – Professors DeWitt, Meyer, Robinson, and Solomon – have retired with Emeritus status this summer. We wish them well!

I look forward to seeing many of you at our alumni reunion on October 11th.

A handwritten signature in black ink, appearing to read "Mary Krueger". The signature is fluid and cursive.

# Alumni News

## John Morgridge and Gene Amdahl Speak At Mountain View Alumni Gathering

Leaders of the computing industry—past, present, and future—gathered at the Computer History Museum in Mountain View on March 13, 2008. Bound by their common connection with the Department, more than 140 alumni and friends gathered to reconnect, network, and tour exhibits featuring technological breakthroughs that some in attendance themselves created.

After hors d'oeuvres and drinks, outgoing Department chair Prof. Guri Sohi began the presentation with an update on graduate admissions, which went very well this year. He also talked about the retirement of Professors DeWitt, Solomon, and Meyer and introduced Prof. Mary Vernon as the incoming department chair. Mary's election as chair marks only the second time that a top ten CS department has been led by a woman.

Board of Visitors chair Rick Le Faivre (PhD '74) thanked those assembled for helping to make 2007's alumni fund raising four times higher than the previous

year. Rick described how the newly created Alumni Scholarships help Wisconsin compete for talented graduate students who enrich undergraduate education as teaching assistants.

Renowned computing pioneer Gene Amdahl (PhD '52) gave a humorous and insightful talk about his experiences at UW. Tasked with performing an extremely tedious calculation by hand, Dr. Amdahl was convinced there had to be a better way. To avoid having to perform a similar calculation again, he designed the Wisconsin Integrally Synchronized Computer (WISC) in 1950. WISC's construction began in 1951 and took four years to complete. The machine could perform up to 60 calculations per second, a speed limited by the 1024 (55 bit) word drum memory.

Cisco Chairman Emeritus and great friend of the Department John Morgridge (BBA '55) gave a presentation in which he described an important lesson that he learned at one of his first jobs: that it is easier to successfully market products that work than those that don't. It is also far easier to believe in products that work, and that believing in a product is key to its success.



Cisco Chairman Emeritus John Morgridge addresses a packed house at the Computer History Museum in Mountain View, CA.

Mr. Morgridge then demonstrated his belief in the Computer Sciences Department by announcing that he and his wife Tashia will match all donations made to the Department during 2008. John said he hopes others will join them in helping continue our Department's success.

Board of Visitors member Dina Bitton (PhD '81) talked about her experiences as the Department's first female PhD. Dina's highly successful career in high performance database management has included faculty positions at Cornell and Illinois-Chicago as well as three startups and the position of Vice President of Technology at SAP.

Guri closed the meeting with an invitation to all alumni to join us in Madison on October 11, 2008 for a Department reunion. ■



Perry Kivolowitz

Dina Bitton, Gene Amdahl, Mary Vernon and Rick Le Faivre stand before Amdahl's WISC (1950). Note the bullet hole to the left of Ms. Bitton's head. Find out more at [www.cs.wisc.edu/alumni](http://www.cs.wisc.edu/alumni).

### Please Let Us Know Your Email Address

Email is the best means we have to send you timely information about alumni reunions and initiatives.

Please go to:  
<http://www.cs.wisc.edu/alumni>  
and register there.

# Alumni Focus

## Sarita V. Adve Wins Maurice Wilkes Award

Most programming languages, including Java and C++, were originally designed for systems with a single processor and either had no formally specified memory model or used ill-defined models. In the current era of multi-core systems, such ill-defined models would be catastrophic.

Fortunately, Sarita Adve (MS '89, PhD '93) developed a new programmer-centric memory consistency model for shared memory hardware in multiprocessor computers for her dissertation, advised by Prof. Mark Hill. While earlier models exposed hardware artifacts, such as write buffers, her model, called data-race-free provides simple semantics for well-behaved programs.

Not satisfied with just writing a seminal thesis, Sarita teamed up with Kourosh Gharachorloo to write a highly cited tutorial about the importance of memory consistency models, which has become required reading in all graduate computer architecture curricula.

After completing her Ph.D., Sarita took faculty positions at Rice ('93-'99) and Illinois ('99-present) where she established highly successful research programs in computer reliability, energy efficient computation, real-time embedded systems, and parallel computing.

In addition to developing important new results in all of these areas, she found time to continue to articulate and help many others, especially compiler writers and programming language designers, to understand her vision that data-race-free is not on-

ly efficient but that any proposed departure would be too complex for programmers to reason about. As a result of these efforts, Prof. Adve together with various colleagues, has written the definitive papers defining the new Java and C++ memory models.

In recognition of this highly influential work on memory models, Sarita Adve was awarded the 2008 ACM SigArch Maurice Wilkes Award, given annually for "an outstanding contribution to computer architecture" by an early career researcher. In a proud moment for the Department, the award was presented to her by fellow alum Doug Burger (MS '93, PhD '98). Sarita joins Prof. Guri Sohi and fellow alumni Steve Scott, Doug Burger and Todd Austin as recipients of this prestigious award.

Another testament to the high regard the community has for her research contributions is that Prof. Adve is also Director of Research at the new Intel/Microsoft Universal Parallel Computing Research Center at the University of Illinois.

Just as her persistence in pursuing her vision of the data-race-free model has paid off handsomely for the computing community, her persistence in pursuing graduate work at Wisconsin provided us with the opportunity to teach and mentor an outstanding student.



Doug Burger (MS '93, PhD '98) presents the 2008 ACM SigArch Maurice Wilkes Award to Sarita V. Adve (MS'89, PhD '93)

Sarita began her graduate studies at Johns Hopkins University in Fall 1987, then applied to Wisconsin for Fall 1988---in part to join her soon-to-be husband Vikram Adve (MS '89 PhD '93). At that time, transfer students were routinely rejected by the Department's graduate admissions committee. Fortunately for us, Sarita is not one to let a roadblock derail her plans, but visited the Department for one-on-one meetings to persuade the faculty that she should be admitted. It became clear during that visit that Sarita was a talented student, and she joined the Department in summer 1988. We are grateful that she never gives up once she decides that something is important. ■

# Faculty Focus

## DeWitt, Meyer, Robinson, Solomon Retire

Professor DeWitt has been a member of the faculty of the Computer Sciences Department since 1976, serving as Department Chair from 1999-2004.

For 30 years Professor DeWitt has been a leader in database management systems research, with a special emphasis on applying the power of parallel processing to large-scale data management problems. He invented, implemented, and evaluated fundamental techniques for parallel data processing including data-flow query processing, partitioned parallelism, and the exploitation of "shared-nothing" architectures. These techniques are used today in commercial parallel data processing products from IBM, Oracle, Microsoft, and Teradata. More recently he made fundamental contributions to persistent object management, parallel object-relational database systems, XML data management, and data-intensive compute cluster management.



Professor DeWitt holds the John P. Morgridge chair in computer science, is a member of the National Academy of Engineering, a Fellow of the American Academy of Arts and Sciences, and a Fellow of the Association for Computing Machinery (ACM).

He has distinguished himself as an educator, with 33 Ph.D. students and over 150 scientific publications. ■

Professor Robert R. Meyer joined our faculty in 1973, and served

as Department Chair from 1981-84.

Meyer has been a leader in computational optimization, publishing over 80 papers in topics ranging from piecewise linear approximation, mixed integer modeling, network flow optimization, parallel optimization (particularly partitioning methods), and radiation treatment planning. His work blends theoretical insights with practical methods for solution of large-scale complex optimization problems.

As a member of our world-leading research effort in parallel optimization, Meyer supervised 16 PhD dissertations, co-edited five highly referenced volumes of papers from high-profile meetings he organized, and served as an associate editor of *Mathematical Programming* from 1992 to 1999. ■

A pioneer of decision science and stochastic optimization, Steve Robinson received his BA in mathematics ('62) and his PhD in computer sciences ('71) from UW-Madison. He served as an officer in the U.S. Army from 1963-69 and remained in the U.S. Army Reserve until retiring from the military in 1993 as a colonel.

Robinson's research focus has been optimization, the branch of applied mathematics devoted to maximizing systems performance



when there are constraints, barriers or uncertainties. He is a leader in decision-making tools for complex situations.

Robinson was elected to the National Academy of Engineering in 2008. His many other honors include Fellow of the Institute for Operations Research and the Management Sciences and the George B. Dantzig Prize—a top international award—from the Mathematical Programming Society and the Society for Industrial and Applied Mathematics. ■

Professor Solomon has been a member of the faculty since 1976. He served as Chair of the Computer Sciences Department from 1992-95 and Associate Chair during this past year.



Over the past three decades, Solomon has conducted research in a wide variety of areas, supervising 15 PhD graduates and publishing papers in programming languages, operating systems, computer architecture, computer networking, human-computer interfaces, software development environments, database management systems, and distributed systems.

Solomon was a major part of our department's ground breaking research effort in distributed systems - the Crystal system - that was the precursor for cluster computing and established the foundation for the Condor system. ■

# Department News

## Barford and Doan Promoted to Associate Professor with Tenure

Paul Barford has been promoted to Associate Professor. Paul joined the department in 2001 after receiving a PhD from Boston University. Paul's earlier industry experience includes a planning and research directorship at De-George Financial Inc. and a senior engineer position at Digital Equipment Corporation.



Paul's areas of interest include the measurement, analysis, design and security of wide-area networked systems and network protocols. Much of Paul's research leverages the Wisconsin Advanced Internet Laboratory (WAIL), a one-of-a-kind facility that he created, with Professors Suman Banerjee and Cristian Estan, to enable researchers to recreate instances of the Internet in a laboratory environment (<http://wail.cs.wisc.edu/>).

Paul's recent research includes a SIGCOMM 2008 paper that explores passive measurement of packet traffic, offering the possibility of improvements to topology generators and traffic engineering as well as the development of new protocols with significantly less network impact and management burden.

Paul also possesses an entrepreneurial bent founding Nemean Networks LLC in Madison. In his spare time Paul is an accomplished triathlete. ■

Assistant Professor AnHai Doan has been granted tenure. AnHai received his PhD from the University of Washington in 2002 and joined the Department in August of 2006. Prior to joining the Department, AnHai was an Assistant Professor at the University of Illinois at Urbana.



AnHai is one of several Department members who have received the prestigious ACM Doctoral Dissertation Award. The Department boasts four recipients of this award, tied for most with MIT. AnHai is also a recipient of an Alfred P. Sloan Research Fellowship and NSF CAREER Award, among others.

AnHai's research interests include databases, information integration, information extraction, mass collaboration, community information management, Web, and text management.

He's currently very excited about trying to turn the Web into a giant structured database, then making it very easy for lay users (e.g., Homer Simpson) to query.

His current life consists mostly of emails, deadlines, meetings, revising blurbs about himself, and being late for the above. Thankfully he only has 29 more years until retirement, which he is very much looking forward to. ■

## Welcome to Jignesh Patel

The Department is pleased to welcome its newest faculty member. Dr. Jignesh M. Patel, who graduated with a PhD from the University of Wisconsin in 1998. Prior to coming back to his alma mater, he was an Associate Professor at the University of Michigan where his research focused on biological data management and spatial query processing.

He is the recipient of an NSF CAREER Award, multiple Microsoft eScience and IBM Faculty Awards. He has served on a number of program committees including ACM SIGMOD and VLDB, and has served as an associate editor for the Systems and Prototype section of ACM SIGMOD Record, as vice-chair for IEEE International Conference on Data Engineering 2005, and as an associate editor for the IEEE Data Engineering Bulletin.

He is the PC co-chair of the upcoming premier database



conference International Conference on Very Large Data Bases (VLDB) 2009. Dr. Patel is also an entrepreneur. He architected a global Internet advertising infrastructure for Zattoo Inc. (a P2P IPTV company). He is currently the co-founder and CTO of an Ann Arbor-based startup called Locomatix, which is developing technology to enable location-based services. ■

# Student Focus

## Andrew Hanson Wins DeWitt Scholarship

Senior Andrew Bradley Hanson was awarded the 2008 C.S. Department DeWitt Scholarship, given annually to one or more juniors and seniors based on high academic achievement. In addition to a 3.9 overall GPA as a double-major in CS and CE, Andrew has participated for three years on the UW IEEE robotics team. He also did an internship last summer at Avid (a multimedia company in Madison) and is doing one this summer at Microsoft, and he has recently co-founded a start-up company called PerBlue.

We introduce him to you through the following Q&A.

*Q: How did you come to double-major in CS and CE?*

A: Since before I was 10 years old, I've always enjoyed writing code to do different things. When I applied to college I knew that I wanted to major somewhere in the spectrum of CS - CE - EE. I chose Wisconsin because the CS and ECE departments allow flexibility in moving among these fields. I

wanted to focus on technical courses, so I started out as a CE major. I found that I really liked my CS courses and it was easy to add the double major.

*Q: What courses have you enjoyed the most?*

A: CS 540 with Jerry Zhu was a lot of fun. It was a brief survey of all types of things people do in AI. I also really liked two courses with Gleicher, one in graphics and one in games. The 367 honors course with Susan Horwitz was also fun and interesting.

*Q: How did you get interested in robotics?*

A: When I was in high school I participated in Science Olympiad, and one of the events was to build a robot that would go around and pick stuff up. It was very simple, but it's really cool to see the code make something move. Thus, I joined the UW IEEE Robotics Team in my freshman year.

*Q: Tell us more about your start-up.*

A: Last year Justin Beck (another



senior double-majoring in CS and CE) and I founded the start-up to create a cell phone adventure game. The idea is to build on recent GPS-aware mobile phone environments – such as the Google Android system and the new developer

kit for iPhone. A key idea in the adventure game we are developing is that where you are in the real world is also where you are in the game.

*Q: What are your plans after you graduate?*

A: I'm planning to graduate in December 2009 because I want to take a couple of extra CS courses. That will also give me some time to decide between graduate school, working full-time on the start-up, or working at another company. I had a great experience at Avid and I'm enjoying my work at Microsoft. So these all seem like fun things to do. I hope to do some research with Prof. Gleicher this year, which will maybe help me decide whether I want to go to graduate school. ■

# Invest In The Department

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 2007, contributions to Computer Sciences funds totaled nearly \$60,000, allowing the Department to award ten new Alumni Scholarships to incoming graduate students and to support seven undergraduate and graduate summer research assistantships. Because of John and Tashia Morgridge's generous

matching gift, the Department's Board of Visitors has announced a goal of raising \$150,000 (\$300,000 after the match) to support Computer Sciences. Just specify "gift for Computer Sciences" in response to ANY UW Foundation solicitation and the Morgridges will match your gift.

Please consider this special opportunity to double your gift to support the Computer Sciences

**Double your Gift!**  
**Contribute at:**  
<http://www.cs.wisc.edu/invest>  
**John and Tashia Morgridge will match your gift.**

Department via the Computer Sciences Annual Fund.

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](mailto:alumni@cs.wisc.edu) if you would like further information about gifts to the Department.

Thank you! ■

# Recent Gifts

The UW-Madison Computer Sciences Department wishes to thank the following for their generous gifts during 2008:

*Ten Thousand Dollars or Greater:*  
Cisco University Research Program Fund, Elsevier Inc., Microsoft Corporation, NEC Laboratories of America Inc., Sun Microsystems Inc.

*Five Hundred Dollars to Ten Thousand:*  
Wendelyn L. Basche, Sashikanth Chandrasekaran and Vaishnavi Sashikanth, Joshua S. Flood, Zachary T. and Katie L. Henkel, Robert A. Jones, Norman H. and Sandy N. Koo, Matthew R. Korn and Cynthia K. Miller, Richard A. Le Faivre, Andrew Ma, Karthikeyan Sankaralingam, Daisy Y. Wong, David A. Wood and Jane L. Doughty

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Perry Kivolowitz

## Every Gift Doubled!

John and Tashia Morgridge pledge to match every CS gift received in 2008!

Please visit  
<http://www.cs.wisc.edu/invest>  
and make your contribution

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