

Alumni News

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Computer Science Alumni Association • A Constituent Group of the University of Illinois Alumni Association

IMCS program online Earn MCS over the Internet

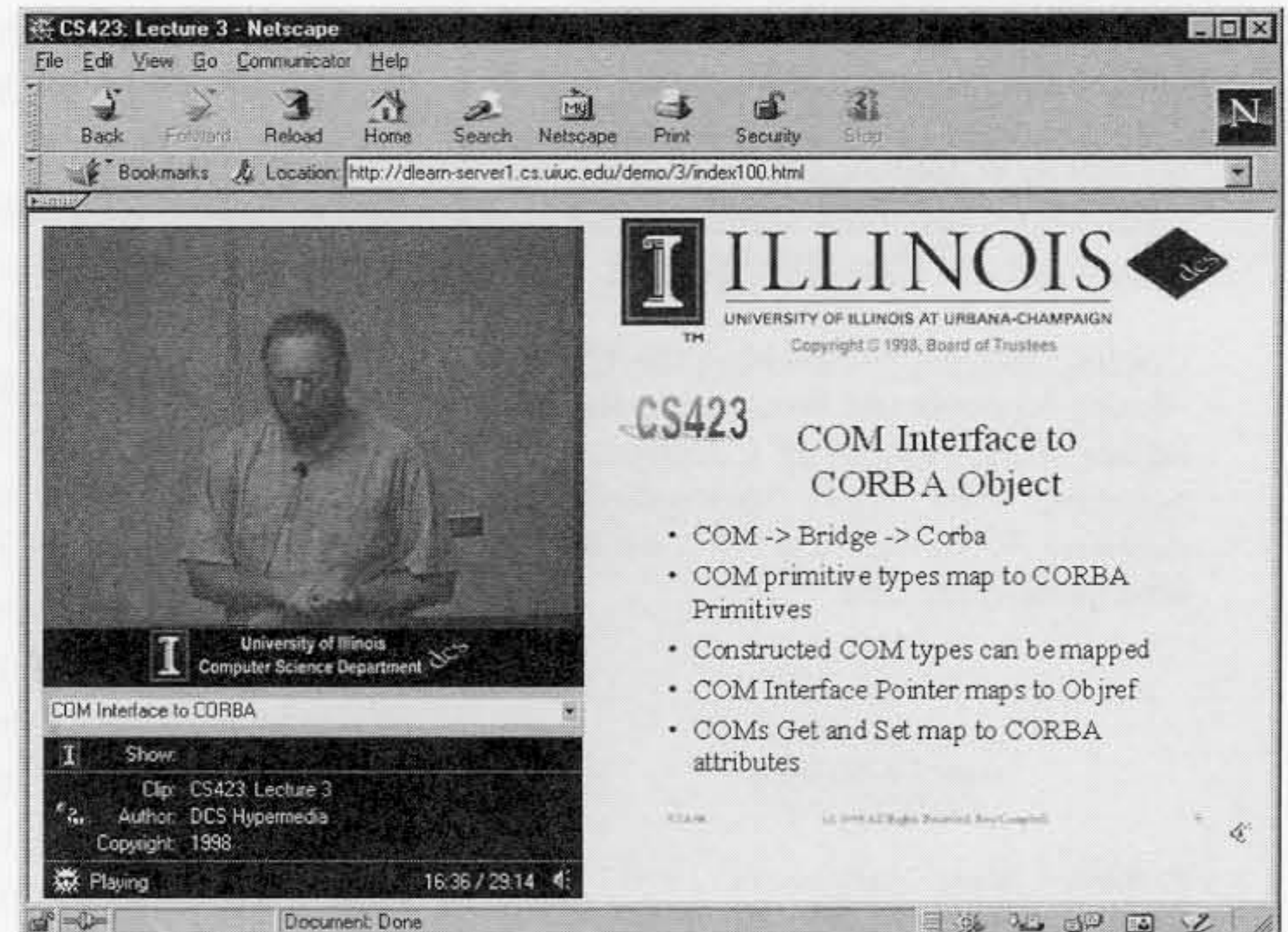
by Drew MacGregor, hypermedia coordinator, and Bill Kubitz, associate head

January 1999 marked the first anniversary of the creation of an ambitious distance education program within the Department of Computer Science. The Internet Master of Computer Science (IMCS) program is changing the way we view teaching and modifying our notions of continuing education. The IMCS is an Internet delivery of the Master of Computer Science degree, with an emphasis on distance learners.

The past year can best be described as a process of learning, evolution, and growth. A year ago, we began with a site-based program in Delhi, India, through the Quantum Institute. In the short span of a year, we have progressed from shipping videotapes by express mail to downloading digital video over the Internet. In addition, the program has expanded from 3 pioneering students in India to 36 students in India, 14 students in the United States, and 1 in Australia. Today, by utilizing the Internet as our method of delivery, we have reduced production and delivery times and made it possible for students around the world to take CS courses from the University of Illinois.

"Webifying" courses and moving from on-campus delivery to Internet delivery have been hot topics on campus for the past five years, and the CS department has taken the lead in making use of digital video for the Internet delivery of class lectures. In addition, our program is unique in that it is based on delivery of regular, ongoing, on-campus courses to off-campus students in near synchrony with the on-campus courses. The challenge of Internet delivery was, and remains, how to create an environment where remote students feel they are receiving the same level of attention and quality instruction as on-campus students. While it is straightforward to give all the students shared access to videos, discussion groups, course materials, and the like, it is much harder to accomplish the assessment aspect of course, testing. If one can accomplish all assessment by objective measures then one can use many available tools that can administer true/false, multiple choice, and the like via a secure Web interface. Of course, it remains

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Screen capture of CS 423 lecture online, with Professor Roy Campbell

Business leaders kick off new lecture series

In fall 1989, the CS department launched an exciting new series of talks called the Distinguished Entrepreneur Series. The idea is to examine computing issues that lie within the intersection of business and technology. Invited speakers are founders or leaders of companies whose strategic plans depend strongly on advancing computing technology. The first two talks were given by alumni Tom Siebel (AB'75, MBA'83, MS'85), chairman and CEO of Siebel Systems, and Sohaib Abbasi (BS'78, MS'80), senior VP, tools division, Oracle Corp. Jerry Fiddler (AB'74, MS'77), founder and chairman of Wind River Systems, and Rick Schell (AB'72, MS'77, PhD'79) former VP of Engineering for Netscape, will speak this spring.

This series complements our technically oriented Distinguished Lecture Series, in which lecturers are researchers from academia, industry, and government. Fall 1998 brought Larry Peterson from Princeton, Leslie Valiant from Harvard, John Hennessy from Stanford, Gary Miller from CMU, and David Waltz from NEC Research. Mary Shaw from CMU, Andrew Stuart from

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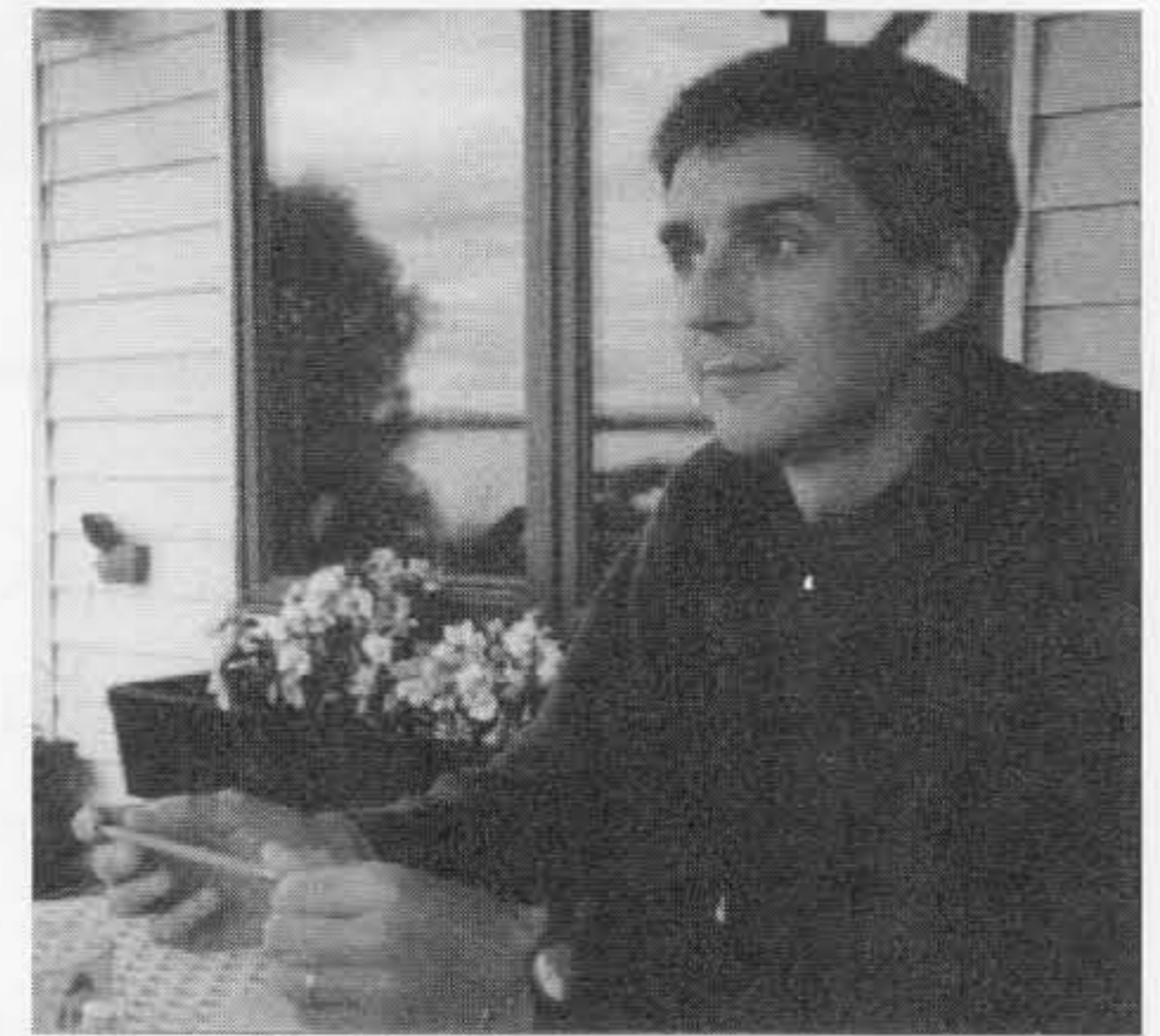
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Lecture to honor Mueller-Thuns

A distinguished lecture will be named in memory of Robert Mueller-Thuns, MS'88, PhD'90, who died on May 14, 1998, after a long struggle with Hodgkin's lymphoma. The Robert Mueller-Thuns Memorial Fund was established by his wife, Nikki Mirghafori Mueller-Thuns, BS'91, and family, friends, and colleagues. This endowed fund will annually support a distinguished lecture in the computer science department in perpetuity. Robert was a software architect at Evolve Software in San Francisco.

Paul Chen, MS'78, PhD'93, was a close friend of Robert's. He writes: "Robert was known by his Illini friends as The Uberman, partly because of his German ethnicity, and partly because he was an amazing individual—someone whom we respected and admired for his ability to achieve excellence in all that he did. Despite and throughout his illness, Robert maintained an optimistic and cheerful attitude. He had a passion for living—he loved to travel, to enjoy good food, to listen to and make music, to read literature and non-fiction, to play sports. And he excelled in life: the Uberman could outrun, outswim, outski, outrow, out-ultimate, out-almost anything us, all the while smiling effortlessly and encouragingly at us lesser mortals. A telling fact was that he and Nikki didn't own a television;



Robert Mueller-Thuns

rather than observe other people living, Robert wanted to experience it, taste it, see it, try it, do it. In their family room, sitting where a TV might sit, you'll find a bookshelf lined with the *Encyclopaedia Britannica*. This fund Nikki has created in Robert's memory serves his memory well: Robert made life-long friends at the U of I, and he would like it that his name is connected with giving others at the U of I the chance to learn more, think more, and do more. We are lucky to have enjoyed the time we spent with Robert, and are happy to help him help future Illini in the years to come."

To contribute to the Robert Mueller-Thuns Memorial Fund, please contact Louis Rice at the University of Illinois Foundation, Harker Hall, 1305 West Green Street, Urbana, IL 61801, 217-333-6346.

Lecture series, continued

Stanford, and Randy Katz of UC-Berkeley will round out the 1998-99 series.

In addition to his distinguished lecture, John Hennessy, the Frederick Emmons Terman Professor and Dean of Engineering at Stanford University, delivered the 22nd Donald B. Gillies Memorial Lecture on November 9, 1998, on convergence architec-

tures and the Stanford FLASH machine. The Gillies lecture is named after Professor Don Gillies, who taught in the CS department from 1956 until his death in 1975.

Some lectures were Webcast live, and they can still be viewed. Go to the CS home page and click on "guest lectures."

<http://www.cs.uiuc.edu>

Four new professors join department in fall 1998



Jeff Erickson

JEFF ERICKSON'S research area is computational geometry, and he came to Illinois after spending two years at Duke's Center for Geometric Computing. A self-described "geeky math kid," one of his prized childhood possessions was a computer printout of a multiplication table. Since high school, where he learned to program on an Apple II, he

has alternated between doing mathematics and hacking, which, he says, "pretty accurately describes what I do for a living now." After earning his BS at Rice University, he worked for Claris before earning his MS from UC-Irvine in 1992 and his PhD from UC-Berkeley in 1996.

Erickson currently works on algorithms for collision detection. How can a computer detect when things run into each other, and what happens when they do run into each other? One method for detecting collisions of complicated, concave objects in two dimensions uses a structure called an external relative geodesic triangulation. On a computer screen, a simulation using this method resembles a spider web made of rubber bands.

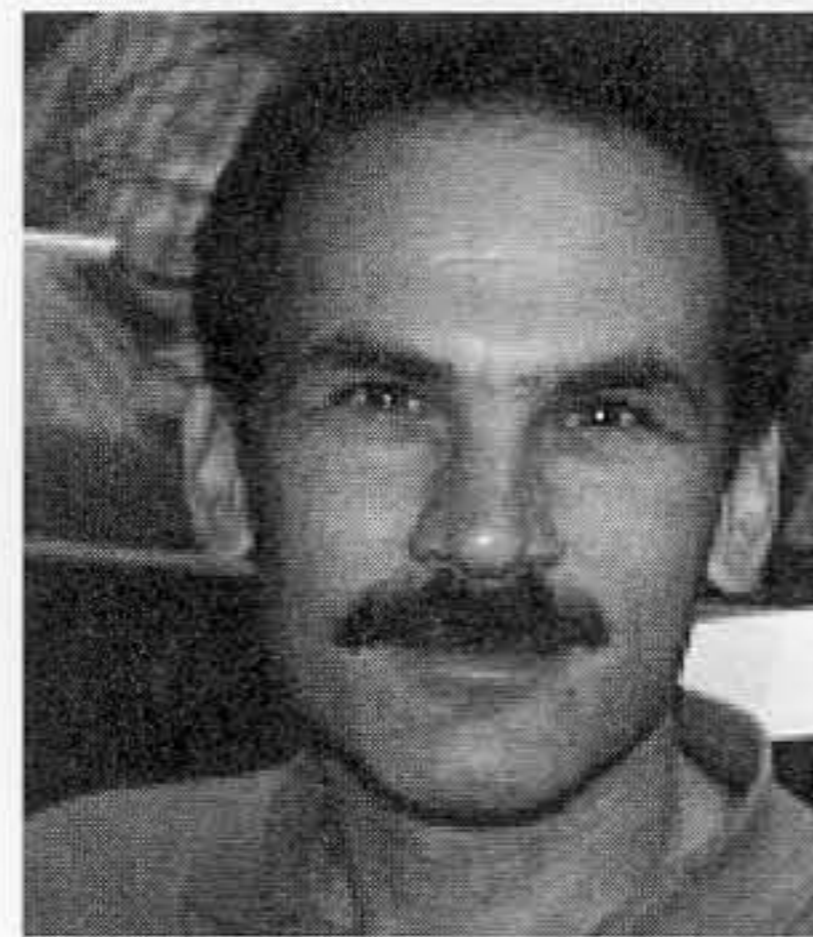
An important application of Erickson's collision detection work is in modeling crack propagation in solid fuel rockets. This research is being conducted at the university's Center for Simulation of Advanced Rockets, directed by CS professor Michael Heath. Another application of collision detection, being developed at UC-Berkeley, is in robotics for automatic manufacturing processes. For example, when designing a parts feeder, it is important to know the orientation of the parts when they are dumped—if a box of parts is dumped at the top, how will the parts align themselves at the bottom? "If you're simulating any collection of physical objects," added Erickson, "you need to detect collisions. There are lots of applications to virtual reality."

Erickson is also studying mesh generation with CS professors Sheng-Hua Teng and Herbert Edelsbrunner. He is also working with Duke University researchers on external memory algorithms. Both of these problems relate to geometry. For example, most of the time when theoreticians design algorithms, they do not worry about available memory. But in many large-scale applications, one must deal with more data than will fit in the computer's main memory. "It might be on a disk, on the Web, or in a warehouse full of tapes," said Erickson. "You want to organize data and design algorithms to access that data in an efficient way. Nobody wants to walk all the way to the library to get one book just to read

the title page. You only want to go to the library and get the book if you're actually going to read most of it."

"People in the database community have been looking at external problems for decades," Erickson pointed out, "and the theory community is starting to catch up. It's the same with collision detection. Graphics and robotics people have been looking at these problems forever. What I'm trying to do is come up with algorithms that I can actually prove something about, in the hopes that I can turn that into more efficient practice. There are lots of heuristics floating around that seem to work okay, in practice, most of the time. But nobody knows why they work well, or when they work well. Or can you even quantify what it means for them to work well?"

Erickson enjoys practicing Aikido and reading independent comic books. His wife is a mathematics professor at Ohio State University.



David Kriegman

DAVID KRIEGMAN is one of the country's leading researchers in computer vision and robotics. He came to Illinois from Yale University, where he was a professor. He has also held visiting appointments at MIT and Cal Tech.

Kriegman's affinity toward the beloved robots from "Lost in Space," "Star Wars," and other worlds, led to his pursuit of creating a robot that behaves like a human. "Computer vision gives the eyes, and robots embed these eyes into intelligent systems," he said. At Princeton, where he earned his BS, his senior project involved building a mobile robot. "In my research, I'm still trying to work on that unfinished senior project," he said. After Princeton, Kriegman went to Stanford for his PhD on a Hertz Foundation fellowship. In 1990, he joined the faculty at Yale. In addition to Illinois' strong computer science program, Kriegman also had an interest in Illinois because his father, Oscar Kriegman, studied here (BS, MS, and PhD in Accounting).

Kriegman's current research focuses on vision-based mobile robot navigation and object recognition. As more people equip their personal computers with video cameras (usually with teleconferencing in mind), one naturally asks how else these input devices can be used.

One answer is to provide a more intelligent human-computer interface, and toward this end, Kriegman is studying how to recognize people from facial images. He has been particularly interested in issues surrounding the

variation in images due to differences in lighting, e.g., sunlight at different times of day or diffuse indoor lighting. Another practical use of this technology would be for a system of ATM machines, which are located both indoors and outdoors. Conventional techniques rely on constant lighting.

Kriegman enjoys the kind of outdoor pursuits that are farfetched in Illinois: mountaineering, rock climbing, kayaking, and skiing. He and his wife, Teresa Gallagher, U of I professor in community health, have a 3-year old son, Bryce.



Lui Sha

LUI SHA came to the department this fall after ten years at CMU's Software Engineering Institute. Sha's area of expertise and research is in real-time systems. He is recognized the world over for two very important contributions to this field. He created the theoretical foundation that solved the Mars Pathfinder reset problem while the

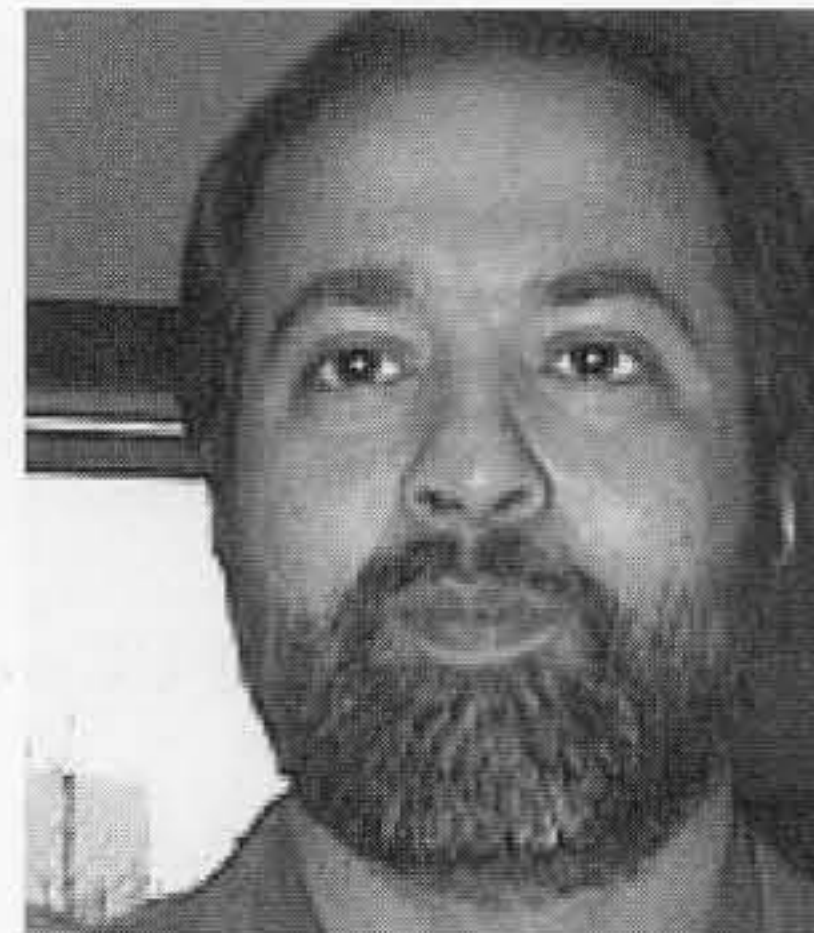
spacecraft was on Mars, and he developed the protocol that underlies almost all real-time operating systems in existence today. Sha was attracted to Illinois by the broad spectrum of researchers working on different things.

Sha has been grappling with how to make changes in a complex system involving many independent real-time tasks and still be able to reliably predict timing behavior of the system. This is known as the generalized rate monotonic scheduling theory. This theory was built upon work originally done by Professor Emeritus C. L. Liu, who in 1973 developed the rate monotonic scheduling algorithm, the theoretical basis for predicting the timing behavior of multiprogrammed real-time systems. Sha's protocol has been adopted as an industry standard for use in POSIX and Ada and other programming languages and tools used in real-time and embedded systems. He is now working on the Simplex Architecture, which facilitates the building of dependable and renewable real-time systems. This architecture provides for dynamic alteration of an active system, tolerates hardware and software faults, and guarantees existing level of performance when software fails. This software allows one to make changes in a real-time system reliably, on the fly, in a way that the result of the changes can never put you in a situation worse than before. "It prevents you from taking two steps backwards," said Sha.

The real-time embedded systems kernel that was used in the Pathfinder mission VxWorks, software from

WindRiver Systems. (The company was co-founded by Jerry Fiddler, AB'74, MS'77, and David Wilner.) One grave problem that occurred a few days into the mission was that the software caused a total system reset of the spacecraft. This was a case of priority inversion, a situation in which a lower priority process blocks the execution of a higher priority process. The solution to this problem was based on a work reported in a 1990 paper co-written by Sha, R. Rajkumar, and J. P. Lehoczky. Wilner credited the three researchers as being the "real heroes" of the situation at the IEEE Real-Time Systems Symposium held in winter 1997. Unknown to Wilner when he said it, all three were in the audience, and at the end of Wilner's talk, they were applauded for their contribution. "When was the last time you saw a room of people cheer a group of computer science theorists for their significant practical contribution to advancing human knowledge?," asked Mike Jones of Microsoft. "It was quite a moment."

When he's not working, Sha enjoys time with his wife and 7-year old daughter. When winter thaws, he plans to learn to kayak in the lake behind his house.



H.V. Jagadish

H. V. (JAG) JAGADISH is a database researcher with interests in digital libraries, distributed data management, data coordination, and data analysis. After earning his PhD from Stanford in 1985, he spent more than a decade at AT&T Bell Laboratories in Murray Hill, N.J., and eventually became head of AT&T Labs database research department at the Shannon Laboratory in Florham Park, N.J.

Jagadish is well-known for his research on object-oriented databases, active databases, event-driven systems, main memory databases, database system architecture, indexing (particularly in multidimensional spaces), and data reduction of very large data sets.

The topic Jagadish is most involved with now is databases in a very wide-scale, distributed context. For this research, he is using hierarchically structured databases and lightweight directory access protocol, currently popular for accessing directory services.

Jagadish's wife currently teaches marketing at the University of Michigan and hopes to join him in Illinois in the near future. They have two children, a boy, 7, and a girl, 4. Jagadish plans to learn to fly and to play the trombone.

Sara Rothmuller

Distinguished HP career leads to wonderful gift for department

Sara Rothmuller, BS'76, went to Hewlett-Packard when she graduated and stayed, happily, for her entire engineering career. Her path to engineering was a winding one, and it wasn't until she came to Illinois that she found her niche in computer hardware design. She recently resigned from her position as R&D manager at HP's Santa Rosa facility and looks forward to spending more time with her three young children.

Rothmuller did not start out wanting to be a computer scientist. An accomplished violin and viola player, she aspired to be a professional musician and enrolled in the Eastman School of Music at the University of Rochester, where she earned a bachelor's degree in German and linguistics. Looking to be more marketable, Rothmuller entered the master's program in social work at Rutgers while working for the Middlesex County Welfare Department. "I was dating an engineer who made ten times the salary I was making, and the problems he was solving seemed like fun," she said. She signed up for some engineering courses at Princeton, but the school refused to admit her to the degree program citing the fact that she already had a degree. She turned back to U Rochester and hit a similar roadblock: Rochester tried to talk her out of studying electrical engineering. Thus began the search for a good engineering school, which led her to the University of Illinois.

Rothmuller began at Illinois in summer 1975. "The classes at the U of I were geared to my level, and I liked the hands-on, practical approach. Getting admitted to the bachelor's degree program was a dream come true," she said. "My first summer at Illinois confirmed everything I thought about engineering being my cup of tea. I just loved those classes." Rothmuller spent most of her time with her nose in the books, although she did find time to play bridge, which is still one of her passions. She also played viola for Krannert productions.

Rothmuller attended Illinois when there was the EE/CS degree, a combination degree that was offered between 1969 and 1976. As a budding hardware designer, Rothmuller built a computer for one of her classes. "The microcode that got executed was actually made from wires in a 3-foot by 18-inch matrix with a soldered



Sara Rothmuller

Bill Brewer

germanium diode for the multiply function," she said.

Rothmuller went through the on-campus recruiting process that many engineering graduates chuckle about to this day. She set her alarm for 3:00 am and braved a blizzard to get to the Illini Union to sign up for an interview with Hewlett Packard. "California sounded neat, and I heard HP was a good place to work," she explained. A dozen people were already waiting in the frigid cold at the locked doors of the Union. When they got inside, someone found a deck of cards, and a lively bridge game got underway in the line. HP really stood out. Unlike other companies at the time, "they raked me over the coals technically

for 8 hours," she said. "That meant that they were interested in what I knew, not in the fact that I was a woman with an engineering degree. I felt like I wouldn't be a token."

Rothmuller started at HP-Cupertino as a hardware design engineer working on the I/O boards for the HP 1000 computer. During her 21 years there, she moved up the ranks from project manager to section manager to R&D manager. After putting in years of 60-70 hour work weeks, Rothmuller felt it was time to retire. "I credit the education I received at the U of I with giving me the background I needed to work my way to financial independence by my mid-forties. I didn't win the lottery nor inherit anything to speak of. My financial independence was achieved by living a lifestyle that didn't require 100 percent of my paycheck and salting away my bonuses as well as a portion of my pay each month."

Sara and her husband Ken chose to share their financial rewards with the university by establishing a charitable gift annuity in the computer science department. "I've been to many universities—Illinois and points east. I wanted to find my niche in life, and I put a lot of effort and energy into things that just weren't for me," she said. "Illinois turned me on to engineering, and I'll feel forever indebted. Not only have I enjoyed my career, but it's been really good to me financially. It's been a two-way street. Engineering was for me, and I've been able to contribute to engineering."

Josh Baer's journey from art to CS and back

Josh Baer, MCS'79, studied math and computer science as his particular form of rebellion but returned to the heart of the art world, where he is now a thriving dealer, professor, and publisher. Why he got a master's in computer science is one of the sweet mysteries of his life, but somehow that experience is inextricably woven into who he is today.

The son of artist Jo Baer, a well-known contemporary painter associated with minimalist art and imagery, Josh Baer was determined to do something different, so he studied mathematics at Kenyon College. Like a typical 21-year-old who didn't know what to do after graduation, Baer decided to stay in school. Equipped with one course in computer science, he enrolled in Illinois' MCS program. "It seemed like if you learned computer science, you could apply it to anything," he said.

"I should have left after a month," Baer recalled, "but I stuck it out for two years." Indeed, his Illinois memories highlight the luxuries that current computer science students now enjoy. "The punch card era and waiting in line for a computer was not a pleasurable experience," he said. He also felt like a fish out of water, he said, because he "didn't have a slide rule, didn't wear a T-shirt under an Oxford shirt, and didn't have disappearing sideburns." He did enjoy his courses in artificial intelligence and information theory and his time spent running camps and sports programs for the Urbana Park District.

Baer did his master's thesis on horseracing by designing a linear regression analysis applied to handicapping horses. "I was probably the only Champaign-Urbana resident who subscribed to *Daily Racing Forum*," he quipped. He took on the challenge as something that intrinsically interested him (his father took him to the races as a child), and his thesis is still sitting in a file cabinet. "It's waiting for some computer expert to apply my theory to reality," he said. "It could conceivably work, if anyone is interested."

Baer bleakly envisioned a computer career "working for the government figuring out how to get bombs to drop, or working for a bank figuring out how to make an ATM card work faster." Clearly, he hadn't found his calling. "One day I went to the Art Institute of Chicago on a date, and I said Aha! I want to go do art!" So he headed to New York City in 1979 and landed a job as the director of a not-for-profit gallery he described as an alternative space for new artists and performance. He spent four years there before publishing an art magazine and starting Neutral Records, the independent record company that introduced the band Sonic Youth to the



Josh Baer

world in 1982. At age 30, Baer opened his own commercial art gallery in Soho, the Josh Baer Gallery. He first started work with Nancy Spero, perhaps the best-known feminist artist in the country. He became friends with Spero's husband, Leon Golub, an important contemporary painter whom he later represented. (Small world: Leon is cousin to Gene Golub, BS'53, AM'54, PhD'59.) "I am a huge fan of theirs," Baer said, "because they take a social and political stand to their work in a beautiful and aesthetic way." Baer admits that his educational background has helped him become a better strategic and practical thinker, and he is completely comfortable with today's computers, which he uses for his work. Baer ran the gallery for 10 years.

Today's technology has changed art and how we interact with it. "It is the end of multiculturalism but the beginning of globalism—of getting information from and access to art and people, of ideas that are truly without boundaries, that are less nationalistic," Baer said. "We are beginning to form a sort of shared culture, from Brazil to Nigeria to England to Chicago." He also recognizes Cyberspace as a new frontier for art, but not simply as a means for people to collect (e.g., art on Web sites) or to generate "computer art," most of which he sees as technology tricks generally lacking in content. "It is larger than that. Something will come out of it, but we don't know what," Baer predicted, as younger, more computer-friendly people populate the world. Already computer technology is changing the way the population at large interacts with art. For example, the Museum of Modern Art plans to give Palm Pilots to patrons for viewing a show, so that they can interact more directly and completely with the art.

Baer currently publishes a weekly newsletter, an insider's guide to the contemporary art world, and he is a professor at the Fashion Institute of Technology in New York City. He lives in Manhattan, where he is "single, but spoken for." He gave up marathon running and has taken up golf, a whole other form of artistic expression.

<http://www.baerfaxt.com>

Artistic CS siblings: Susan Illing and Mark Illing



Susan Illing

Susan Illing, BS Math/CS'71, is senior systems analyst for the Art Institute of Chicago (AIC) who describes herself as a worker bee. With a strong interest in math, she studied CS as a fluke, the result of a friend recommending that she take CS 100 for the fun of it. As a dancer, she is a lifelong student of the ballet and is currently writing a book about it.

One strong memory she has of campus is when the National Guard came in 1968 to quell student activity against the war in Viet Nam. "But the CS students kept traipsing to DCL, putting their little jobs in. They never quit!" She was active in student government. One of their activities was running something called the Student Book Exchange, where students could take their used textbooks to a room in the Illini Union to exchange for the next semester's books. That same group started *The Advisor*, a teacher's class evaluation book. And her love of theater led her to become the first secretary of the Krannert Center Student Association.

After a brief stint with the Peace Corps, she worked as an applications programmer for Sears in Chicago, writing assembler for IBM mainframes and later communications software. She then joined SEI Information Technology as a consultant, where she continued applications work for large corporations. A group of friends from SEI started their own consulting firm, Technical Support Group (TSG), and Illing left SEI to become TSG's third employee. TSG co-founder John L. Turner, BS Math'65, remembers her well. "She liked the job here because it didn't interfere with her ballet schedule. For more than a year, we worked starting at midnight in the second sub-basement of the Amoco building. It was sort of like being a vampire," he said. (About 15 years later, TSG was sold to CIBER.)

"I was making lots of money, but I was working my butt off. It was time to slow down," she recalled, so she quit but maintained good relations with her TSG friends who would refer jobs to her. One of these jobs was with the Art Institute of Chicago. They needed someone to write an interface between their member database and the special events ticketing service. "That was my foot in the door," she said, and in 1996, she was hired.

The working atmosphere at the Art Institute can be enchanting. "Almost everyone here is an artist," she said, "from programmers to curators to data entry people. You walk around and you see how artistically and beautifully people dress. There are works of art walking

around here!" Illing herself is not a visual artist, but she remains active in the theatre and the ballet, which she has studied since childhood. She's been with the Ruth Page Foundation School of Dance since the early 1980s and is working on a book about ballet teacher Patricia Klekovic, whom she considers to be a national treasure.

<http://widow.artic.edu/aic/general/>

Mark Illing, BS'81, leads a charmed life. He has found a career niche in two areas close to his heart, embedded systems and working with people with disabilities, at Tegic Communications in Seattle.

At the suggestion of his father, he came to Illinois to study engineering and wound up in CS. Like his sister Susan, 10 years before, he became involved with theater at Illinois, and as a junior, he held a graduate lighting assistantship. As a senior he worked for the human attention research laboratory in the psychology department (his goal-directed sequence was in psychology). It was this human factors experience that helped him land his first job after graduation at Boeing, in Seattle, where he did computer graphics research for their human factors group.

His supervisor at Boeing left to form Delta Graphics, Inc., and he was eventually recruited to that organization where he headed the embedded software development of real-time visual simulators used in tactical team training. This DARPA-funded research led to the development of SIMNET, the world's largest interactive virtual reality war game environment. Then he joined Virtual Vision Corp., developing software tools for body-worn computers. While he was at Virtual Vision, a 4-line blind ad in the paper caught his eye: Tegic Communications was looking for an



Mark Illing, with Bob, one of his skiers

embedded software engineer with interest in working with people with disabilities.

His interest in the disabilities community started when he joined Ski-For-All, a nonprofit organization teaching people with physical and developmental disabilities to ski. Ski-For-All is the second largest ski school for the disabled in the country. He immediately faxed in his resume and soon received an offer from the company's founder.

Tegic specializes in text entry for reduced key environments. Specifically, it has been working on how to simplify text entry on cell phones and other devices where multiple letters map to the same key. Tegic has analyzed the frequency of use of words and stored the information in a compact database to enable words to be entered ambiguously. The same 4 keys are pressed to obtain "cool," "cook," "amok," and "bonk"—the user chooses among alternates when the first word presented ("book") is not the desired word. The first word presented is the desired word more than 95 percent of the time. "The cell phone industry is crazy about this technology," he explained, "because they want to increase revenue by doing more things with cell phones than just talking. In Europe, where SMS (short message service) is available, wireless data exchange is quickly catching up with voice service."

The impetus for this technology came from research for the disabilities community, which was looking for efficient means to enable communication for people who can't speak and have other physically disabling impairments. Many adaptive speech devices are available, but they severely limit the vocabulary available because of the word access method. By reducing the number of keys needed to enter text, the ability to communicate with a full vocabulary was extended to a large segment of those with physical and speech impairments. Someone who can't type on a standard keyboard may be able to distinguish between 9 larger keys, which can be accessed in a number of ways, e.g., large keys on a touch screen, the 8 major compass headings specified with a joystick, or single switch access from a display scanning over the keys.

Tegic's founders recognized that text entry on a telephone keypad with its 12 keys was analogous to the problem they were solving—when it comes to inputting text into small form factor devices, everyone is disabled. Because adaptive communication products are extremely expensive to produce and because the market is not that large (thankfully, said Mark), Tegic turned to the wireless phone industry.

Wireless phone manufacturers and telecommunications companies, realizing that wireless phones would become ubiquitous and that people would eventually use telephony for data access, jumped on Tegic's technology. It could also be employed in the PDA market. Tegic's

flagship product is T9™ (for text on nine keys), text input software that can work with today's 3Com PalmPilot or IBM WorkPad, and the company has partnered with Nokia and Motorola and others to exploit this technology. They have also expanded beyond English to include a host of other languages, but they have not abandoned their efforts on behalf of the disabilities community. Illing is especially proud of a grant that the company hopes to receive from the National Institute of Health to take their software and apply it to readily available commercial devices.

Illing has been involved with the theater ever since he was in a Christmas pageant in second grade in Downers Grove, Ill. He worked as a stage hand and lighting assistant for both Krannert and the Assembly Hall when he was a student. Now, in Seattle, he is active in community and professional theatre doing set construction, lighting and set design, and production management.

<http://www.tegic.com>

CS 100 features alumni speakers

CS 100 this year brought in yet another outstanding host of alumni speakers. This is the class for freshmen in CS intended to expose them to the variety of careers available to CS graduates, the variety of areas within the field, and to give them a glimpse of the day-to-day work of a CS professional. This year's speakers were:

- **Larry Hoehne** BS Math/CS'82 software development manager, Motorola.
- **Les Murphy**, BS'77, chief technology officer, Compuware.
- **Marc Mitchell**, BS Math/CS'89, managing partner, Enterprise Information Solutions.
- **Mark Reichart**, BS Math/CS'84, Boeing. Mark's uncle was a student of Professor Ted Poppelbaum.
- **Larry Schoeder**, BS'79, distinguished member of technical staff, Lucent.
- **Ed Boon**, BS Math/CS'86, programmer and creator of Mortal Kombat, Midway Games.
- **Jennifer Mozen**, BS'97, Intranet/Notes consultant, and **Sara Young**, BS'98, marketing information technology, Procter & Gamble. Both Jen and Sara were TAs for CS 100 when they were seniors.

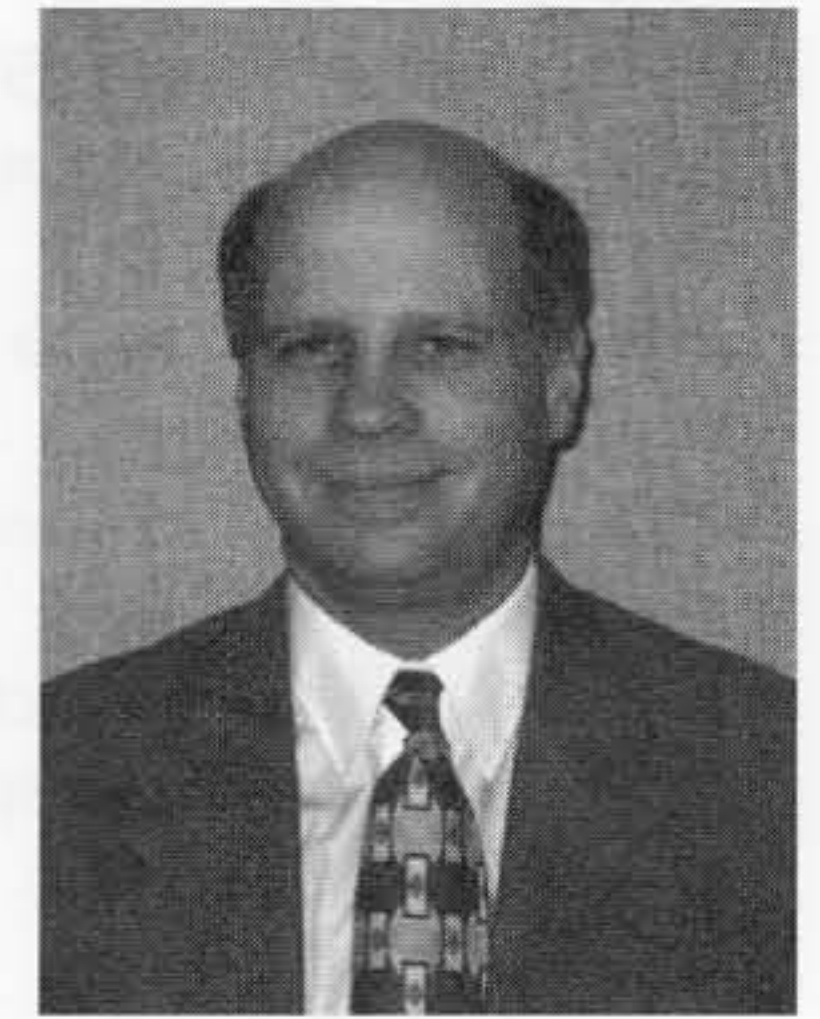
Keith Nater: Book 'em!

You may not be familiar with Keith Nater's software, unless you have a career in law enforcement, because the software he develops for EPIC Solutions is used in police departments, jails and prisons. "It's like hotel management for inmates," said Nater, MCS'81. EPIC Solutions, a fast-growing company based in San Diego, is the leading provider of image-based booking and jail information management systems for criminal justice and public safety agencies worldwide. The company's novel approach was to digitally link photo images with the vast amount of data needed to keep law enforcement agencies running smoothly.

After earning his BA in music education in 1979, Nater went for an MCS degree. "The MCS was a good program," Nater said. "I'm so grateful that it was around." He started his career with General Dynamics, and then spent more than 15 years with SAIC (Science Application International Corporation), where he worked his way from programmer to chief of software engineering for the entire corporation.

Dan Crawford, who had worked with Nater at SAIC, founded EPIC in 1992. The idea behind the company was to incorporate an image utility into a police department's database. It is required that a photograph be taken of anyone booked by the police. If this process could be done digitally, the money saved on film alone would make the effort worthwhile, plus the image could be linked to other associated information in a single database. The company's first product was an application called BOOK'em. Bouyed by its success, EPIC extended its efforts to jail management software with a product called HOLD'em.

Crawford recruited Nater in 1997 to be EPIC's vice president of engineering. The company had grown to 85 employees. It was cited as one of the top ten fastest growing companies in San Diego that year and, according to the *San Diego Union Tribune*, one of the "coolest." In 1998, EPIC was named as the eighth fastest growing company in San Diego and Orange County and in the top 200 of fast movers in the U.S. in Deloitte and Touche's annual "Fast 50" and "Fast 500" listings.

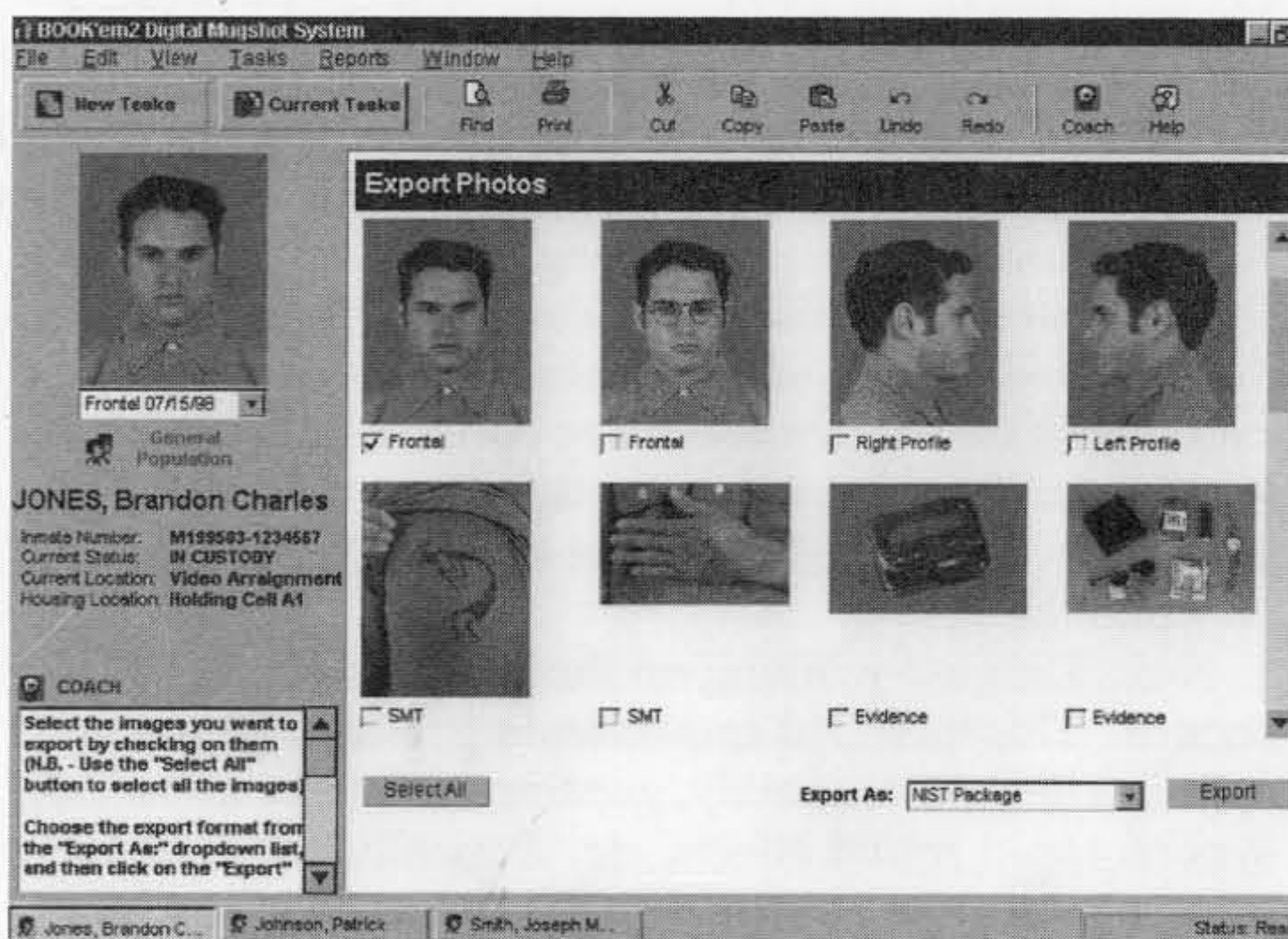


Keith Nater

EPIC's software tracks a person through the entire judicial system, from arrest to release from prison. "A lot of the people being booked into jails lie," Nater pointed out. "They don't want to be identified. They use fake names, for instance. Our products must enable officers and criminal justice professionals to do very flexible searching on even parts of information to see if the offender has been arrested before. We allow the officers to search on physical descriptions, phonetic sounds of names, and so forth. If you can ID a repeat offender, then you can associate them with their record. We're one of the few industries where you assume no information is really valid."

"It's crucial that our software builds an airtight record," said Nater. "The institution (EPIC's client) must have a full record of everything to defend itself. For example, it is the prison's responsibility not to sell candy to a diabetic, even if the diabetic buys it himself at the commissary. The diabetic prisoner may eat lots of candy on his court date so that he is sent to a medical facility instead of going to court. EPIC's system has to catch these things and keep track of practically everything else. How likely is an inmate to be a victim or perpetrator of violence? How many escorts do they need? What are their cell assignments, gang relationships, etc.? The system must interface with the court system, schedule transportation of prisoners, check out visitors, calculate time left on sentences, and make sure the right person is released. Needless to say, the system is very secure and completely internal."

The corrections and law enforcement industries are complex. "A prison is a complete city within walls," said Nater. "The biggest challenge has been working in an industry whose use of computers is primitive. Lots of policies have grown up in manual processes, and lots of automated systems don't talk to each other. There are so



A screen capture from BOOK'em 2

continued on p. 11

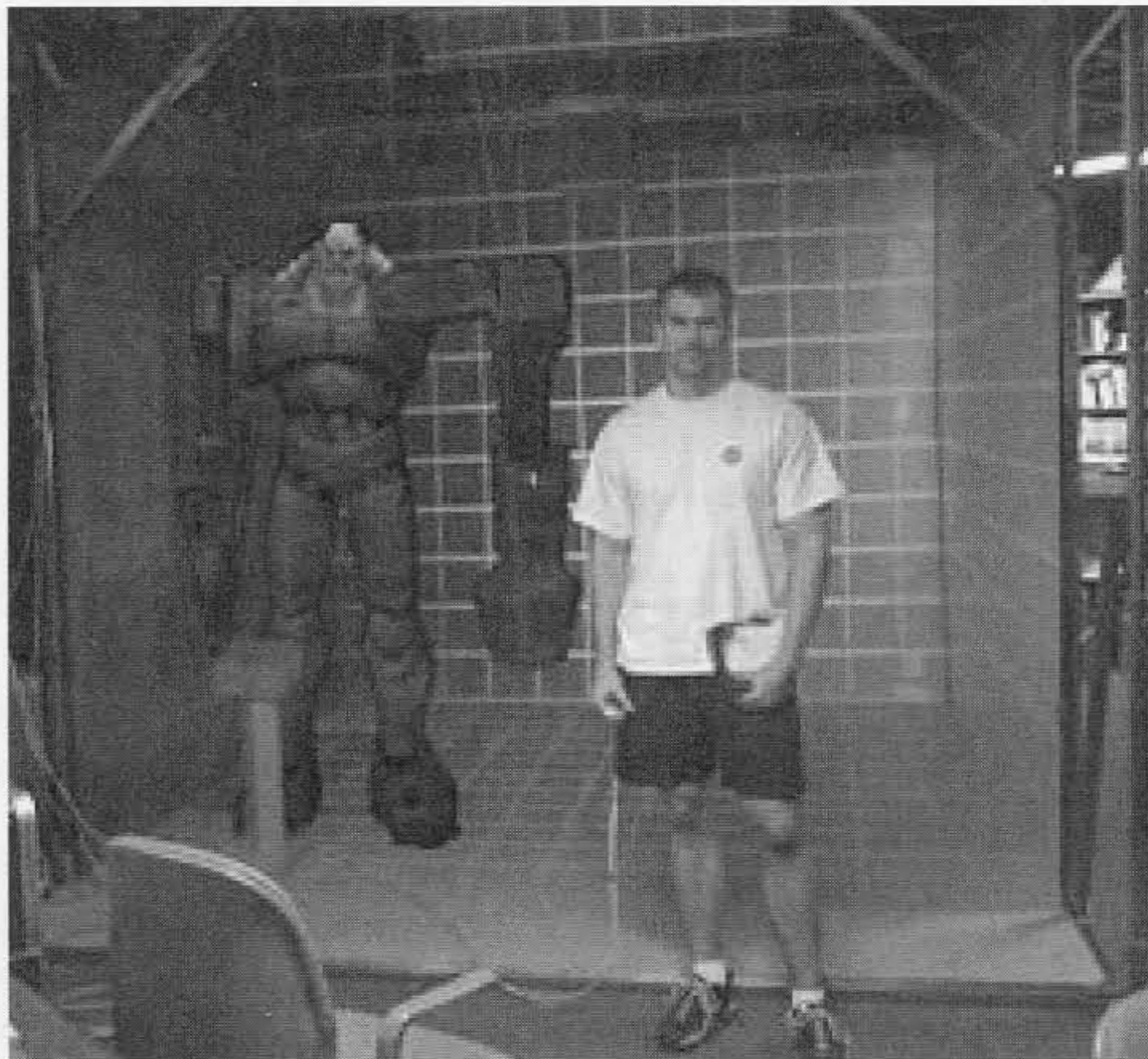
Paul Rajlich: Wow—It's QUAKE in VR!

Paul Rajlich, BS'95, MS'98, is the son of two computer scientists. His father, Vaclav, worked for the Research Institute for Mathematical Machines in Prague. His mother worked at Metroproject on one of the earliest computers in Czechoslovakia, where she did finite-element analysis of the heat dissipated by the Prague subway. Rajlich's family escaped to the U.S. from the communist regime when Paul was a child, settling in Ann Arbor, Michigan. Vaclav is now a computer science professor at Wayne State University. So, computers were always around the Rajlich household.

Paul Rajlich wrote his first programs—games—in Basic, for the TI99/4A, a 450 bps machine that used audio cassette tapes to store data. In junior high school, he wrote a game called Lasertron for the IBM PC, which he has reincarnated in Java. More than 50,000 people have downloaded it from his home page during the last year, and it won the Editor's Choice award from bonus.com, a Web site for kids.

Rajlich came to Illinois on the strength of its computer science programs and stayed for both BS and MS degrees. As a grad student, Rajlich took CS 497, a course in virtual environments taught by Polly Baker, head of the visualization and virtual environments team and associate director of NCSA. This was the class that introduced him to the CAVE™, and Rajlich wrote CAVE DOOM as his class project. Rajlich wrote his thesis, "An Object Oriented Approach to Developing Visualization Tools Portable Across Desktop and Virtual Environments," while working for Baker as a research assistant. Because CAVE applications are usually developed specifically for the CAVE and because they are not easily transferred, Rajlich designed a tool whose objects could be shared by both the CAVE and desktop.

After earning his MS, Rajlich joined Baker's group as a research programmer, where he is currently helping the Radio Astronomy Imaging Group visualize its data. In the spring, he will be working on RiverWeb. A consortium, including NCSA, will use advanced computer



Paul Rajlich stands in front of the CAVE. A monster has been superimposed into the image. During the game, the grid is replaced with stereo images. With the stereo glasses on, that's how up close and personal the monsters can get!

technology in museum exhibits devoted to the Mississippi River's physical and biological systems.

One of the things Rajlich likes about working for NCSA is the freedom to go in other directions in his spare time. (Indeed, this is how Mosaic was born.) This freedom led to Rajlich's current claim to fame: CAVE QUAKE II—an compelling adaptation for the CAVE of the popular combat-action game Quake. (Quake is the phenomenally successful computer game, written by id Software's John Carmack and Michael Abrash, that followed Doom.)

You can download CAVE QUAKE II from

Paul's home page, but you'll need a CAVE in which to play it! Rajlich lives in Urbana with his wife, Cynthia, BS Kinesiology'96, and their son Michael Jacob, born in October 1998.

In his words, here's the story of Rajlich and CAVE QUAKE II:

My youngest brother Luke came to visit, and I showed him the CAVE and my CAVE DOOM. His reaction was "Wow! This is cool. But Quake would be better!" Around the same time, Rick Weyrauch from Paradigm Simulation Inc. had done some work loading data from the Quake II formats into an SGI-friendly format (Performer). He had done the tedious job of interpreting the Quake II specification, and I saw a wonderful opportunity. I took his loaders, improved them, and made them work with the CAVE library. This allowed me to load Quake II geometry into the CAVE.

Next, I started working on the game engine from scratch. This included implementing user navigation, collision detection, gravity, gunfire, AI for the monsters, synchronized sound effects, etc. Basically, the loaders gave me the geometry from the PC game, but I had to add behavior to the geometry and implement user interaction. The resulting demo is not a true Quake II client, but it is quite playable and shows how cool Quake

It would look in the CAVE. It demonstrates the advantages of head-tracked perspective. If you want to look down, look down. If you want to crouch, crouch. You can even get on the floor and peek around corners. The input device (called a wand) is also tracked. From your perspective, the gun appears where the wand is and has the correct orientation. All you do is point where you want to shoot and press a button.

CAVE QUAKE II is a very popular CAVE demo and it's great for showing off CAVE technology. You show people a familiar environment but from a brand new perspective. I've distributed copies to CAVE sites around the world, including the Center for Parallel Computers in Sweden, which recently built the first six-wall CAVE.

Right now, there are 20 or so full-blown CAVEs in the world. In addition, there are as many as 80 lower end systems called ImmersaDesks that run the same software. However, the Idesks are not as immersive, so it's not quite the same experience. If current PC graphics card trends continue, then CAVE-like technology will become much cheaper in the next several years. About 75 percent of the cost of the CAVE is the computer that runs it. Our CAVE is powered by a SGI Onyx2 that has four \$100,000 InfiniteReality graphics cards. When the technology becomes significantly cheaper, then hopefully gaming and VR will come together. I'd really like to be a part of it and see it happen.

<http://monet.astro.uiuc.edu/~prajlich>
<http://www.riverweb.ncsa.uiuc.edu>

many variations in county and state laws, and they change all the time. We have to design our system with enough flexibility to support processes for unique situations."

EPIC has also developed a more high-profile product: Megan's Law software, an application that tracks registered sex offenders. EPIC produces a CD-ROM with photos and information on sex offenders that is distributed quarterly to every police department in the state of California.

The next big thing in prison systems is the ability to interconnect facilities electronically, said Nater. This is currently being tried in the St. Louis area, with the city and county facilities sharing the same system. "We're working to develop informational exchange standards," he said. "There are very few standards in this industry." EPIC is also considering branching into military lockups. Nater's team is completing the development of two next-generation products, BOOK'em2 and HOLD'em2.

"The application of my work is extremely interesting," Nater said. "I will be in New Zealand later this year, where EPIC has a contract to manage the country's entire system so that all the jails and prisons would be run from a central set of servers." Nater's wife, coincidentally, is a criminal appeal attorney. "I keep them in, and she gets them out," he quipped. They have two sons, ages 14 and 11.

<http://www.epicsolutions.com>

What is the CAVE™?

The CAVE (Cave Automatic Virtual Environment) is a projection-based virtual reality system that provides real-time, head-tracked perspective with a large angle of view, interactive control, and stereo display. It's a 10x10x9 foot "cube" with images projected onto three walls and the floor. The stereo effect is achieved using LCD shutter glasses that are synchronized with the graphics. The head tracking is achieved with an Ascension Flock of Birds electromagnetic, six-degree-of-freedom tracking system. The tracker senses a tethered electromagnetic sensor that is mounted on the user's glasses. A second electromagnetic sensor is attached to a device called the wand. The wand is the primary input device and can be thought of as a 3D equivalent of a mouse. The CAVE allows multiple people to share a high-resolution, immersive experience. It was designed to overcome many of the limitations associated with single-user Head Mounted Displays (HMDs). HMDs make use of small screens that move with the viewer, close to the viewer's eyes. With these systems, small tracking errors become much more significant than with the large, fixed screens found in a CAVE. In addition, the small screens are at a much lower resolution. The CAVE was developed at the Electronic Visualization Laboratory (EVL) at the University of Illinois at Chicago. It premiered at the SIGGRAPH '92 conference.

Jim Oberweis: Specialist in extraordinarily rapidly growing companies

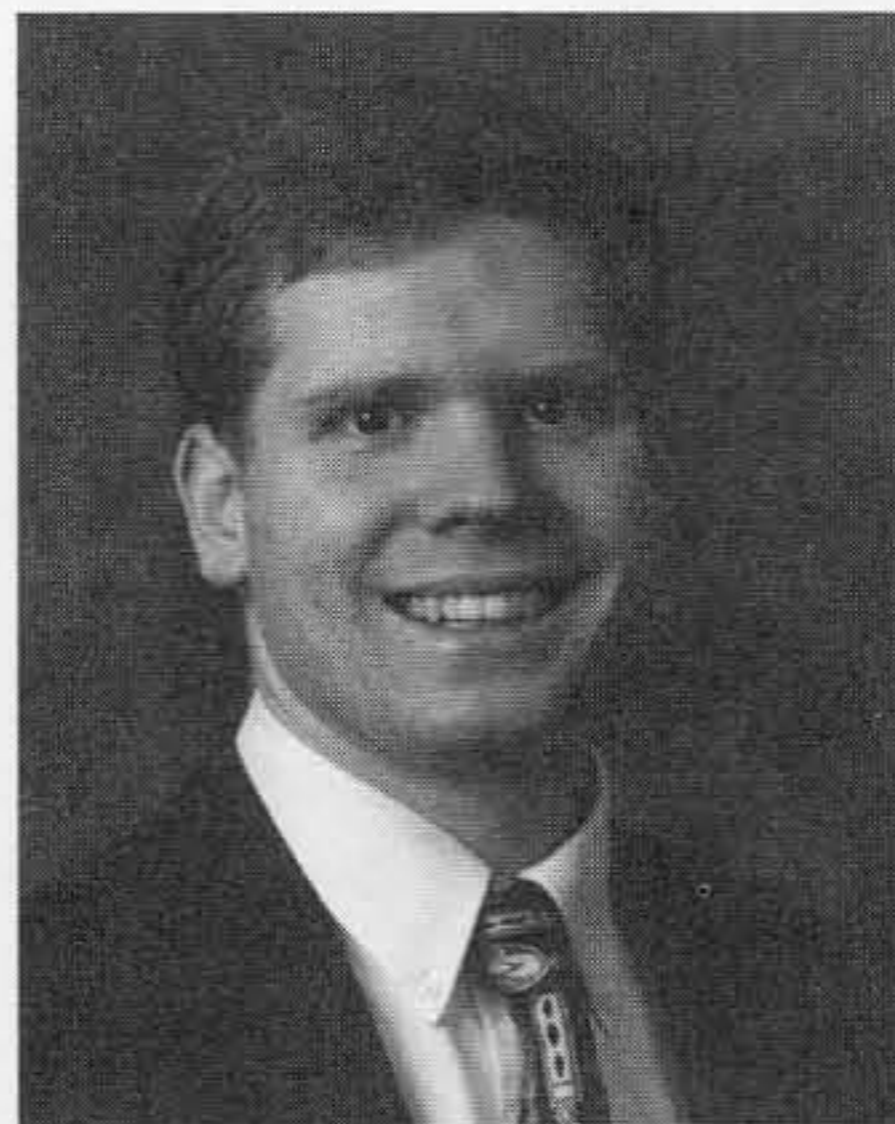
James W. Oberweis is BS'96, is president of Oberweis Brokerage, Inc., VP of Oberweis Asset Management, Inc., portfolio manager of the Oberweis Funds, and a contributing editor to *The Oberweis Report*. Unlike many others in the investment business, he is able to bring his computer science background to bear on his profession.

Jim W. is sometimes confused with his father James D. Both are well known in financial circles as the men behind various funds that carry the Oberweis name, and both are alumni. Jim D. is AB PoliSci'68. He started the family's investment business and *The Oberweis Report*, a highly regarded monthly investment advisory. In the Chicago area and other parts of the Midwest, the Oberweis name is associated with the Oberweis Dairy. The family has run the dairy in Aurora, Illinois, for four generations, and Jim W.'s mother is its CEO and his father is chairman of the board. The Oberweis investment offices are located on the dairy premises, on a road right out of Candyland: Ice Cream Drive.

Jim W. decided to study computer science. At age 10, initially disappointed that he got an Apple II+ computer instead of the Atari system he really wanted, he started writing Basic programs. By the time he hit high school, he was firmly hooked on computers, running a bulletin board and writing Cobol programs for local companies.

Recognizing that the Uof I was "the best value brand name computer science school in the country," Oberweis came to Urbana. In addition to CS classes, he followed family tradition and took finance classes. Probably the most influential decision he made in college was to participate in the engineering study abroad program, which landed him at the Technische Hochschule, in Darmstadt, Germany. There he met a Polish woman doing an internship in hotel management, and they were married his senior year. Oberweis found the computer classes in Germany more similar to Illinois classes than those in other subjects. "A lot of computer science originated at Illinois, and we even used some books by U of I professors," he said. "Studying abroad is far and away the greatest experience of my life so far."

After graduating in 1996, Oberweis returned to Darmstadt to work at the Haus fuer Grafischendatenverarbeitung on software development for mobile telecommunications. When he returned to the United States a



Jim Oberweis

year later, he worked for The Chicago Corporation and on the trading floor of The Chicago Board of Exchange before joining his father in the investment business. At that time, they had an asset management firm that managed three mutual funds, specializing in small cap (\$1 billion or less in market capitalization), rapid growth stocks. They have added two more funds since, and it is Oberweis's personal goal to manage a \$1 billion fund. As one can imagine, small cap, rapid growth stocks are frequently technology stocks, and these usually involve the computer industry. "My computer science

background has really helped our firm understand the businesses of companies in which we invest," said Oberweis. "This is a very competitive business, but we're competing mostly against people with financial backgrounds rather than technical backgrounds. So my CS experience is a major asset for what I do," he said.

"The analytical skills required of computer scientists are not a heck of a lot different than those [required] for securities analysis," said Oberweis. "You're trying to take information you know, process it, and generate conclusions. In securities analysis, you're trying to take information you know about a company and apply it to investment decisions. Both are highly involved with math, and many of the same analytical skills learned in CS can be applied to investing." He continued, "The businesses of many technical companies are so complex now that a CS background really helps analysts understand what a company does. This is basically a game: he who understands the most the fastest wins. Venture capitalists analyze private companies; we analyze public ones. The more you can understand about a business, the greater competitive advantage you have."

"The impact of the Internet on the financial investments has been tremendous," said Oberweis. "Over the course of four to five years, companies have driven down the cost of trading executions and have increased the availability of information. This has created a much more liquid and efficient marketplace for investors. Internet trading is rapidly gaining popularity. While not appropriate for everyone, it is changing the industry. Approximately 15 percent of all trades today are through Internet brokers, up from less than 5 percent just a few years ago. We are currently evaluating developing an Internet-based platform." And what does Oberweis think

IMCS, continued from p. 1

more difficult to ensure that the taker of the test is the registered student when one cannot see the person at the other end. Video conferencing will be extremely helpful in providing individual help, and it may also be a way of ensuring some level of confidence about who is taking a test. These are but a few of the challenges.

At this time, our technologies are the newest version of Microsoft NetShow™, which allows us to encode a class in real-time and have it available for on-demand viewing within hours of the conclusion of a lecture. Remote students can now view courses on the same day as on-campus students. NetShow gives us the ability to produce affordable, high-quality video. Using the features of NetShow and the Windows Media Player™, we synchronize slides with the lecture to recreate the environment of the classroom. If a professor mentions a URL in class, we can take the remote student directly to the Web page. These features enhance the experience for the students and give them a sense that they are part of a larger class. Beyond the use of traditional e-mail, we are using WebBoard™ from O'Reilly & Associates as a class forum. Now that IMCS students share a schedule with the students at Illinois, we are able to create a classroom community using WebBoard's chat rooms and discussion groups. Shared information now blurs the distinction between on- and off-campus students. For on-line quizzes, we recently used Lotus's Learning Space. In addition, several classes are experimenting with project groups comprised of remote and local students. While this creates a challenge to communication and group

of the market's reaction to companies like amazon.com and eBay? "Read *Extraordinary Popular Delusions and the Madness of Crowds* by Charles MacKay," he responded.

Oberweis has several tips to offer students: take a few chances, and don't get set into one path or ignore other opportunities. Also, meet and become friends with other young, bright successful people early in their careers and track them. Amit Agarwal, BS CompE'95, and Pavan Kochar, BS'96, are two friends Oberweis has kept in touch with since college.

With two young sons, Tim, 2, and Allen, 9 months, Oberweis spends 99 percent of his free time playing with them. Travel and international affairs remain of great interest, and he is trying to learn Polish. Look for Oberweis's market commentary on CNBC, CNN/FN, *Investor's Business Daily*, *Bloomberg News*, and *Smart Money*.

www.oberweisfunds.com
www.oberweisdairy.com

work, it is preparing our students for the software development of the 21st century. Students with experience in project development involving geographically dispersed personnel will have a competitive edge as we see the growth of collaborative work environments over the Internet. To prepare the students and to enhance communication between TAs and IMCS students, we will use Microsoft NetMeeting™ this semester. There are lots of emerging products that can support many of the features an on-line educational system needs, but most are far from mature in terms of features, ease of use, and reliability.

Many major universities are experimenting with Internet delivery of CS courses, but what sets the University of Illinois apart is our commitment to the quality of the experience. While each course is assigned a teaching assistant (TA), courses delivered for the IMCS program are assigned an extra TA. The use of IMCS-dedicated TAs as a resource provides distance learners an added advantage. With students in India, Australia, and throughout the United States, it is essential to maintain communication between the TAs, professors, and students.

It has been a busy year. With more than 50 students, the IMCS program is leading the way at Illinois. Streaming media is changing the way universities view remote students. A dynamic teaching model whereby students can watch a lecture live from anywhere in the world is replacing the old model of correspondence courses. If you are interested in pursuing a graduate degree, if you want to earn credit for courses, or if you simply want to enhance your knowledge base, the IMCS program gives you the opportunity to take classes from Illinois. Internet delivery gives us the opportunity to enhance collaborative learning in any situation. We have students taking classes individually, and we have corporate clients who create a classroom environment at their facilities. If you are interested in the IMCS program or if you would like to see a demonstration, please visit <http://www.cs.uiuc.edu/imcs>.

Recruit the best . . .

. . . by sponsoring this newsletter with a placement ad that will reach an elite audience of some 4,500 alumni and 1,500 students of the Department of Computer Science. Call 217-333-1621 or email alumni@uiuc.edu.

East coast bash: Party at IBM!

IBM and the Departments of Computer Science, Electrical and Computer Engineering, and Physics co-hosted a reception for alumni on November 20, 1998. Held at the T. J. Watson Research Center in Yorktown Heights, N.Y., some 50 alumni gathered to enjoy each other's company and the incredible spread of food and wine served by IBM.

Randy Isaac, MS'74, PhD'77, and VP of systems, technology, and science at IBM's Research Division, gave a warm introduction. Then department heads Dan Reed (CS), Steve Kang (ECE), and Miles Klein (physics interim head) updated the group on the departments. Also on hand from Illinois were associate heads Bill Kubitz (CS), Jack Mochel (Physics), and alumni coordinators Emma Marshall (ECE) and Judy Tolliver (CS). A few IBM Illini from other departments and colleges such as materials science, math, and law also attended.

The IBM reception marked the first time any of our departments have held a reception on the east coast and the first time IBM has co-sponsored an event of this kind. Results were overwhelmingly positive. Illinois and IBM share a strong history of close ties, and this reception was a perfect way of celebrating them. Our relationship goes back to 1958, when the campus installed an IBM 650 computer. The CS department's first IBM was a System/360-50, installed in 1967, and IBM has been and continues to be a major employer of Illinois graduates. We thank IBM for generously hosting this event. Special thanks go to IBM alumni Randy Isaac, Bob Miller (MS'74, PhD'76), and Se June Hong (MS'67 PhD'69) for making this a truly memorable event.



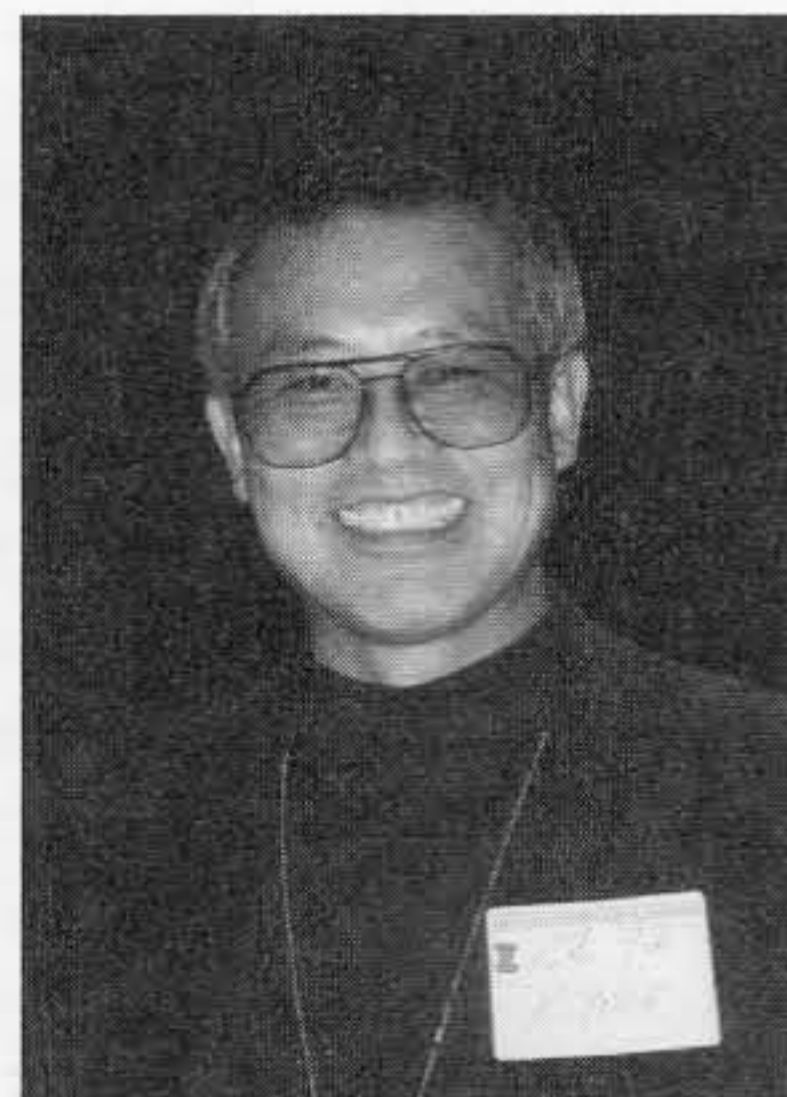
Tak Ning, PhD'71, and Hwa N. Yu, BS'53, PS'54, PhD'58. Professor Ralph Meagher, chief engineer for the ORDVAC and DCL's first head, was Yu's adviser.



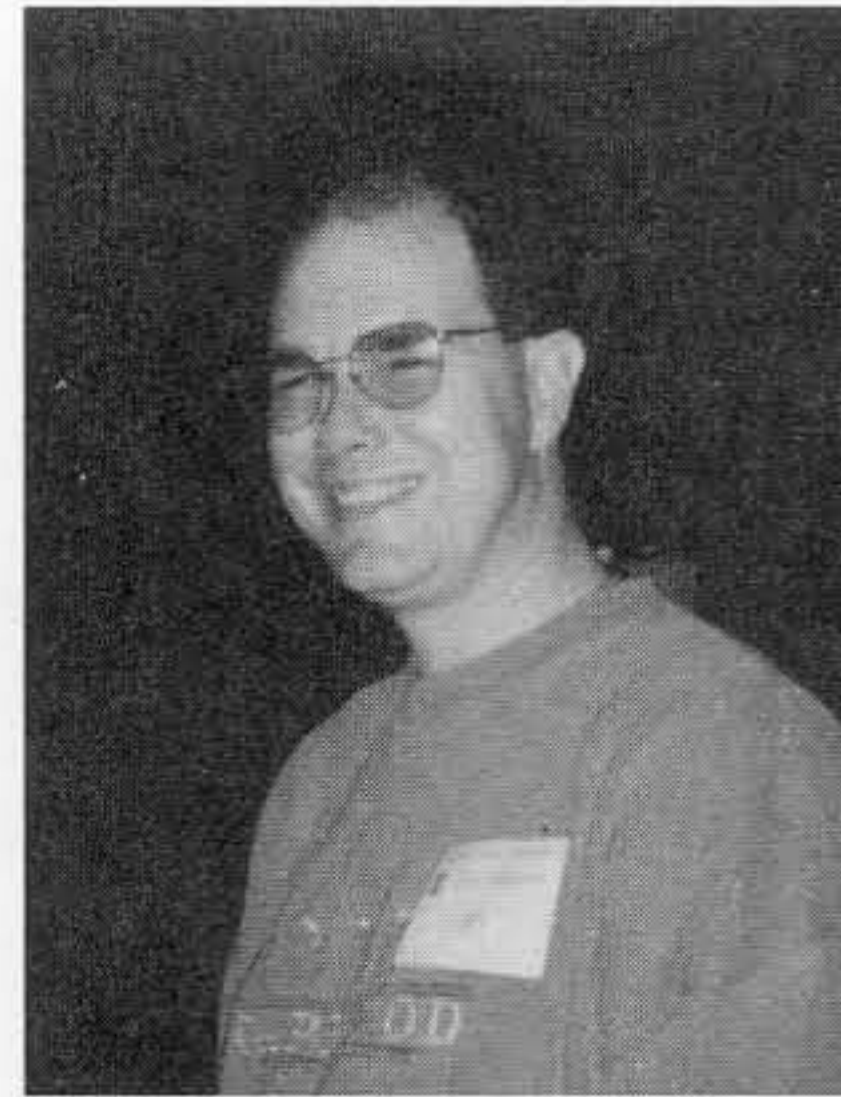
Professor Josep Torrellas and Se June Hong, MS'67, PhD'69



Alla Segal, BS'81, MS'83



Kiyoshi Maruyama, MS'70, PhD'72



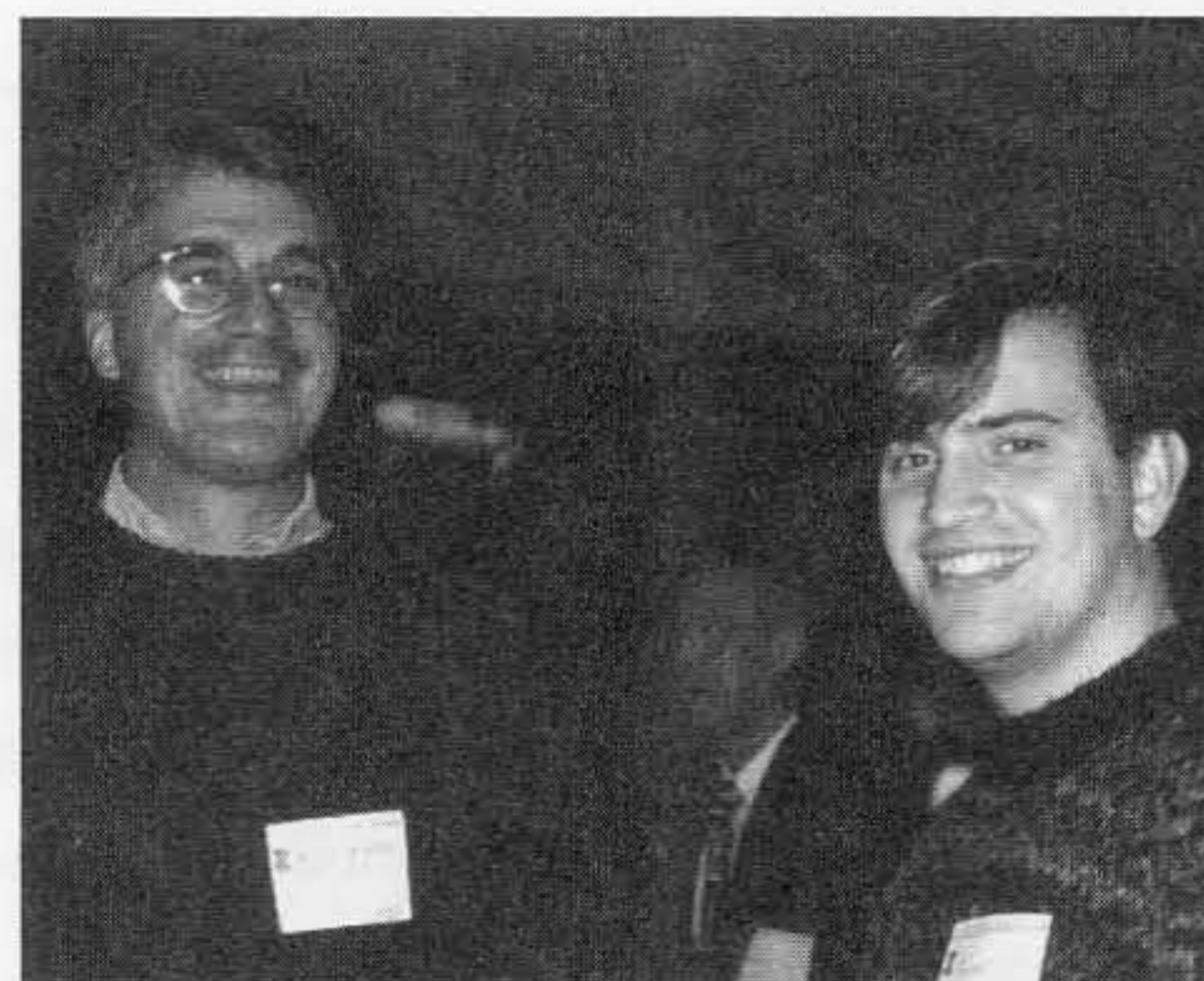
Deep Blue team member Joe Hoane, BS'84.



Bob Montoye, BS'77, MS'81, PhD'84



Ravi Nair, MS'76, PhD'78, and Kanti Jain, MS'70, PhD'75



Mike Ward, BS'83, and Daniel Sturman, MS'94, PhD'96



Joan L. Mitchell, PhD'74, author of JPEG: Still Image Data Compression Standard, and Bob Miller, MS'74, PhD'76

Classnotes

Anthony S. Wojcik, BS Math'67, MS Math'68, PhD'71, was appointed associate dean for research and graduate studies in the College of Engineering at Michigan State University in July 1998. A professor of computer science and engineering, he was chairman of the CS department at MSU from 1986-95.

Edward M. Lerner, BS Physics'71, MS'73, is director of applications development for Cable & Wireless Internet (C&W). He lives in Herdon, Va., and is married to Ruth (Mayland) Lerner, BS MusicEd'71, MS LIS'72.

Todd Fitzwater, BS'81, is VP with Zamba, the national's largest dedicated customer care consulting company. Previously, he was founder and CEO of the QuickSilver Group, an information systems executive with Apple Computer, and an independent consultant.

Keith Tookey, MS'81, joined the faculty of Eureka College in 1998. Before that, he was associate professor of computer science at Columbia College.

Michel Manago, BS Math/CS'83, is president and CEO of AcknoSoft, a Paris-based company he founded in 1991. AcknoSoft is a supplier of software tools that use data mining and case-based reasoning technologies for decision-support applications.

Douglas J. Grever, BS'84, is president of Tabco Sales, Inc., where he has been since 1990. Tabco, based in Westboro, Mass., is a distributor of specialty envelopes.

Mark Tuomenoksa, MS'85, is CTO and VP of Virtual Private Networking at Shiva Corp., in Bedford, Mass. Before that, he was product line VP at Lucent Technologies.

Rene Claudio, AB Econ'86, BS'86, is director of client services for Free Range Media, a full-service Internet business solutions provider based in Seattle, Wash. Before joining Free Range in 1998, Claudio was a senior manager for Ernst & Young and a strategic marketing manager for Intel.

Jeffrey C. Jones, BS'86, and his wife Lisa K. Jones, BS Math'87, welcomed son Rory Stevens into the world on July 3, 1998. Jeff is database administrator at AOL, and Lisa is marketing manager at Sutron Corp. They live in Leesburg, Va.

Rob Ekblaw, BS'87, has a science fiction book written called *Terran Force: Twelve*, about twelve Earthlings who solve a war on an alien planet. According to Ekblaw, it features some fellow students from Illinois under assumed names.

Taed Nelson, MS'90, met Bill Delveaux, MS ECE'89, at the 1998 Bay area alumni reception sponsored by Sun Microsystems and the CS and ECE departments. Taed was the first employee of Vertical Networks, a Sunnyvale start-up that builds integrated voice and data systems. As a result of their meeting, Bill now works for Vertical Networks.

Eric Sink, BS'90, is president of AbiSource, Inc., a new software firm based in Savoy, Ill., which was founded in 1997 by a group of ex-Spyglass employees under the name CSFactory. Abisource provides Open Source desktop productivity applications.

Gerrit Saylor, MS'95, was married to Kimberly Keagle, BS Arch'93, BFA'95, in October 1998. Gerrit, son of Professor Paul Saylor, is a software engineer for Compaq in Seattle.

Zongyao Michael Tang, MCS'98, joined ITDS in Champaign, Ill., as an associate technical consultant.

Faculty notes

Herbert Edelsbrunner has accepted a position as professor of computer science at Duke University starting in September 1999. Rainbow Geomagic, the company he co-founded with his wife, Ping Fu, MS'90, is moving from Champaign to Research Triangle Park as it expands. It creates software for 3D physical modeling.

Jeff Erickson was selected as an Alfred P. Sloan Research Fellow. The competition for these prestigious fellowships is incredibly intense, and they are given only to the very best and brightest young researchers in the country.

Mehdi Harandi has been named to the Engineering Council's Advisor List for outstanding undergraduate advising. As an award given by students to faculty, this is high praise. Harandi will take Mike Faiman's place as director of graduate programs when Faiman retires.

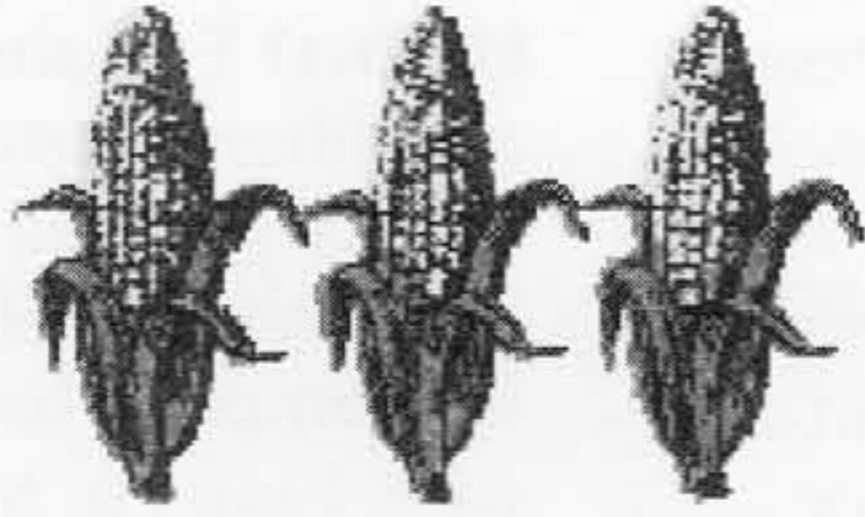
Sam Kamin has taken H. George Friedman's place as director of undergraduate programs. Friedman retired at the end of 1998.

Lenny Pitt won the College of Engineering's Everitt Award for Teaching Excellence in recognition of his outstanding undergraduate teaching.

Shang-Hua Teng is this year's winner of the Xerox Award, given for research excellence in the College of Engineering.

Josep Torrellas has been appointed vice-chairman of the IEEE Technical Committee on Computer Architecture (TCCA).

T-shirts are back!



Digital Computer Lab

Department of Computer Science • University of Illinois at Urbana-Champaign

After selling out, the ever popular digital corn t-shirts are back in. They are all cotton, heavy duty shirts in bright white, with vivid green and yellow corn.

See color image at www.cs.uiuc.edu/contacts/alumni/sales.html.

Questions? Send email to alumni@uiuc.edu or call 217-333-1621.

Name _____
Address _____
City _____ State _____ Zip _____

- I would like t-shirt(s) at \$14 each.
 ___ small ___ medium ___ large ___ x-large ___ xx-large
- Add \$2 per order (not per item) for shipping and handling. **Illinois residents**, add 7.25% tax first.
- I have enclosed a check for _____ made payable to the Computer Science Alumni Association.

Send to Judy Tolliver, Department of Computer Science, 1304 West Springfield Avenue, Urbana, IL 61801.



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