CSE professor Jaideep Srivastava helps sociologists search the virtual world to find real world answers

By Pamela Vold

Online lives mirror actual lives. Sound unlikely? Perhaps not if you’re one of the estimated 45 million people who play massively multiplayer online games (MMOGs). In MMOGs, guilds of people form alliances, go on quests, battle demons. That may not sound like your typical trip to the grocery store. To CSE professor Jaideep Srivastava, who has been studying the MMOG EverQuest 2, there are some basic sociological functions that are the same.

Srivastava is a part of a major multi-disciplinary, multi-institutional research team along with Noshir S. Contractor of Northwestern University, Scott Poole of the University of Illinois, Urbana-Champaign, and Dmitri Williams of the University of Southern California who have been collaborating to study the click-streams from Sony’s popular game EverQuest 2. The team has found that the intense level of involvement and multi-player environment of the game, made it an ideal proxy for studying human behavioral dynamics. The research team used their access to the server logs and click-streams from EverQuest 2, which has over 300,000 players who average 26 hours per week in playing the game.

Each player creates a character in EverQuest 2 who interacts in the 3-D fictional world of Norrath. Within the game, the character can adventure (complete quests, explore the world, kill monsters and gain treasures and experience) and socialize with other players. The game enables social interaction with other players through grouping and through the creation of guilds.

Srivastava says, “It’s a highly instrumented environment where we can study things we never could in the real world and potentially learn things with applications in the real world.” He likens the game’s quests to a game of basketball. “Sometimes two people will go to a court and join in play. Or teams or clubs will decide to schedule a quest at a specified date and time. Now we have a world where behavior is in many ways similar to real life, but also observable and measurable to a fine granularity. A key challenge, of course, is to figure out in what ways it is.

(Story continued on page 14)
This has been a sobering but exciting year for the CSE Department and the Institute of Technology. The current economic crisis and historic state budget shortfall present us with serious financial challenges.

In March of this year, a revised state budget was proposed, outlining a plan for how federal stimulus funds would be used. Media reports had implied that cuts to higher education, and the University of Minnesota in particular, would be scaled back. In fact, the proposed plan would reduce the University’s base budget further.

President Robert Bruininks told the Star Tribune in late March: “Higher education should be the last thing you cut, because it’s an opportunity to invest in human capital and innovation. When you’re in a recession, that’s precisely the time to invest in the education and development of your people, and your capital infrastructure.”

As a response, University leaders, the state relations team, and the grassroots legislative network have continued to weigh in throughout the remainder of the legislative session, as the governor and the Legislature work to reach an agreement on the state’s budget, including funding for the University.

The Federal stimulus funds will provide a much needed bridge for University budget changes, supporting our research and providing a reprieve in tuition increases for our students. The nation’s increased investment in science and engineering inspires us, and as a department we are well-positioned to lead in research, innovation, and the training of computer scientists and engineers.

Our department is committed to careful planning and prudent action in response to these economic realities, working together to reduce costs at the department and college level in order to help preserve jobs, while continuing the quality of research for which we are known. These may be somber times, but there are many reasons to feel excitement.

In Computer Science and Engineering, we continue to witness a high demand for our courses, degrees and graduates. Our faculty members continue to provide leadership and collaboration in computer science and engineering, and we are excited by the research being conducted in our department. The sponsored funding from government agencies continues to advance the science and practice of computing at our university through research and teaching. We strive to remain on the cutting-edge of the computer science field, helping us to continue to attract world class faculty and students.

We remain active in making the case for higher education. In our department, we continue to improve our service and productivity, graduating more students in less time, without sacrificing quality. In our research, we maintain our responsive and entrepreneurial nature, collaborating when appropriate, and competing effectively for resources. We are reducing costs and increasing revenues from other sources to support our public mission, and we must also fight to advance and strengthen the state’s investment.

We in the department, and at the University, understand that we are not the only ones striving for excellence in these difficult times. I would like to express my sincere gratitude to those individuals and companies that have been able to continue their financial support to the department. Your support is crucial to our ability to excel, and it serves us a reminder of our value to the community. We look forward to brighter days ahead.

— Vipin Kumar, CSE Department Head and William Norris Professor
Schrater offers his theories on the phenomenon in the full story, available at the KARE 11 website.

CSE professor David Du was interviewed on WCCO 4 News at 10, November 24th. Du was featured in an interview as part of the Good Question feature about the cost of text messaging. A video of the segment can be found in the WCCO Video Library.

CSE happenings

High Tech Girl’s Society Visit

CSE professor Maria Gini and the department recently hosted the Minneapolis Public Schools High Tech Girls Society for “Robotics and Girls on the Move,” part of Introduce a Girl to Engineering Day. The girls were able to talk one on one with female role models about fields and careers in science and engineering. The group’s instructor, Sara Etzel from Washburn, commented that she had never seen that many girls that focused and on task for such a long period. The group showed tremendous enthusiasm for what the robots would do, and waited their turn to experiment with them. Undergraduate and graduate students were on hand to talk about UMN-IT college life, and career expectations.

CSE Hosts Code Camp and CloudCamp

CSE recently hosted two computing events for the Twin Cities area. Code Camps are about the developer community at large. They are meant to be a place for developers to come and learn from their peers. Topics are always based on community interest. The CloudCamp is an “unconference” where early adopters of Cloud Computing technologies meet to share their experiences, challenges and solutions.

Faculty speaking engagements

CSE professor Shashi Shekhar gave the keynote.
Stein receives President’s Award for Outstanding Service

Professor emeritus and department founder Marvin Stein was recently presented The University of Minnesota President’s Award for Outstanding Service. The Award for Outstanding Service was established in 1997 to recognize faculty and staff who have provided exceptional service to the University. The award is presented each year in the spring and honors active or retired faculty or staff members who have gone well beyond their regular duties and have demonstrated an unusual commitment to the University community.

After an increase in computer usage in the early 1960s, Stein and a group of faculty members noticed the need for new areas of computational research not covered in mathematics. Stein lobbied for the University to acquire more time on computing equipment and eventually to purchase its own computer, which it did in 1958. Not content to stop there, he continued to think of new and better machines for the university’s researchers, and strove to find ways to get the best machines possible, to advance the work at the University and to keep the University of Minnesota on the forefront of new technology. Stein founded the Department of Computer Science and he served as acting department head until the fall of 1971. He also served as Director of the Numerical Analysis Center for 12 years. Dr. Stein was named professor emeritus in 1997.

address in February at the Geospatial Science Forum and Mapworld Forum, in India.

CSE professor Jon Weissman gave a keynote at the 3rd Workshop on Desktop Grids and Volunteer Computing Systems (PCGrid 2009) in Rome Italy, on May 29.

CSE professor Jaideep Srivastava will give a keynote at the 9th edition of the International Conference on Web Engineering (ICWE’09) this June. ICWE is backed by the International WWW Conference Committee and the International Society for Web Engineering, and provides a premier forum for Web Engineering.

Events

CSE is excited to host our second Bay Area alumni event. CSE alumni and friends in the San Francisco Bay Area are invited to gather at the Computer History in Mountain View August 13, 2009 to meet and mingle. This year’s speaker is Gary Glover, Professor of Radiology, Neurosciences, Biophysics and Electrical Engineering & Psychology at Stanford University. He is also the Director of the Radiological Sciences Lab. There will be plenty of time for networking and catching up with friends. Mark your calendars now.

This year the CSE department will also host an alumni event in the Seattle area. We are planning the event now which will be held in September. Watch your mail for an invitation or contact newsletter@cs.umn.edu for updates on the event.

CSE Seventh Biennial Open House

Friday, October 9, 2009
8:30 a.m. - 12:30 p.m.
Electrical Engineering/Computer Science Building

Please join the Department of Computer Science and Engineering, industry and alumni for a morning of events including: research exhibits from our faculty, students and industrial partners, Distinguished Alumni Award recipient Bonnie Holub, and keynote speaker Jamie Thingelstad.

Mark your calendars now!
By Pamela Vold

Associate Professor Yongdae Kim has recently been caught in the middle of the controversial, and very public court case, Capitol Records v. Jammie Thomas.

The case is the first one concerning file sharing to go to trial (previous cases have been settled out of court). In 2005, a jury found that Jammie Thomas was liable for infringing the record labels' copyrights on all of the 24 recordings at issue in the case. The jury awarded $222,000 in damages, encouraging the recording industry to continue its campaign to end file sharing through litigation.

However, this judgment was later vacated due to a motion from Ms. Thomas’ counsel Brian Toder, and a new trial was scheduled. The reason for the new trial is Judge Michael Davis’ erroneous jury instructions. He had previously said that the jury could find copyright infringement if Thomas was “making copyrighted sound recordings available regardless of whether actual distribution has been shown.”

Professor Kim is involved in the retrial. He was hired through a grant from the Free Software Foundation to provide expert witness services for the defendant. Kim says he is glad to do it. “I’m really pleased to offer advice that will level the playing field,” he said. Kim believes that there was an inherent unfairness in the previous trial in spite of the excellent argument provided by the defense: “Without extensive technical background, there are only so many questions that the defense can come up with.”

Kim’s initial expert witness report was prepared with the help of CSE graduate student Eugene Vasserman, who states that there are multiple ways that MediaSentry could have obtained Thomas’ IP address, including someone hijacking her wireless connection, spoofing her modem’s assigned IP address, or KaZaA supernodes “framing” a child node.

As a researcher, Kim himself has been caught in MediaSentry’s loopholes. When his student was measuring the rate of dissemination of the recent Watchmen movie over a popular peer-to-peer network, he received one of MediaSentry’s warning emails – though he himself never did any actual downloading of material. Vasserman added, “It’s like walking home during a riot. If you are there, the police will get you, even if you are just walking home.”

Their involvement with the case, which is set to go to trial June 15th, raises awareness for the need for collaboration between computer scientists and the law. Vasserman said, “As technology becomes increasingly important in our lives, it seems necessary to have a more conscientious development of computer law. It’s currently being done in an ad-hoc manner, and when security is so vital, we need to be sure of what can and cannot be faked before enacting laws about it.”

Kim and Vasserman are quick to point out the importance of artists being paid. Given the recent developments in file sharing technologies, they suggest that it might be more prudent for the recording industry look into alternate marketing campaigns. Kim says, “They can improve the system for finding and prosecuting illegal downloaders, and people are already looking into ways to go around those parameters.” He adds, “It is inherently impossible to prevent people from sharing data.”

As for the reasons people download, Kim is a bit mystified. He was recently researching illegal downloads of X-Men Origins: Wolverine, whose unfinished scenes were leaked, some without CGI. “I’m not sure why anyone wants to watch a movie before it’s even done,” Kim said, adding “when there are great site like Hulu.com out there where you can watch TV shows and movies, I don’t really know why people want to watch an unfinished movie, but that’s not my research. I look at how they do it.”
Stergios Roumeliotis was selected to receive a Presidential Early Career Award for Scientists and Engineers (PECASE). Roumeliotis was also selected for the Guillermo E. Borja Award. Roumeliotis specializes in inertial navigation of aerial and ground autonomous vehicles, fault detection and identification, and sensor networks. His research has focused on distributed estimation under communication and processing constraints and active sensing for reconfigurable networks of mobile sensors.

Vipin Kumar was recently named the Alum of the year by the University of Maryland’s Computer Science Department. Kumar received his Ph.D. degree in Computer Science from the University of Maryland in 1982 under the guidance of Professor Laveen Kanal. Dr. Kumar was recognized in part for his research in the areas of parallel computing, graph partitioning, and data mining.

Joe Konstan was named one of the 2009 Distinguished McKnight University Professorship award recipients for his work in “Human-computer Interaction: Recommender Systems, Online-community Design, and Online Public Health.” He is one of four 2009 award winners to be honored by this designation and the third CSE recipient. Konstan was also recognized as a Fellow of the Association for Computing Machinery (ACM) for his contributions to human-computer interaction. ACM is the world’s oldest and largest professional organization dedicated to the advancement of computer science.

The National Science Foundation has awarded Tian He the CAREER Award in support of his project “Energy Synchronized Computing in Sustainable Sensor Networks.” Assistant Professor He specializes in Wireless Sensor Networks (WSN), an emerging technology with many long-term applications such as habitat monitoring, microclimate study, and structural integrity analysis, among others.

The Institute on the Environment recently named Volkan Isler resident fellow. He will begin this three-year appointment with the Institute in June 2009. As resident fellow, Isler will receive flexible funding to engage in creative research and problem solving, to develop new models of teaching and training, and to build new networks and partnerships.

The University of Minnesota awarded Arindam Banerjee and Tian He the McKnight Land-Grant Professorship, a two-year appointment that includes a research grant for each year. The award was bestowed in March and begins on July 1, 2009.

Shashi Shekhar has been named a Fellow to the American Association for the Advancement of Science (AAAS). Shekhar was recognized for his distinguished research, service and teaching contributions to the advancement of science in the fields of spatial databases, spatial data mining and geographic information science.

John Riedl received a Best Paper Award at ACM’s Intelligent User Interface Conference. His paper, “Tagsplanations: Explaining Recommendations Using Tags” was one of nearly 200 submissions this year. The paper introduces tagsplanations, which are explanations based on community tags. The paper was written by Professor Riedl, with CSE graduate students Jesse Vig and Shilad Sen.

David Hsu and Nishith Pathak are the 1st and 2nd authors on a paper jointly wrote with Professor Jaideep Srivastava and the Minnesota Department of Revenue. The paper is a finalist for the Practice Paper Prize at the KDD Workshop to be held June 28, in Paris, France.

Ravi Janardan and his graduate student Vijay Rajagopal received an Outstanding Paper Award at the 24th Annual Meeting of the Engineering & Urology Society (EUS 2009) for their paper “Modeling and Simulation in Flexible Ureteroscopy.” The paper, which was also co-authored by members of the Department of Urological Surgery at the University of Minnesota, was ranked as a “Top-10” submission from 127 peer-reviewed abstracts, each of which received between 18 and 20 reviews.

CSE graduate student Chi-Yin Chow and Assistant Professors Tian He and Mohamed Mokbel received a best paper award for their work, “Aggregate Location Monitoring for Wireless Sensor Networks: A Histogram-based Approach” at the 10th International Conference on Mobile Data Management.

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Outstanding CSE Students recognized with Scholarships, Fellowships, and Awards

Peter Lofgren is one of four University of Minnesota undergraduates to have been named 2009 Barry M. Goldwater Scholars. The prestigious Goldwater Scholarship is awarded annually to outstanding sophomores and juniors in mathematics, science and engineering who intend to pursue research-oriented careers in mathematics, the natural sciences and engineering. Lofgren plans to earn a Ph.D. in mathematics and computer science. He would like to conduct research in mathematics or computer science and teach at the university level.

Two CSE graduate students were awarded the 2009-10 Doctoral Dissertation Fellowship (DDF) program. Gaurav Pandey will be working with Vipin Kumar and Jie Chen will work with Yousef Saad. The Fellowship is intended to enable Ph.D. candidates of particular promise to devote full-time effort to the research and writing of the dissertation during 2009-10.

CSE Ph.D. student Esha Nerurkar was one of the 3 finalists for the Best Student Paper Award at the IEEE International Conference on Robotics and Automation (ICRA’09) in Kobe, Japan. ICRA is the main international conference on robotics and automation. This year there were 1624 submissions and 699 papers were selected for publication. Nerurkar’s advisor is Stergios Roumeliotis.

CSE graduate student and Minnesota senior center fielder Matt Nohelty of Rothschild, WI was named as one of 10 finalists for the sport of baseball for the Lowe’s Senior CLASS Award. The award honors seniors who have notable achievements in four areas of excellence: Classroom, Character, Community and Competition.

Matt is completing his first year of his MS degree and because he was red-shirted, he could still play this year even though he received his BS degree last year.

Tim Salo was elected Vice President of Communications by the Council of Graduate Students (COGS).

The first Annual ACM ‘Rise Above the Monkey’ Software Design Competition was held March 1 - 7, 2009. The event, sponsored by Microsoft, Thomson Reuters, 3M and Life Science Alley Institute, raised over $1600 in cash and prizes. The students were expected to create user interface mock-ups, database diagrams, and high level software architectures of their systems. Teams of students were assigned the challenge of designing software to support an online sweepstakes for a local concert venue. The winning team of Lam Luu and Stephan Nelson-Lindall went home with copies of Microsoft Visual Studio 2008, Microsoft Office Ultimate, and XBox 360 video games.

Andy Exley was selected to receive the John Bowers Excellence in Teaching Assistance Award. Exley is a Ph.D. student working with William Schuler. He is also a past president of CSGSA who has been active in all campus student government.

2009-2010 Computer Science Graduate Student Association Incoming Officers

Ted Kaminski, President
Bryan Song, Vice-President
Michael Ekstrand, Secretary
CSE celebrated the commencement ceremonies of the Institute of Technology and the Graduate School on May 9, 2009 at the University of Minnesota’s Northrop Memorial Auditorium.


Above: CSE doctoral graduates at commencement (clockwise from back right): Kai Yu, Prasanna Desikan, Devdatta Kulkarni, Bridget Thomson-McInnes, Sandeep Mane, Tim Miller, Myung-Hwan Park

Above: MSSE Students Aditya Kumar, Andrew Thorstensen, and Eric Larese at commencement (photo: Avandihar Chandrasekaran)

Above: Students celebrating (photo: Avandihar Chandrasekaran)
Students celebrating at the CSE graduation reception

Joe Konstan congratulates Ph.D. graduate Max Harper at the CSE graduation reception
Associate Professor Yongdae Kim and Assistant Professor Nick Hopper may not be lawyers, but they are defending our freedom of speech. Kim and Hopper are building on their research in security and peer-to-peer networking to develop overlay networks that enable freedom of online speech. These networks will circumvent the current social and technological measures that allow censorship of the Internet. “As the Internet has become one of the most effective means of conveying information to a broad range of the population, censorship is a growing issue for people seeking information over the Internet, be it political, medical, or otherwise,” says Hopper.

Many of us associate Internet censorship with incidents that make newspaper headlines, like China blocking YouTube and the arrests of bloggers in the Middle East. Yet more latent forms of internet censorship or filtering are common in the United States. Hopper recounted a story about Amazon.com, which recently removed the sales rankings of a number of books containing gay, lesbian, bisexual, and transgender themes. These books also disappeared from Amazon’s best-seller lists, making them more difficult to find. In another example, the web site Wikileaks recently released a list of web sites blocked by Australia’s government-mandated Internet filters. In response, Wikileaks was itself blocked.

Professor Kim’s interest is not purely theoretical: “I come from Korea, where the government is making some very odd decisions regarding the Internet, like a new law that requires the real name of a contributor be listed along each comment posted on YouTube. As a result, Google has disabled comments on the Korean version of YouTube.” Of course, Koreans have an easy way to circumvent the system – they simply sign in as an American user.

Their current focus is on relationship privacy, membership hiding, and censorship resistance.

For relationship privacy they are working to improve Tor, an existing anonymous communication scheme where one can conceal who communicates with whom, hiding the relationship between senders and receivers. The main drawback to Tor is its lack of scalability, an issue Kim and Hopper hope to resolve.

They are also looking at ways to hide the identities of participants in anonymous and censorship-resistant networks, a property they refer to as “membership concealment.” Hopper and Kim argue that many current schemes whose goal it is to circumvent censorship or to provide anonymity are actually trying to achieve membership concealment, and their study is bringing that property into the forefront, making it a goal in and of itself instead of a side-effect of other design choices.

The third focus of their research is a censorship resistance scheme that prevents blocking targeted content as well as targeted participants. While ensuring access to targeted content is an absolute requirement for censorship resistance, blocking individual nodes must also be prevented, since if all participants can be blocked, the network becomes unusable. “If the use of censorship-circumvention
Alumni
CSE Alumnus Jeff Dean Elected to NAE

CSE alumnus Jeff Dean (B.S. 1990) was one of 65 new members elected to the National Academy of Engineering this year. This national honor is the highest professional designation for an engineer.

Dean is a Google Fellow in the Systems Infrastructure Group. His contributions at Google range from low level libraries to high level components and services, all used extensively by various groups and products at Google as building blocks. Some prominent examples of his work are MapReduce, which is a system for simplifying the development of large-scale data processing applications, and BigTable, which is a large-scale semi-structured storage system used in a variety of Google products. These and other contributions by Jeff play a critical role in the scaling of Google’s web search system so that it can handle thousands of queries per second over billions of documents in fractions of a second.

Dr. Dean received a B.S., summa cum laude from the University of Minnesota in Computer Science & Economics in 1990, and subsequently received a Ph.D. from the University of Washington. He is the 2007 recipient of the CSE Distinguished Alumni Award.

Alumni achievements

Ajay Pandey (Ph.D. 2003) Dr. Ajay Pandey has been awarded a Distinguished Leadership Award for Internationals. The University-wide award is for alumni, former students, and friends of the University who have distinguished themselves in their post-university work as leaders in their professional careers.

After completing his Ph.D., Dr. Pandey returned to India and continued his work in the Indian government. Today Dr. Pandey is the Managing Director of the Maharashtra State Electricity Distribution Company Ltd (MSEDCL), the largest electricity distribution utility in India and has a very prominent role in the Indian government’s administration and policy making.

Hui Xiong (Ph.D. 2005) has been awarded a Board of Trustees Research Fellowship for Scholarly Excellence as one of the Rutgers Business School’s most distinguished young faculty members. The research excellence award is based on the recommendations of Rutgers University’s Promotion Review Committee and President McCormick. The Fellowship carries with it a grant of $2,000 from the University’s Board of Trustees.

Kamesh Tumsi (M.S. 2001) just transitioned to a VP role at Allconnect Inc. after a leadership role in program management at Microsoft. He has two approved patents and about seven patents pending.

Bhaskar Himatsingka (M.S. 1995) is now the Chief Technology Officer of Ariba, a lending provider of spend management solutions with offices in 21 countries.

Dan Cosley (Ph.D. 2006), Assistant Professor at Cornell University, received the NSF CAREER Award in support of his project “Leveraging online behavior to support knowledge and memory.” The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation’s most prestigious awards in support of junior faculty.

Liv Anda Knatterud (M.S. 2003) is a Mathematics and Computer Science teacher at Convent of the Visitation School and the team leader for 2177, The Robettes. They are one of the few all-girls teams in FIRST.

Prof. Jau-Hwang Wang, (Ph.D. 1992) has been appointed the Dean of Academic Affairs, overseeing all 13 academic departments at the Central Police University in Taiwan.
Alumni Spotlight: Kurt Indermaur

Over the past year, Kurt Indermaur has had the chance to see first hand the effect of the economy as part of his business. As an information technology advisor, it is Indermaur’s business to lead businesses through technology transformations and transitions. He guides businesses through projects that have missed deadlines, missed requirements and two popular themes in the economy these days: slashed budgets and loss of personnel.

“The understaffed office has become much more common than it used to be. It makes work more stressful.” Indermaur typically consults for a company on what he calls a medium term basis, usually around 6-9 months at a time. “Often it’s a situation where someone has lost a CIO or a tech director. I’ll fill in and help the client find a permanent hire, since often the CEO doesn’t have enough of a technical background for the hiring process.”

His business runs primarily on referrals so it’s impressive that Indermaur has been able to sustain it for the past 10 years. He started the business after leading Intuit through a large transformation, which led to consulting work for a large bank, circa 1999, bringing them into the world of online banking.

Though Indermaur is not a native of Minnesota, he has made his home here. He grew up on the east coast and attended Princeton for his undergraduate degree in chemistry. When it came to graduate school, he realized that what he liked about chemistry was the analytical side, the

Alumni Spotlight: Jamie Thingelstad

When he attended an event recently in the Electrical Engineering/Computer Science building, Jamie Thingelstad posted on Twitter, “In the room at the U of M where I first met the Internet. I feel like I should have brought a gift or something.”

While the gift may be silly, the introduction of the internet proved an auspicious beginning for Jamie’s career. He came to IT in 1990, where he met the internet, and a couple of years later he built his first website. Taking courses here in the early 90s, he could see the writing on the wall. “It was obvious that the internet was going to be the macro trend of our lifetime.”

After three years at the University of Minnesota, he was ready to move on, starting his first business as an internet service provider for small businesses. He has transitioned several times over the next decade – starting as Chief Technology Officer of BigCharts, and then CBS MarketWatch and finally Dow Jones as CTO of the Wall Street Journal Digital Network – all while maintaining the same office in downtown Minneapolis.

After a decade in that office, he felt it was time to move on. He is now an Entrepreneur-in-Residence at Split Rock Partners where he is working on getting a new company off the ground. Thingelstad is confident in his latest venture, and he remains busy getting it started, funded and working to get revenue coming in.

It’s clear that he’s passionate about his work, “I was always interested in computers and networks. Even when I was going to school, you could see that some people couldn’t imagine doing anything else, they really enjoyed the technology and the coding, and there were some who saw it as a job. I love this stuff!”

Thingelstad has come a long way since that first website, and he has witnessed a lot of changes on the internet. He says, “Even though the internet may be all about business, I hope that we don’t lose that hacker passion and spirit.”

It’s clear that he hasn’t lost his passion, “I want to innovate. For me, it’s not about a company being too big or not. It’s about how close you are to the product. I want to feel that energy.”

Thingelstad will be the keynote speaker at the CSE open house, an engagement he was happy to take on in spite of his busy schedule. “I may not have finished my degree at IT, but I benefitted tremendously from the resources of the department and the great faculty. I certainly would not be where I am today were it not for the University.”
Alumni Spotlight: Chris Wyman

When University of Minnesota alum Chris Wyman (BS. 1999) decided to pursue graduate school, he wasn’t sure whether he wanted to study graphics or robotics. The school he chose ultimately made that decision for him. Now Wyman focuses on graphics, studying the interactive rendering of realistic images, in particular interactive shadow, specular and global illumination effects. He also studies techniques for sampling illumination and material properties and applications of non-pinhole cameras in rendering.

Wyman is an Assistant Professor in the Department of Computer Science at the University of Iowa, in Iowa City. He joined the faculty there after completing his Ph.D. in Computer Science at the University of Utah’s School of Computing in 2004. He is currently responsible for introducing computer graphics to undergraduates as part of his teaching. He enjoys life in a college town. “It’s definitely a small college town here. It’s very pleasant. It only takes minutes to get to work and lots of people bike. Iowa City has a very laid-back atmosphere.”

As an Assistant Professor, Wyman has many more opportunities to travel and present his work at various schools and conferences. His website contains several photo galleries from trips to Nice, Montreal, Vienna, and Seoul. Updates to this section have been less frequent in the past two years, as Wyman is busy with teaching and with his research on caustics, including a talk he presented last fall to CSE students and faculty.

Caustic maps provide an interactive image-space method to render caustics, the focusing of light via reflection and refraction. Unfortunately, Wyman says, caustic mapping suffers problems similar to shadow mapping: aliasing from poor sampling and map projection as well as temporal incoherency from frame-to-frame sampling variations.

In order to reduce these problems, researchers like Wyman have suggested methods ranging from caustic blurring to building a multiresolution caustic map. The problem with all these options is that they require a fixed photon sampling, precluding the use of importance-based photon densities. Wyman uses adaptive caustic maps, which allow dynamic photon sampling using a hierarchical renderer enabled by a new deferred shading technique. These benefits have been particularly noticeable for complex geometric shapes, like the examples that Wyman showed at his talk.

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VIRTUAL CONTINUED

similar, and in what ways it is not.”

Traditionally, social science research has been conducted using controlled experiments, surveys in separate sites and ethnographies, which require extensive self-reporting. Multiplayer online games and virtual worlds have become increasingly popular and have communities comprising millions. They allow social scientists to study, theorize and model the social and behavioral dynamics of individuals, groups, and networks within large communities. Srivastava’s major NSF and Army-funded interdisciplinary project uses the clickstream from players of EverQuest 2 for over three years, combined with surveys of players from the game.

Srivastava’s group used the virtual world to model the social and behavioral dynamics of individuals, groups, and networks within large communities by trying out the theories based on economics, trust, networks, conflict, conversation and learning.

Their study presents evidence that the social sciences are at the threshold of a fundamental shift not only in our understanding of the social and behavioral sciences, but also the ways in which we study them.

CSE professor Jaideep Srivastava studies virtual reality

“Unlike the real economy, we can measure and track every single transaction to the penny in real time,” said Williams. Along with economics, the group found that trust in online world exhibits similar patterns of result to what would be expected in real life, where institutions like guilds serve an important function in MMOGs, providing a basis for trust.

Srivastava supposes, “There’s an organizational structure doing something and there’s a crisis such as a member dying. What type of structure recovers faster, and how do they recover and regroup? This tells us something about how people form alliances.”

The group has gotten a lot of media attention for their studies and the numerous papers that have been published on the results with, Srivastava says, more to come. “My social science colleagues are excited that the Web is a place where people interact. They say it’s like the Hubble Space Telescope or an electron microscope for the social sciences because you can see social structures and behaviors so well.”

Srivastava has been applying data mining methods to study human behavior from Web logs for over a decade, having published his first paper in the area in 1997. This area, called Web Mining, is one of the fastest growing areas in academia and industry today, especially as the growth of the Web, and behavioral data collection from it, continues to increase exponentially. Srivastava believes that new devices and applications, and their adoption, has the potential to answer questions which have been lurking for ages, but which we did not have the means to answer. For example, data collected of Amazon’s Kindle ebook for the first time will allow an author to truly understand the reading habits of his audience – a question that perhaps every author has thought about at some point. Srivastava sees an exciting future for this field.

technology is itself illegal, it’s very important to ensure its users cannot be identified at the network level,” says Eugene Vasserman, the senior graduate student participating in the project. Kim and Hopper aim to train undergraduate and graduate students to perform research and apply knowledge from a variety of disciplines (including cryptography, networking, algorithms, and coding theory).

Achieving these goals has been very challenging. In order to research censorship, they must think like censors themselves. “There are many schemes that claim anonymity,” Kim says, “they are supposed to be hidden, but in many cases, due to implementation mistakes or flaws in design, they do not remain hidden.” In their research with Tor bridges, which are used to facilitate access to the Tor network when other methods have been blocked, Kim says, “we are finding 15 bridges a day.” Adds Hopper, “A determined censor can always find those bridges.”

The results of the project are expected to include the broad dissemination of software that promotes freedom of expression on the Internet. “So far, it’s been a challenge. There are many schemes that are good at one thing, but nothing that is good at everything,” says Kim.
We would like to express our sincere gratitude to the following companies, alumni, and friends of CSE who have provided generous financial support for our work. We look forward to continuing this partnership.

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