



**Northeastern University**

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College of Computer and Information Science  
Newsletters

College of Computer and Information Science

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October 01, 2006

## CCIS Network : Fall 2006

Northeastern University - College of Computer and Information Science

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# CCIS network

## Fall 2006

*The newsletter for the  
College of Computer and  
Information Science at  
Northeastern University*

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**Northeastern**  
UNIVERSITY



Members of CCIS' student groups include (l. to r.) John Patota of the Volunteer Systems Group, or Crew, Chris Lambert of Northeastern's student chapter of the Association for Computing Machinery, and Tanya Cashorali of CISTers, the college's organization for women in the computing and information sciences.

## STUDENT GROUPS BRING DISTINCTION TO CCIS

One of the many ways CCIS has acquired distinction is through its student groups, which provide tremendous opportunities for students on campus, and prepare them for making an impact in different industries during co-ops and after graduation.

Take CISTers, for instance, the college's organization for women in the computing and information sciences. One look at the group's *Who We Are* page and you'll get the idea that these women think big: One wants to be "the world's best strategic consultant in technology"; another plans to be "the next Bill Gates." Recently, CISTers members have completed prestigious co-ops at places like IBM, EMC, Harvard Law School, and the Harvard Center for Genetics and Genomics.

Some, like graduate student Emine Yilmaz, '07, are already making an impact in their field. Yilmaz, the recipient of CCIS' 2006 Outstanding Research Award, helped invent a new method for estimating the performance of search engines

[see story on page 7]. Her work landed her an internship at Microsoft Research in Cambridge, England, where she's currently the only woman out of more than 30 interns—and helping pave the way for other female computer scientists.

"Our main goal now is getting more high-school girls and [female] college students interested in computer science-related careers," says CISTers leader Tanya Cashorali, '08, who adds that the group is starting a mentoring program for freshman women and will continue holding its regular lecture series. These lectures draw distinguished women in the industry, such as Irene Greif, an IBM fellow who is head of Lotus Development Corporation's Collaborative User Experience Group, a team of Computer-Supported Cooperative Work (CSCW) researchers located in Cambridge, Massachusetts. Greif founded the field of CSCW and recently spoke to CISTers members on "Women in Computing."

[continued on page 9]

## LETTER FROM THE DEAN



We all know that Northeastern's co-op program provides students in the College of Computer and Information Science with the opportunity to develop outstanding professional skills and qualities, and it shows in the career success they enjoy. But as the cover story makes it clear, our students, with strong support from the college, are also able to leverage the real-world skills they develop on co-op with their

innate self-reliance, confidence, vision, and team-building ethos to build student groups that enrich both the educational and social fabric of the college.

Organizations such as our student chapter of the Association for Computing Machinery, CISTers, and the Volunteer Systems Group, have value well beyond that of the old model of the extracurricular student club. Today, CCIS students use the resources of their groups to make a difference on a professional and industry-wide scale.

CISTers, the college's organization for women in computer and information science, is pursuing a mentoring program for freshman women, as part of an overall effort to draw more women into computing careers. Accomplished members profiled in this issue—and CISTers cofounder Andrea Grimes, the Computing Research Association's Outstanding Female Undergraduate in 2005—are the kind of role models who can give a mentoring program genuine impact.

Likewise, our student chapter of the Association for Computing Machinery goes beyond sponsoring the casual forums, workshops, and social events to bring the industry's leading researchers onto campus. As a result, our students have avenues of learning and sources of inspiration that extend beyond the classroom and their co-op experiences.

Similarly, membership in the Volunteer Systems Group, which students and alumni know more commonly as Crew, provides students with the means to initiate and bring to fruition projects that challenge their professional skills and significantly enrich the college's computing environment.

The entrepreneurial spirit that underlies the success of our student groups is also manifested at an individual level. This is chronicled in stories that describe the recent success of two very promising graduate students who were able to leverage external interest in their work into promising internships, which will enrich their research and enhance their professional opportunities.

My point here is not just that our undergraduates and graduate students are highly proactive in making the most of their student experiences, but that they frequently use these experiences to have a real-world impact.

Other examples abound in this issue of *CCIS network*. I hope you enjoy reading them as much as I have.

A handwritten signature in black ink that reads "Larry Finkelstein". The signature is fluid and cursive.

Larry Finkelstein  
Dean

## BICKMORE RECEIVES PRESTIGIOUS CAREER AWARD

Professor Timothy Bickmore received a Faculty Early Career Development (CAREER) Award through the National Science Foundation. The \$500,000 grant supports Bickmore's research, which examines how social interface agents can conduct very long-term interactions with users—spanning months or years of daily use—and the impacts these interactions can have on user health education, behavior change, and overall well-being.

With the help of undergraduate and graduate students, Bickmore has developed animated conversational agents that simulate face-to-face conversations between users and health professionals, such as exercise trainers, health counselors, and nurses.

"A large portion of U.S. health care expenditures can be attributed to poor health behavior, and automated counselors have the potential to have a significant impact in this area," says Bickmore.

While these social interface agents have broad applicability, this project will target one application domain—physical activity promotion—and one user group—urban older adults from the Geriatrics Ambulatory Practice at Boston Medical Center—in order to focus and ground the research.

In addition to addressing basic science objectives, this "virtual laboratory" for studying long-term interactions will also be used as a teaching tool in the graduate computer science course in human-computer interaction, the undergraduate information science course in empirical

research methods, and a planned course in behavioral informatics.

Bickmore is also developing several related systems, including a virtual nurse to educate hospital patients about their health condition and post-discharge self-care (funded by the National Heart, Lung and Blood Institute); a wearable exercise adviser to promote walking (funded by the National Library of Medicine); a health adviser to promote medication adherence in patients with schizophrenia (funded by Eli Lilly pharmaceuticals); and an exercise adviser that can automatically assess the quality of user workouts based on a wearable sensor (funded by Partners Healthcare). The CAREER award will enable Bickmore to conduct basic research that contributes to all of these applications.✚

## DISTINGUISHED RESEARCHER JOINS CCIS FACULTY

This fall, CCIS added another outstanding faculty member to its already prestigious roster when it welcomed Olin Shivers, one of the industry's most accomplished programming language researchers, who comes to Northeastern from Georgia Institute of Technology (Georgia Tech).

Shivers has contributed many novel ideas to the world of programming language design, and his pioneering work on static program analysis is used by academic and commercial compilers worldwide.

He's founded three companies, including the Cambridge-based Smartleaf Corporation, which provides portfolio analysis services to the financial industry and manages \$6 billion a year. He has also held research or faculty positions at Bell Labs, the University of Hong Kong, and Massachusetts Institute of Technology (MIT). Shivers spent six years at Georgia Tech, where he was an associate professor in the College of Computing, before making the move to Northeastern.

"Being at Northeastern makes daily life very exciting intellectually," Shivers says. "The idea that I can stick my head in Will Clinger's door and ask a question about garbage collection or discuss semantics with Mitch Wand, object-oriented software patterns with Karl Lieberherr, or programming-language design with Matthias Felleisen is tremendous. The people I get to work with at Northeastern are the people who defined the field. The greatest concentration of top scholars in programming languages anywhere in the world is found, literally, on the same hallway as my new office. That's a dream deal for any researcher, and for me it makes it fun to show up for work."

Shivers, of course, is no lightweight, despite the seemingly simple answer he gave to the director of MIT's computer science laboratory one day, when asked to describe his vision of computer



Associate Professor Olin Shivers comes to CCIS with a strong academic and private-sector background.

*"I'm always thinking of a programmer sitting in a little cubicle trying to write programs that work, and I think, 'How can I help this person?'"*

science: "Imagine programs that work," he replied. "That's the key. Programs mostly crash, so that idea has been my pole star ever since."

With a PhD in artificial intelligence and programming languages from Carnegie Mellon, Shivers focuses his

research on the development of powerful languages as practical, efficient tools for real programming tasks. "I'm always thinking of a programmer sitting in a little cubicle trying to write programs that work, and I think, 'How can I help this person?'" he says. "As a computer scientist, I use mathematics to build models and figure out in advance if a program is going to burst into flames—meaning if it's going to use up too much memory or crash, for instance—or if it's going to work."

Shivers' work in this area blends theory and practice, analysis and design. "Beautiful theory, such as operational semantics or lambda calculus, has to be harnessed to practical applications, like Web services or multimedia processing," he says. "One reason I value the time I've spent doing startups is that my experiences there helped keep me grounded in industry practice and gave me a sense for real-world software problems."

Similarly, he believes techniques for analyzing programs must be developed in concert with the design of new language features. "You can't be in the game of designing a new programming language unless you understand the analysis side," he explains. "How will you reason about programs written with that language?"

These attitudes have led him to a fairly broad perspective on programming languages, where he has done work on language design, formal semantics, program analyses and compiler optimizations, garbage collection, and other run-time support systems. For him, the key challenge is applying these powerful technologies to real-world programming tasks and applications.

Shivers is happy to be in such a vibrant new location. "With all the programming language people at Northeastern, Boston University, MIT, Harvard, and other Boston-area schools, this is an amazingly exciting place to be right now," he says. +

## FOURTH-YEAR STUDENT PUTS HER ENERGY INTO BIOINFORMATICS

Tanya Cashorali, '08, likes the excitement of being on the cutting edge of genetic research. The fourth-year student, who's working toward a dual major in computer science and biology, is on co-op in the Informatics Program at Boston's Children's Hospital, where she's researching the genetic causes of Huntington's disease, autism, asthma, and brain cancer.

"I've gotten a chance to work with pioneers in the field, including the top researchers in the Harvard and MIT communities," says Cashorali. "They were among the first to show that it's possible to analyze white blood cells rather than brain samples to draw accurate conclusions on the genetic causes of Huntington's disease." She's also been working on a project to identify the genes related to autism and asthma, using another novel technique that incorporates not only genetic data but also existing data from linkage peak analysis.

"Tanya has been working in this multidisciplinary area where computing meet genetics meets disease," says Isaac Kohane, the director of the Children's Hospital Informatics Program. "There are few talented individuals that have the training to be able to work at this intersection, and Tanya has a facility for understanding the biological concepts and the questions being asked. She also understands the software tools to the point where she can not only use them, but can improve them."

It's unusual for a student researcher to be working on two different projects, says Kohane, but few have Cashorali's energy. She is currently writing two papers related to her genetic research.

"One of the best things I've learned from this co-op experience is how to go about conducting this research—how to think about problems and how to solve them," she says. "Watching how these researchers think is very cool."



Tanya Cashorali makes an impact in genetic research during her co-op at Boston's Children's Hospital.

*"One of the best things I've learned from this co-op experience is how to go about conducting this research—how to think about problems and how to solve them."*

Cashorali has also had an opportunity to attend important industry conferences. Kohane sent her to the National Institutes of Health (NIH) in Bethesda, Maryland, in July to attend a biomedical computing meeting on Huntington's disease. Here, she presented a poster on the hospital's work in this area, which is supported by the NIH, to the top principal investigators in biomedical computing.

Cashorali recently received a five-month research grant funded by Northeastern's provost's office and CCIS, which will enable her to continue

her research at Children's Hospital. Eventually, she plans to pursue a PhD in bioinformatics and integrative genomics, specializing in neuroscience and integrating genetics into health care.

"The best thing about the dual degree program is it allows you to combine interests," Cashorali says. "There's a ton of genetic and biological data out there to be analyzed, but people who are knowledgeable in the fields of both biology and computer science are very rare. Bioinformatics is an up-and-coming field and it's exciting to be a part of it." +

When your Web page looks like you intended it to look, regardless of what browser your reader is using, you can thank standards committees at organizations like the European Computer Manufacturers Association (ECMA). This group of experts is responsible for setting standards that make it possible for browsers such as Firefox, Internet Explorer, or Opera to interpret Web pages in the same way.

Fifth-year PhD student Dave Herman has made his mark by becoming the only graduate student to sit on the ECMAScript committee. The members of this group are typically lead architects and designers from each of the world's major Web browsers, as well as senior technologists and researchers from other companies and institutions.

Herman was recruited by the Mozilla Foundation, which makes Firefox, and invited to join the standards committee because of the novel work he had done constructing a mathematical model for JavaScript, a language that is incorporated into every Web browser in the world.

"I was trying to understand how JavaScript works, so I did an online search," explains Herman, whose research interests are in programming language semantics and formal specification. "All I could find was a 200-page specifications document that explained how JavaScript was supposed to behave, but it was incredibly difficult to understand."

He decided to construct a formal semantics for JavaScript on his own by building a mathematical model that would be "more concise and more precise than English and hopefully more understandable as well," he says.

Herman took his model, put it on his Web page, and left it there. A few months later, he got a call from Mozilla's



Dave Herman constructed a mathematical model for JavaScript and now sits on a leading standards committee and works for one of the world's top Web browsers.

*"Dave's appointment to the ECMAScript committee is very important because it shows that practitioners have recognized the need to use the kind of formal models we have been working on."*

chief technical officer (CTO), Brendan Eich, who had seen Herman's model. "He was interested in mathematical models and programming language semantics and was curious to hear my perspective on this and what I had learned from building a model," says Herman.

They discussed the developments of the next version of JavaScript, and Herman was soon invited to join the ECMAScript committee and spend the summer working at Mozilla. "It was an incredibly remarkable thing," says Herman. "In the past, it's been hard for dialogues to exist between industry and academia. They are separate communities with separate communications channels, so the fact that the programming language designer and CTO of a major company would seek out academic input is just really exciting. It points to a new level of dialogue."

Herman's adviser, Professor Mitchell Wand, echoes that sentiment: "Dave's appointment to the ECMAScript committee is very important because it shows that practitioners have recognized the need to use the kind of formal models we have been working on. It is also an opportunity for us to see our ideas put into wide use."

The ECMAScript committee is currently developing the standard for the next generation of JavaScript, and Herman is focused on two aspects of this process. He's working on developing a mathematical model of the new JavaScript that is easier to understand and more accessible to real-world programmers than the previous language definition. And, he's helping design the new language and formulate its specification.

"As an academic, I can talk about the big ideas and the deeper theory involved in the language design, whereas the other people on the committee can say, 'Here are the real-world constraints,'" says Herman, who has been given a \$60,000 grant by Mozilla to fund his research for the upcoming academic year. "It's the theoretical meets the practical. The whole goal is to be able to marry those two." +

## CAR-WHERE PROJECT WINS FIRST PLACE AT RESEARCH EXPO

Next time you forget where you parked your car, think of Nathan Faber, '07, who won first place at this year's Northeastern University Research and Scholarship Expo for his work developing Car-Where, a clever system for locating a parked vehicle using radio-relay devices and a multi-hop wireless network.

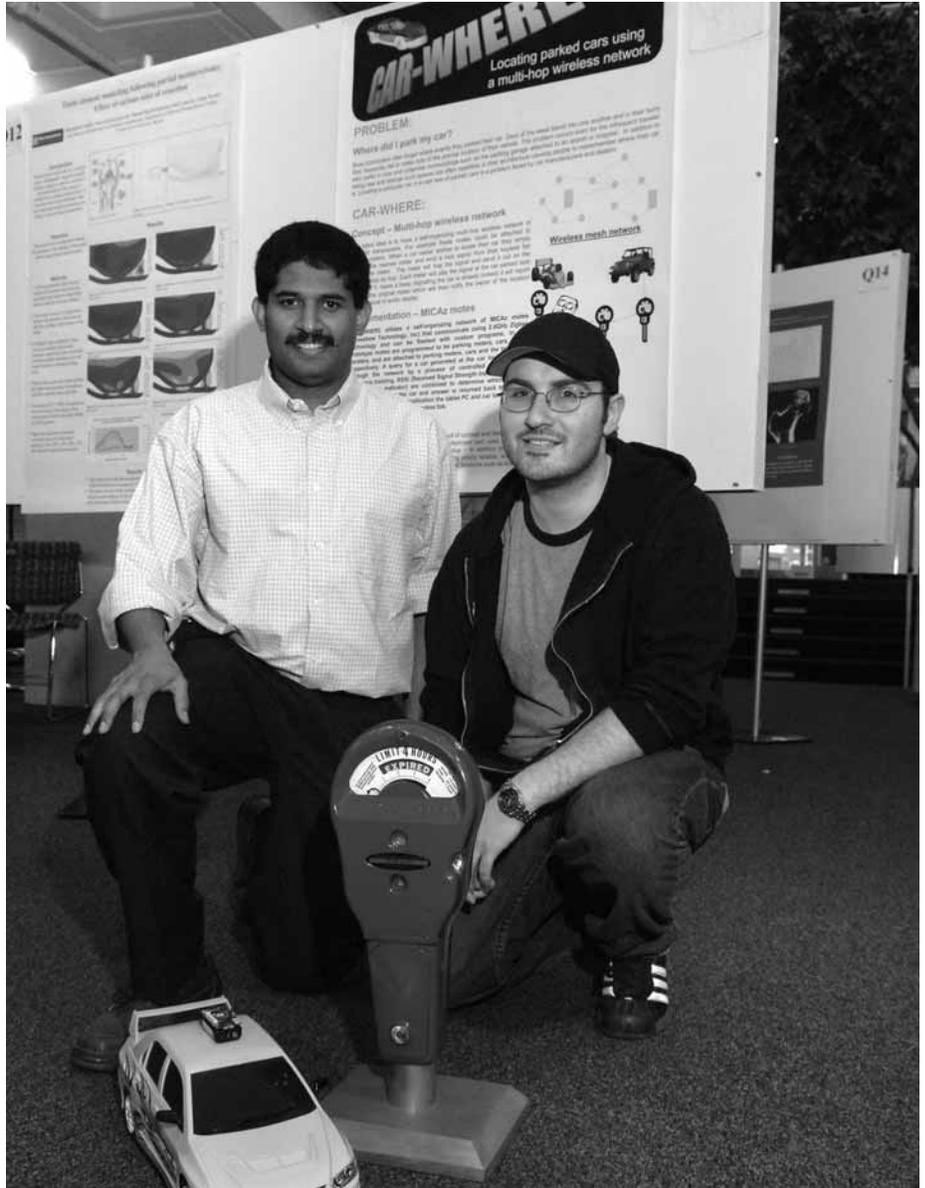
"People forget where they've parked their cars all the time," says Faber, like when they've gone on a trip and left their car in an airport parking lot, or parked in a big lot at the shopping mall. "They'll either spend a lot of time walking around searching for their car, or they'll hit the panic button [on their fob] to make the car's alarm go off and annoy everyone around them while they try to find their car."

*"People forget where they've parked their cars all the time. They'll either spend a lot of time walking around searching for their car, or they'll hit the panic button to make the car's alarm go off."*

Car-Where takes the guesswork and annoyance out of such a search.

The technology behind this system is remarkably simple. In a real-world scenario, small devices, called motes, are placed in parking meters and in kiosks located within the selected area, such as a parking garage or along a street, and also in cars. Each mote has a tiny microprocessor and transmitter inside of it. When you want to find your car, you point your key fob at one of the kiosks and it relays a signal via the parking meters until it locates the meter closest to your car. It then transmits the signal back to the kiosk, which displays a message letting you know the exact location of your car.

Eventually, the device could be used for other purposes, like helping you locate an empty space or even reserve a parking spot via the Internet or your cell phone, says Faber, who's majoring in computer science, with a minor in business.



Associate Professor Ravi Sundaram (left) and Nathan Faber developed an award-winning system that can help people locate parked cars, find empty parking spaces, or even reserve parking spots in advance.

Faber's adviser, Professor Ravi Sundaram, came up with the initial idea of using parking meters, motes, and multi-hop networks, and the two have spent the past several years developing and designing the system, which is the subject of Faber's bachelor's thesis. To build their display, they bought several parking meters through eBay, plus toy cars and off-the-shelf microcomputers that have the capability of communicating with one another.

"Nathan did a lot of the work programming the motes and getting them

to work," says Sundaram. "He built them, programmed them and set up the demo. He's an excellent student and runs with very little guidance."

Faber had one of the only physical demos at the research expo and his Car-Where project was selected as the top entry out of 175 submissions. He and Sundaram are currently filing for three patents on the system. Their next step is to begin talking to parking meter manufacturers, garage operators, and municipal authorities, to see if anyone is interested in turning this project into a real-life parking solution. +

## GRADUATE STUDENT LANDS PRESTIGIOUS INTERNSHIP AT MICROSOFT IN ENGLAND

When fourth-year graduate student Emine Yilmaz, '07, was selected for a three-month internship at Microsoft Research in Cambridge, England, she became one of an elite group of students to have such an opportunity. Yilmaz works alongside interns from Princeton, Brown, UCLA, and Georgia Tech, as well as from England's Cambridge and Oxford universities and other top institutions around the world.

"Working with interns from other schools is great because you get to learn how they are doing their research and you learn about different cultures," says Yilmaz, who is from Istanbul, Turkey. "It's also exciting because I'm getting a chance to work with some of the best researchers in the world. My boss, Stephen Robertson, founded many fundamental algorithms for information retrieval." Robertson is manager of Microsoft's Information Retrieval and Analysis group, which is a subgroup of the Machine Learning and Perception group.

Yilmaz focuses her research on information retrieval and machine learning, trying to figure out ways of measuring search engine performance. While at Northeastern, Yilmaz, her adviser, Jay Aslam, and graduate student Virgil Pavlu devised a new approach to rating search engine effectiveness, in order to save time but still get accurate results. Their method, which is based on random sampling, involves evaluating the performance of retrieval systems when the relevance judgments are incomplete.

"I had just coauthored a paper on this and mentioned it to Stephen in an e-mail," says Yilmaz. "He was shocked because he was in the process of writing a paper based on a very similar idea." The fortuitous e-mail got Yilmaz the job.



Emine Yilmaz' work on improving the performance of search engines landed her an internship at Microsoft Research in England.

*"Working at Microsoft has given me an opportunity to see how a commercial search engine works and the real problems associated with it."*

"Working at Microsoft has given me an opportunity to see how a commercial search engine works and the real problems associated with it," says Yilmaz. "Normally, in academia, you're working with artificial data, since you don't have access to everything companies do. Real data is different—it's more problematic because there is more of it and it's dynamic."

Yilmaz is currently working to improve the performance of Microsoft's search engine. Part way through her internship, she had the opportunity to present a poster on "Inferring Document Relevance via Average Precision" at the

most important conference in the field—the Special Interest Group on Information Retrieval (SIGIR) conference, held in Seattle, Washington, this August. "That was very exciting," she says. "It's great to get good feedback from other researchers."

She's also making an impact in other ways. At the moment, Yilmaz happens to be the only female researcher working in the Machine Learning and Perception group, out of more than 30 interns. "There are still a lot of hurdles for women in this field," she says. "When I get back to Northeastern, I hope to do what I can to encourage more women to get into computer science." +

## STUDENT ACHIEVEMENTS

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### Undergraduate Achievements

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**Joshua Abraham, '08**, presented a talk on “Advanced Network Mapping with PBNJ and Nmap” at the LinuxWorld Conference and Expo in San Francisco this August. His presentation focused on network mapping and scanning, and included a discussion of the relative strengths and weaknesses of the tools currently available. Abraham also elaborated on PBNJ, a network scanning tool he developed and introduced in 2005, which gives network administrators the ability to track changes in services on groups of networked machines by storing that information in a database. Last spring, Abraham extended PBNJ’s capabilities during a research-oriented directed study with Professor Guevara Noubir.

**Jason Ansel, '07**, coauthored and presented papers with his adviser, Professor Gene Cooperman, at two highly competitive conferences this year: the Proceedings of the 2006 International Conference on Parallel and Distributed Processing Techniques and Applications, and the Proceedings of the 2006 IEEE International Symposium on Cluster Computing and the Grid. Ansel’s research and papers are primarily concerned with the software for checkpointing, which enables users who run scientific applications to force the running program to save its entire state every day and, in the event of a crash, to later restart the program from the middle, based on its saved state.

**Brian Guthrie, '07**, works with Professor Robert Futrelle in the Biological Knowledge Laboratory, where they focus their research on diagram understanding. Guthrie’s first major accomplishment was building a prototype of an interactive Diagram Understanding System Inspector (DUSI). He is president of Northeastern University’s Gamma Chapter of Upsilon Pi Epsilon (UPE), the international honor society for the computing and information disciplines, which sponsors RALPH, the Research Activity Leaders’ Presentation Hour. Guthrie presented a RALPH talk about his DUSI system in November 2005. A video of this presentation and additional details of the system are available at [www.ccs.neu.edu/home/futrelle/students/Guthrie](http://www.ccs.neu.edu/home/futrelle/students/Guthrie).

### Undergraduate Awards

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The following students received awards at the college’s reception for graduating students in May 2006.

**Dan Lozovatsky** earned the excellence in teaching award for his innovative and intensive one-day workshop on Microsoft Visual Studio and SQL Server 2005. Using knowledge and contacts gained from his co-op at Microsoft, Lozovatsky put together a program that offered dynamic teaching methods and hands-on projects to more than 20 students.

**Ian Langworth** was presented the award for outstanding citizenship for his leadership in the college throughout his entire CCIS career. He was involved in Crew, the student Volunteer Systems Group, and eventually became leader of that group, focusing on how technology can improve communication.

For example, he led projects to create the first CCIS podcast, to work on a wiki engine used worldwide, and to construct a server that allowed other students to do CGI programming at CCIS. Langworth now works at Google.

### Graduate Awards

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The following students received awards at the college’s reception for graduating students in May 2006.

**Rui Wang** earned the excellence in teaching award for the undergraduate Database Management Systems course he taught. Wang developed the software for the course, which has been used by several instructors. He now works for Microsoft Corporation.

**Emine Yilmaz** received the award for outstanding research. In the past year, Yilmaz has published five papers in premier refereed conferences and her efforts were central to a successful National Science Foundation grant proposal. One paper proposed an efficient model for assessing search engine performance that is so novel and important that it may be adopted by the National Institute of Standards and Technology.

**Guolong Lin** received the outstanding research award for his work in the area of approximation algorithms. His work appeared in STOC 2005 and SODA 2006; the SODA paper was coauthored with David Williamson (Fulkerson prize-winner) and others. Lin joins Akamai Technologies as a senior software engineer.

**David Herman** was presented with the outstanding citizenship award for his role as the elected graduate student representative on the Faculty Hiring Committee. Graduate student input has been a critical component of hiring decisions, and Herman’s contributions in making sure these students’ opinions are heard has been appreciated by all those concerned.

### PhD Graduates

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Recent PhD graduates have landed in prestigious teaching and research positions across the country.

**Jiangzhuo Chen, '06**: postdoctoral fellow, Virginia Tech

**Guolong Lin, '06**: senior software engineer, Akamai Technologies

**Lujun Jia, '06**: distinguished member of the technical staff, Verizon Technological Organization

**Phillippe Meunier, '06**: lecturer, Sirindhorn International Institute of Technology, Bangkok, Thailand

**Rui Wang, '06**: software development engineer, Microsoft

**Panfeng Zhou, '06**: software engineer, Sybase

Faculty in the network security and distributed computing lab are working on projects that range from making life easier to preserving lives.

Professors Agnes Chan, Rajmohan Rajaraman, Ravi Sundaram, and Guevara Noubir are using a major grant from the Defense Advanced Research Projects Agency (DARPA) to work on a wireless anti-jamming project called Second-generation wireless Protocol Resiliency Enabled by Adaptive Diversification, or SPREAD.

“Resources such as battery power, available bandwidth, and memory are limited over wireless networks, so it is easy for a malicious attacker to launch attacks aimed at jamming communications or exhausting resources available to legitimate users,” explains Chan. Such attacks could result in major casualties in a battlefield situation.

“Troops send encrypted messages via airwave and need to update their shared keys to maintain security,” says Chan. That’s why Chan, with the help of graduate student Jonathan Wong, has designed an algorithm to update keys immediately, so that vulnerabilities resulting from lack of perfect synchronization can be reduced.

She has also devised efficient group key management schemes whereby the binary tree used to maintain the keys remains balanced at all times.

### Recent graduates:

- Duncan Wong, '02, is an assistant professor at the City University of Hong Kong
- Jiangzhuo Chen, '06, is a postdoctoral fellow at Virginia Tech
- Lujun Jia, '06, is a distinguished member of the technical staff at Verizon Technological Organization
- Guolong Lin, '06, is a senior software engineer at Akamai Technologies

For the SPREAD project, Professors Sundaram, Rajaraman, and Noubir are designing and building a game-theory model to analyze and improve communication security. “In game-theory, the question is: How do we strategize so we can always win?” says Sundaram. “You need to know the strategies your opponents are going to use and the probability of when they are going to use them.” Their aim is

to devise efficient procedures to compute the optimal strategies and associated probabilities for the communicating nodes.

Members of the Network Security group are working on other interesting projects: Chan is using an NSA grant to develop educational programs to train information assurance professionals; Sundaram and Rajaraman are using an NSF Theory grant, which they received this September, to analyze Internet capacity and vulnerability; and Noubir is designing cross-layer protocols for robust and scalable heterogeneous wireless networks, for which he received an NSF CAREER Award. Noubir has constructed a model for his Heterogeneous Smart Home, a system that allows users to securely and efficiently interact with their homes via their cell phones and multi-hop sensor networks.

Eight new graduate students, with diverse interests in networking, security, and algorithms, have joined the Network Security group this fall. They come to Northeastern from top universities around the world, including UCLA, IIT Guwahati (India), Bilkent University (Turkey), Sharif University (Iran), and several institutions in China. +

### [Student Groups continued from page 1]

Meanwhile, Northeastern’s student chapter of the Association for Computing Machinery (ACM) is also attracting leading researchers. The group’s weekly speaker series has featured people like Miquel de Icaza, vice president of engineering at Novell, and Stan Lippman, a C++ architect from Microsoft, who talk to students about the field’s latest developments and their own current research and projects.

In the past four years, Northeastern’s ACM chapter has won three national excellence awards for its outstanding Web site, chapter activities, and school service. The group provides students with great resources (like its new library, which has approximately 600 technical books for loan); numerous forums for students to swap ideas and mingle in casual settings (think board game nights, barbecues, and student-faculty receptions); and structured programs that add depth and value to their college experience.

Its student workshop series—the Co-op Preparation University (CPU) program—also offers valuable classes and tutorials taught to students by students. “ACM members learn about different technologies—like Linux, Perl, or game design—that they wouldn’t necessarily be taught about in their classes,” explains senior Chris Lambert, '07, former president of the group. “But this information is still really useful for certain projects or for co-ops.”

Alumnus Ian Langworth, a former member of ACM and former leader of the college’s Volunteer Systems Group, also known as Crew, taught several of these classes. He also wrote a

textbook on Perl his senior year at Northeastern, called *Perl Testing: A Developer’s Notebook*, that was printed by O’Reilly Media.

Crew is another prime example of a student group that makes an impact on campus and preps its members for success after graduation.

Crew members have worked on many novel projects. They have spearheaded the installation of the college’s original wireless network and laid the groundwork for integrating Linux into the college system. “You really get involved with the industry and with the computer science field very intimately working on these sorts of projects,” says John Patota, '09, the current leader of Crew.

Many alumni are now discovering that they can transfer the skills and methodologies they learned at CCIS into the real world. Four former Crew members are working full time at Google—five by this spring—and another worked as an intern there this summer. Other Crew graduates have joined organizations like MIT, Turbine, and the Defense Information Systems Agency, which is affiliated with the U.S. Department of Defense.

“The student groups featured here add to the distinctiveness of a Northeastern education,” says Dean Larry Finkelstein. “They enrich the social life of the college and provide students with an opportunity to learn about new technologies in the computing field that are not generally available in formal classes. We are proud of their accomplishments and look forward to their continued success.” +

## ALUMNUS GIVES \$100,000 IN SCHOLARSHIPS TO CCIS

A generous gift from an alumnus has provided \$100,000 in scholarship awards to CCIS students. R. Brian Wenzinger, BS '89, who's now a partner at Aronson+Johnson+Ortiz in Philadelphia, decided to make the donation as a way to give back to the University, which had provided him with a five-year Carl S. Ell Scholarship and invaluable job opportunities when he was an undergraduate.

*“I know I wouldn't be where I am if I wasn't given a scholarship and a solid education, and the chance to live in Boston and have the co-op experience.”*

“Coming from a single-parent home, I could have never afforded to attend Northeastern,” says Wenzinger, who named the scholarship after his mother, Jane K. Wenzinger, to honor the woman who struggled financially to help put him through school.

Wenzinger was able to fund 80 percent of his college expenses through programs, scholarships, and jobs offered by the University.

“At one point, I had five jobs,” recalls Wenzinger. “I was working in the mail room, as a proctor, and as a resident's assistant (RA)—being an RA was great because I got free room and board, and a stipend. Plus, I had a co-op job and was consulting for an old co-op job on the weekends.”

He also took on a night job at Caldor's to help pay for the car he had to buy to drive to one of his co-ops. “That's how I learned to work long hours,” he says. “And that's why putting a scholarship together was so important to me,



R. Brian Wenzinger, BS '89

because I know what it's like to sweat over every cost. I also know how far a good education can take you.”

After graduation, Wenzinger worked at DuPont and then got his MBA from the University of Delaware and designation as a Chartered Financial Analyst, enabling him to apply his computer skills to finance. He was soon hired by Aronson+Johnson+Ortiz and worked his way up to partner.

“As a computer science undergrad, you may think you're only going to be running programs for organizations, but computer technology can really be applied anywhere, even in finance,” says Wenzinger. “When you're a quantitative analyst, you need a lot of programming skills to be able to analyze data, pick stocks, and report on stock performance.”

All along, Wenzinger contributed to the University in one way or another. “I've always felt that if you've received money from the University, you should do whatever you can to give back at some level,” says Wenzinger, who participated in the alumni admissions recruiting program when he first graduated. He then made increasingly larger financial contributions over the years as he climbed up the career ladder.

Wenzinger's scholarship is based on merit and financial need, but gives preference to students from single-parent households.

“I'm thrilled to be able to help out other students,” says Wenzinger. “I know I wouldn't be where I am if I wasn't given a scholarship and a solid education, and the chance to live in Boston and have the co-op experience.” +

# COLLEGE OF COMPUTER AND INFORMATION SCIENCE

## SUPPORTERS, 2005–2006

The following list includes CCIS alumni who made gifts or pledges to any Northeastern University fund, as well as alumni and friends who directed their gifts specifically to CCIS, between July 1, 2005 and June 30, 2006. Every effort was made to ensure the accuracy of this list. Our sincere apologies for any errors or omissions that may have occurred.

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Jeffrey C. Decoste, '92	Robert A. Klopotoski, '01	Homer H. Pien, '89*	John A. Zukowski, '89*

\* Indicates donors who directed their gifts to the College of Computer and Information Science.

## DEAR ALUMNI AND FRIENDS:

On behalf of the faculty and students of CCIS, I would like to take this opportunity to thank those of you who have made your annual gift to the college this year. Annual gifts of all levels are essential to helping attract students to the college, to maintaining the quality of a student's education, and to helping bridge the gap between tuition and the actual cost of educating a student.

Gifts donated by CCIS alumni have been key in helping support the activities of the various student groups that are featured in the cover story, and add so much value to college life. They also make it possible to send students to professional conferences; these conferences are especially valuable for students pursuing research careers, and many of the students featured in this newsletter have benefited from such gifts.

Last year, you generously supported the college with your gift. As we near the end of the calendar year, I hope you will do so again. And, if you have not made a gift to the college in the past, we hope you will consider doing so at this time. You may designate your gift to the CCIS Dean's Discretionary Fund, which supports the activities mentioned earlier. Your generosity will ensure that vital opportunities and resources are available to our students. In addition, your annual gift will demonstrate your confidence in CCIS as a national leader in computer and information science. For more information about making a gift, please visit [www.northeastern.edu/giving](http://www.northeastern.edu/giving).

With strong programs and outstanding academic options, CCIS is poised to educate the next generation of leaders in computer and information science. Thank you for partnering with us and helping to make it all happen.

Cordially,



Larry A. Finkelstein  
Dean

### Name change? Address change? Career news?

Please let CCIS know of any changes in your personal information so that we can update our records. We'd also like to hear your suggestions for student and alumni achievements to feature in future issues of the *CCIS Network*.

#### Please contact:

Aileen Kent Yates  
Manager, Employer and  
External Relations  
College of Computer and  
Information Science  
[a.kentyates@neu.edu](mailto:a.kentyates@neu.edu)  
617.373.4151



COLLEGE OF COMPUTER  
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202 West Village H  
Northeastern University  
360 Huntington Avenue  
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