Artist's rendition of the Volgenau School's new building

▼ Did you know?

U.S. News & World Report has ranked GMU as the number one up-and-coming school in the nation!

New Computer Science Department Unites Faculty and Students
from the former CS and Information and Software Engineering Departments

The Computer Science Department and the Information and Software Engineering Department merged on January 1, 2008 to form the new Computer Science Department, which consists of 42 full-time faculty, 20 adjuncts, and 5 staff, making CS the largest department in the Volgenau School.

With new course offerings, new faculty, and soon a new building, the change is huge, so huge the Department has started its own newsletter, the *Computing News*.

The *Computing News* reporting team recently sat down with Dr. Hassan Gomaa, CS Dept. Chair, for a candid discussion about the challenges and excitement of running the new CS department.

What was the reason behind the department merger?

There are several reasons. Both departments had faculty with similar backgrounds, almost all the faculty have Ph.Ds in Computer Science. There was significant overlap in both research and teaching interests among the faculty of the two departments. There was external confusion about having "two CS Departments" and this confusion affected our recruiting efforts. Unfortunately, at times there was an adversarial and competitive relationship between the two departments. Once the faculty of both departments agreed upon the merger,

we developed a very good working relationship, which allowed us to address and solve many important issues before the actual merger was finalized. We actually spent 18 months planning for the merger, which was essential to ensuring a largely smooth transition path.

What are the challenges of the larger faculty and staff? You now have 42 faculty members.

The merger of CS and ISE into the new CS Department provides a great opportunity as well as several challenges.

In the short term, the challenge is to make sure that the new department operates efficiently and effectively. In the long term, our goal is to build both a nationally and internationally recognized Computer Science department, leading in both research and teaching. Our greatest strength is our faculty, both the established faculty, many with highly regarded international reputations, and our outstanding group of junior faculty who have tremendous potential. Our greatest weakness, which is a general Mason weakness, is a relatively low level of state funding in comparison to other major state universities in the Commonwealth.

In the entrepreneurial spirit of George Mason University, we are up and coming, and striving for excellence.

New Computer Science Department,
from page 1

What is your assessment of the national and international reputation of the new department?

The CS Department's national and international reputation is very good. Our faculty participates in many national and international conferences and publishes in several international journals. They are international journal editors, as well as being program chairs, PC members, and keynote speakers at several international conferences. They have received NSF CAREER awards, have published several books, and some have become Fellows of the ACM and the IEEE. We are probably better known to the national and international CS communities than we are to the general public in the US. Overseas, we are well known in certain countries (such as China and India) judging by the large number of international students we have in our undergraduate and graduate programs.

What new resources are available to this larger department?

We were allocated two new faculty positions in bioengineering (from the Volgenau funds) and one new faculty position in computer game design.

Will the department's overall course offerings be changing to eliminate redundant classes?

We have eliminated some redundant courses and are working to eliminate others. Some direct results of the merger: The MS program in Information Security and Assurance has been restructured to take advantage of MS in Computer Science (MS CS) courses in both networks and operating systems. A new undergraduate Software Engineering minor

was created. It is now much easier for students in the MS CS degree to take courses from the other MS degrees offered by the Department in Information Systems, Information Security and Assurance, and Software Engineering. In effect, several organizational, but artificial, barriers were eliminated with the merger.

How are students responding to the new CS degree?

The new Applied Computer Science degree is an innovative concept in that it combines CS with other disciplines. We have concentrations in Biology, Geography and Computer Game Design.

What are the plans to move into the new building?

The new building is a superb design and will be the first green building and second largest building on campus. We are really looking forward to the move. The move is scheduled for spring 2009. The CS Department will occupy space on the fourth and fifth floors of the building.

The Volgenau School has many corporate partners. Do you see this consolidation of faculty as enhancing that partnership and opportunities for students?

We consolidated the Industrial Advisory Boards of the two departments into one new board, which had its first meeting in June. We are developing a very good relationship with our corporate partners.

How do you see the merger working to improve the overall quality of the department, teaching, students, research opportunities, and publicity?

We have substantially improved the Ph.D in Computer Science. The number of applicants to the Ph.D

program this academic year was double that of last year and we admitted 24 new doctoral students, many of them as Graduate Research Assistants (GRAs) and Graduate Teaching Assistants (GTAs). Our faculty has graduated 34 Ph.D students over the past two years from the Ph.D programs in Computer Science and Information Technology.

How does the merger help capture more recognition?

With over forty faculty members, we are now the second largest Computer Science Department in Virginia after Virginia Tech. In the NSF rankings, which are based on research funding, we are ranked third of the Virginia universities. Having one department with wide-ranging skills and expertise does raise external recognition, which is an important component of the external rankings. In addition, our research funds have increased significantly in the past two years, which helps in ratings from the National Science Foundation (NSF).

What are you most excited about?

The high quality of our faculty, and in particular, our Assistant Professors and those recently promoted to Associate Professor. We have four current recipients of the prestigious NSF CAREER Awards for young faculty and two previous awardees.

What do you hope to accomplish for this new department?

My objective for the next four years is to lead a united department whose main goal is to improve its ranking through greater research productivity while delivering quality education to a diverse group of students. I would like to be a facilitator to help increase the level of participa-

▾ Faculty Activities

CS on the Move

Dr. Jim Chen served as the General Co-Chair of Edutainment 2008 in Nanjing, China on June 25-27.

Dr. Carlotta Domeniconi presented a workshop paper at the European Conference on Artificial Intelligence in Athens, Greece in July.

Dr. Hassan Gomaa presented two short courses to Samsung Electronics in Suwon, Korea, on Real-Time Software Design and Software Product Line Design in June. He also presented two papers co-authored with Erika Olimpiew at the Software Reuse Conference in Beijing China, May 2008 and the Software Product Line Testing Workshop in Limerick, Ireland, September 2008.

Dr. Larry Kerschberg traveled to Uppsala University in Sweden in May, in his role as "opponent" as part of the doctoral dissertation committee of Mr. Johan Petrini, a student of Dr. Tore Risch, whose thesis was titled "Querying RDF Schema Views of Relational Databases". Dr. Kerschberg provided an overview of the thesis contributions to the audience and posed numerous questions to the candidate. Dr. Petrini successfully defended his thesis!

Dr. Ami Motro spent May 15 - June 15 at Luiss University in Rome, Italy on a research collaboration project on the subject of Virtual Enterprises at the Center of Research on Information Systems which is in the Faculty of Economics and Management.

Dr. Jeff Offutt was a keynote speaker at the 2nd International Research Workshop on Advances and Innovations in Systems Testing in Memphis, Tennessee in May. He also attended the International Conference on Software Engineering in Phuket, Thailand in August to present a paper. And Dr. Offutt will be jetting off again in September to Skovde University in Skovde, Sweden to lecture on software testing.

Dr. Joao Sousa attended the June ICSOSFT Conference in Porto, Portugal to present two papers on software and data technologies.

Applause to our CS Faculty

GMU enjoys an international reputation. Our CS Department Award Winners exemplify our innovations in both teaching and research.

Professor Frank Armour received the Volgenau School's *2008 Outstanding Adjunct Faculty Award*. Frank teaches in both the MS Software Engineering and MS Information Systems Programs.

Prof. Brodsky and Ph.D student **Malak Al-Nory** received the Best Paper Award of the 41st Hawaii International Conference on System Sciences (HICSS), Decision Technologies and Service Sciences track with the paper "Service Composition Language to Unify Simulation and Optimization of Supply Chains."

Dr. Songqing Chen received the Volgenau School's *Rising Star Faculty Research Award* for outstanding research by a junior faculty member,. The award carries a $1,000 cash prize.

Dr. Carlotta Domeniconi, received The *2008 Mason Emerging Researcher/Scholar Award*. The award has a $3,000 cash prize. Dr. Domeniconi was recently promoted to Associate Professor.

Dr. Harry Foxwell received the Volgenau School's *2008 Outstanding Alumnus Award*. Dr. Foxwell works at Sun Microsystems and is helping to build a close relationship between Sun, the CS Department and the Volgenau School. He teaches courses in E-Commerce and Operating Systems.

Professor Fei Li received $20K from the office of the Vice President for Research and Economic Development as a Seed Grant. These awards provide seed funding leading to a competitive extramural award of significant magnitude

Professor Jyh-Ming Lien received $20K from the office of the Vice President for Research and Economic Development as a seed grant.

Dr. Sanjeev Setia, the Chair of the former CS Department, was awarded the department's *Outstanding Service Award* for his contributions as Chair and in his guidance during the merger.

Professor Jeff Offutt received the department's *Outstanding Research Award*.

Dr. Liz White received the Volgenau School's 2008 *Outstanding Teaching Award* for contributions to BS and MS teaching in Computer Science.

Dr. Duminda Wijesekera, received a *George Mason University Patent Award* this year together with Dr. Khaled Alghathbar, for his Patent "Implementing Security Policies in Software Development Tools" # 7,340,469 awarded by the US Patent Office.

CS Welcomes Our Newest Faculty Members

We are excited about the addition of nine new faculty to the new CS department. In fall 2007 we welcomed five new faculty: Professors Stavrou, Fleck, Li, Heishman, and Malek, while in fall 2008 we welcome four new faculty, Professors Shehu, Rangwala, Morgan and Locasto. Professors Shehu and Rangwala are part of the Volgenau School's Bioengineering Initiative.

Dr. Angelos Stavrou comes to George Mason as an Assistant Professor from Columbia University, Fu Foundation School of Engineering & Applied Science of New York. He holds a Ph.D in Computer Science. He is interested in the development and application of Large Systems Security and Survivability, as well as Distributed Systems Reliability, Fairness and Statistical Inference. Dr. Stavrou will be teaching a Workshop on Virtualization Security (VMSec) this semester in conjunction with ACM CCS.

"My research focus is in the area of Cyber Security including systems and network security. Cyber Security has already become an important and challenging field due to the pervasive use of computers in our everyday life."
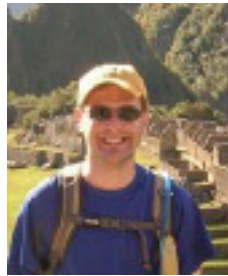
A warm welcome back to **Dan Fleck**, currently Computer Science instructor here at George Mason. Dan received his Masters in Software Engineering at George Mason University and is currently working on his doctorate in Computer Vision under the direction of Dr. Zoran Duric. Dan is particularly interested in technology that allows computers to recognize visual search queries through the integrated use of digital imaging. There may be commercial merit for this technology in the near future, but for the moment, Dan is happy to make it to the top of Machu Picchu the old-fashioned way!

"I am excited by all the new possibilities opening up as the field advances. High resolution cameras, 3D imaging and sensing, smaller and better video capture devices are all easily accessible today. We can now focus on new ways to use vast amounts of information, rather than figuring out how to capture that information. These are just some of the problems that make vision research very interesting.

"I attended GMU as a master's student and am still working on my Ph.D at the University. I chose to teach here because, as a student, I recognized that GMU is a wonderful place to experience new ideas and try new things. I learn new things everyday by interacting with GMU's outstanding faculty and students."

Dr. Fei Li also joins George Mason as Assistant Professor. He received his Ph.D from Columbia University. He is particularly interested in the exciting possibilities of combinatorial optimization for scheduling and networking problems. Additionally, Fei is researching online and approximation algorithm design and analysis. Both he and his wife, Qi Wei, are computer science experts, and George Mason is thrilled to have him on faculty this year.

Dr. Ric Heishman also joins us as Computer Science Instructor. He has extensive experience in both civilian and government computer systems and applications. Ric received his Ph.D. in Information Technology from George Mason. We are pleased to have him join our faculty after a 20-year tenure with the military. Ric is especially fascinated with human computer interaction, computer vision and cognitive/affective state classification using eye region biometrics. He is currently teaching computer ethics and programming.

"My focus is directed toward developing the programming skills of the incoming VSITE (and other science) students, so that they are prepared to use programming as a tool in future classes. My particular

CS Welcomes, from page 4

research area is a hybrid of Human Computer Interaction and Computer Vision. I am interested in helping machines (computers) interpret the needs of their human partners. In the long run, this will hopefully serve to enhance the relationship between humans and computers in society."

Dr. Sam Malek joins us as Assistant Professor after graduating from the University of Southern California, where he earned his Ph.D in Computer Science. His research focuses primarily on Software Engineering. He hopes to devise techniques and tools that aid with the construction, analysis, and maintenance of large-scale distributed and embedded software systems.

"I chose GMU because of its great reputation in Computer Science, as well as Software Engineering. GMU has one of the largest Software Engineering programs in the country. Moreover, GMU's proximity to D.C., high-tech companies, and federal organizations makes it an ideal environment for research and teaching."

Dr. Amarda Shehu joins us as Assistant Professor after graduating with her Ph.D. from the department of Computer Science at Rice University. She was a NIH fellow of the Nanobiology Training Program of the Gulf Coast Consortia. She says, "My main research area is computational structural biology and biophysics. In partic-

ular, my interests lie in developing physical-based algorithms to compute, characterize, and analyze biologically-relevant motions in dynamic organic molecules such as proteins and in large molecular complexes."

Dr. Huzefa Rangwala joins us as an Assistant Professor after graduating from the Computer Science department at the University of Minnesota, Twin Cities campus. His research interests lie in the areas of bioinformatics, machine learning, and high-performance computing. His research work involves developing machine learning-based methods for protein structure prediction. He has had internship experiences working at IBM developing life science applications for the Blue Gene/L, and has also been an instructor for a graduate level introductory bioinformatics class at the University of Minnesota. Huzefa is also a sports enthusiast interested in soccer, kayaking, biking, ice skating, and springboard diving.

Dr. Graham Morgan is a Visiting Assistant Professor who joins us from Newcastle University in the United Kingdom, where he was a Lecturer in the School of Computing Science, and a member of the Distributed Systems Research Group. He received his Ph.D. in Computing from Newcastle University in 2000.

"I have a variety of research interests, from distributed systems to

computer game engine technologies. A particular preoccupation at the moment is experimenting with transactional memory schemes for distributed multi-threaded applications. Research in varying, but related areas, is quite fun and rarely boring."

Dr. Michael Locasto is a Visiting Research Assistant Professor who hails from Dartmouth College where he was a Fellow of the Institute for Information Infrastructure Protection. His research explores methods for applying machine intelligence to a variety of security mechanisms, especially ways to make intrusion defense systems automatic, correct, and adaptive. His current work focuses on methods of structured fault injection, threat modeling, and debugging patterns.

Alumni Spotlight: Dr. Frank Armour

One of The Volgenau School's greatest strengths comes from the connections we build between our faculty and our students. We are also fortunate that the Washington, D.C. metro area has a wealth of employment opportunities for our graduates that keep them in the area. Our featured alum this issue, Dr. Frank Armour, exemplifies that strength and how that connection continues to benefit the school and our students.

New Software Testing Book

In January 2008 Computer Science professors Paul Ammann and Jeff Offutt published a much-needed software testing resource, *Introduction to Software Testing*. This text, published by Cambridge University Press, introduces a novel perspective on software testing by defining generic models and coverage criteria suitable for all software life-cycle artifacts.

This book is based on Ammann and Offutt's collective experience of teaching software testing to hundreds of students and features accurate theory, comprehensive practice, clear examples, and numerous exercises.

"Our goal was to produce more than a book. We've created complete courses with enough materials so that someone with a general knowledge in software engineering or computer science could teach testing without having to become an expert in software testing first," said Dr. Offutt adding, "This package includes syllabi for undergraduate and graduate courses, high quality Power-Point slides, over 200 worked homework exercises, dozens of fully working example programs, sample exams, and software testing tools to be used in courses at the undergraduate, master's, and Ph.D levels."

The book has been picked up by CS departments across the country and we'll be reporting on the book's success in our next issue.

More information on the book is available on Dr. Offutt's Website: http://cs.gmu.edu/~offutt/software test/

Dr. Armour received his Ph.D in Information Technology from GMU and has been an adjunct professor in the former ISE Department, and now the CS department since 1993. His work and research includes enterprise information technology architectures, requirements analysis, System Development Life Cycle development (SDLC), and object-oriented development.

This past spring he received the 2008 Volgenau School Outstanding Adjunct Faculty Award. Dr. Armour teaches graduate courses on Software Requirements Analysis and Specification for the MS in Software Engineering program as well as Enterprise Architecture for the MS in Information Systems program.

Dr. Armour works as an independent IT consultant and currently works with both government agencies and private companies on the effective application of enterprise architecture, system requirements and design approaches. He is also the co-author of the book, *Advanced Use Case Modeling* published in 2001 by Addison Wesley.

▼ Spotlight on Research

Dr. Kenneth De Jong Receives Volgenau School Research Award

Dr. Kenneth De Jong received the Volgenau School's 2007 Research Award for his pioneering work on Evolutionary Computation. Here is an excerpt of an interview conducted by Colleen Kearney Rich.

Could we build better computers if we took inspiration from nature? This is one of the questions De Jong, who heads the Evolutionary Computation Laboratory in the Volgenau School of Information Technology and Engineering, is trying to tackle. "Does our computer adapt to us? No, we adapt to it. We throw it away and buy something new," he says. "What I've been really interested in is whether you can make computers more adaptive and more flexible and more robust over time so that they do the adapting, not us."

> "Robotic vehicles can be used in dangerous or unpleasant situations, like a nuclear waste site."

De Jong's vision isn't that far from reality. This adaptive technology is used in robotics, an area of research in which Volgenau School faculty members are involved. "Robots have a long association with industry and the military," he says. "Robotic vehicles can be used in dangerous or unpleasant situations, like a nuclear waste site. A robot could help long distance truckers navigate or provide an alert mechanism because a robot doesn't get sleepy or distracted."

De Jong has always been interested in machine learning. As a doctoral candidate at the University of Michigan, he had the opportunity to study with John Henry Holland, who is considered the father of genetic algorithms, a segment of evolutionary computation. De Jong is also seen as a pioneer in this field. He is the founding editor in chief of the journal *Evolutionary Computation* and sits on the executive committee of the Special Interest Group in Genetic and Evolutionary Computation of the Association for Computing Machinery. He has also received an Institute of Electrical and Electronics Engineers Pioneer Award in the field of evolutionary computation.

The term "in silico science" was coined by researchers several years ago, according to De Jong. "What they really mean by in silico science is performing experiments on computer models of the real thing you are trying to study," he says. "My interests have always been interdisciplinary, so we spend a lot of time not just doing hardcore computer science, but also looking at ways the computer can be used for other disciplines." Working with the Potomac Institute for Policy Studies, De Jong and his team looked at the effects of a pathogen, inhalation anthrax, on the human body. Because a number of victims of the 2001 inhalation anthrax incident were treated at nearby Inova Fairfax Hospital, Inova has some rare data that document exactly what happened to the affected postal workers over the weeks and months following their exposure.

"We used that data, together with other information, to build what I believe is the first attempt at a computer model of the effects of inhalation anthrax on the human body," says De Jong. The model also displays statistics on the host-pathogen interactions within the systems and on the patient's health and disease state.

While De Jong's model is a prototype, he can see applications for this kind of computer modeling in areas such as cancer research and drug design. "This is not to replace the wet lab or field work, but to add another dimension to the research."

De Jong is the associate director of the Krasnow Institute for Advanced Study, where he oversees the Adaptive Systems Lab.

Journal Editors

Dr. Jeff Offutt is editor-in-chief of Wiley's journal of *Software Testing, Verification and Reliability.*

Dr. Edgar Sibley is Chairman of the Board of Editors of *Information and Management* (the North Holland Journal) and has held this position since its inception in 1977.

Dr. Kenneth DeJong is the founding editor-in-chief of the journal *Evolutionary Computation* (MIT Press).

Dr. Larry Kerschberg is a founding Editor-in-Chief of the *Journal of Intelligent Information Systems* published since 1992 by Springer.

Professor Wang and Network Security

Professor Xinyuan "Frank" Wang began tackling network and system security problems ten years ago when he was a doctoral student. He was fascinated by the cat and mouse elements presented in the work.

"A unique aspect of security research is that it is a never ending game. There can always be an adversary. It's always challenging to think about how to trace, and then to turn around and think how to hide," says Wang as he describes the two side of the security issue.

> "A unique aspect of computer security is that it is a never ending game."

With this in mind, Wang says he challenges himself by always asking, "What is technically possible in this field? To what extent can an attacker hide himself, and to what extent can we track him?"

Wang seeks to answer these questions in this semester's graduate class, Intrusion Detection. Here he will present an in-depth introduction to the science and art

Prof. Chen Receives National Science Foundation's CAREER Award

Professor Songqing Chen recently received the NSF's prestigious CAREER award for his project entitled: "Internet Resource Management to Deliver High Quality Live and On-demand Streaming for Wireless Clients." Professor Chen has been conducting streaming-related research for six years and is excited about its real-world applications, as they will likely touch the lives of all Internet users.

Chen hopes his research will improve the performance of on-demand and live streaming video on both server-based and P2P-based devices. For the average Internet user, this would mean an improved streaming video viewing experience on smartphones, PDAs, and other mobile devices.

Professor Chen's main objective is to improve resource management in Internet and wireless networks. Specifically, his research will design algorithms and systems to better use existing under-utilized or idle Internet resources. In his work, application communication patterns are being leveraged to minimize data transmission power without degrading the application's performance. Furthermore, idle peer computing resources are being utilized and novel distributed online content adaptation schemes are being designed to address the multi-dimensional heterogeneity of wireless devices. In addition, the unused covert communication channel and application characteristics are being exploited to design a set of new security protection schemes to satisfy the demand of future wireless Internet streaming services.

Most of the $450,000 grant money will support Prof. Chen's research assistants over the next five
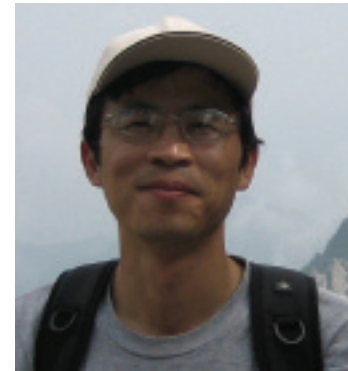
years. "Students can participate in the project via different approaches, and at different levels," says Chen. He currently has two Ph.D candidates working on this project, and invites interested students to inquire about future collaborations.

Three other faculty are currently supported by their CAREER Awards:

- Dr. Carlotta Domeniconi, "Learning Local Feature Relevance for Pattern Classification and Clustering," 2/1/2005 to 1/31/2010, $400,000.
- Dr. Jana Kosecka, "Geometric and Appearance Based Methods for Model Acquisition," 2/1/2004 to 1/31/2009, $500,000.
- Dr. Hakan Aydin, "A Holistic Energy Management Framework for Real-Time Embedded Systems," 6/1/2006 to 5/31/2011, $400,000.

Previous CAREER awardees:

- Dr. Alexander Brodsky, "Constraint Databases: Space, Time and Combinatorial Optimization," 5/15/1998 to 9/20/2002, $221,307.
- Dr. Liz White, "General Support for Dynamic Reconfiguration," 5/1/1996 to 4/31/2000, $200,038

of intrusion detection.

It's complicated stuff, yet not impenetrable. Anonymizer, Inc., the most popular anonymous communication service provider, claims its services can enable users to remain anonymous while they are on the Web by using the company's network flow water-marking technique. However, Wang "cracked" the technique and demonstrated the first practical attack on the company's Total Net Shield identity product. It took about 10 minutes. He notified the company CEO before publishing his findings.

"The CEO wasn't happy," says Wang.

Nor will AT&T and Vonage be happy when Wang unveils the results of his latest security experiment. Wang and co-authors, Ruishan Zhang, Xiaohui Yang, Xuxian Jang, and Duminda Wijesekera were able to demonstrate that the Voice Over Internet Protocol (VoIP) services these leading providers use are vulnerable to a new form of attack called voice pharming.

If you use VoIP to call your bank, explains Wang, "It's technically possible for someone to intercept your call or divert your call to a fake IVR or a fake bank teller, even if you have dialed the genuine number of your bank."

Wang says that this can have far reaching implications to the daily lives of millions of people and that these security issues are not going away anytime soon.

Learning Agents Center

A new revolution in computer use is underway at The Volgenau School. With support from the Department of Defense, the National Science Foundation and other government agencies, the Learning Agents Center is developing a general theory of how a subject matter expert, who does not have computer or knowledge engineering experience, can teach a learning agent, in a way that is similar to how the expert would teach a person, by providing and explaining problem solving examples, and by supervising and correcting the reasoning of the agent. This theory allows the development of a new type of intelligent assistants that can learn complex problem solving expertise directly from human experts, can support human experts in problem solving and decision making, and can teach their problem solving expertise to non-experts.

The center has developed prototype learning agents for a variety of military and civilian domains. One is a cognitive assistant (used in courses at the US Army War College and in several experiments with analysts), that helps an intelligence analyst answer complex questions, such as "Does Al Qaeda have nuclear weapons?", or "Who will be the global leader in alternative fuels and why?" Other developed agents include an assistant for strategic center of gravity determination (used both at the US Army War College and at the Air War College), an agent for course of action critiquing, and collaborative agents for emergency response planning. Currently, the center is investigating learning agents for financial services, medical diagnosis and treatment, and personalized training in critical thinking skills.

According to Dr. Gheorghe Tecuci, the director of the Learning Agents Center, "Future learning agents of this type will allow non-computer scientists to no longer be only users of programs developed by others (such as word processors or Internet browsers), but also agent developers themselves."

For more information about the Center visit: http://lac.gmu.edu/

Center for C4I

The Center of Excellence in C4I at George Mason University is the nation's first and only civilian university-based entity offering a comprehensive academic and research program in military applications of information technology. The Center performs research in: sensing and fusion, C3 architectures, communications and signal processing, command support and intelligent systems modeling and simulation, and information systems. The center is allied with multiple academic departments, including: Computer Science, Electrical and Computer Engineering, Statistics, and Systems Engineering and Operations Research. The last of these offers Master of Science in Systems Engineering with a major in C4I and also graduate certificates in both C4I and Military Operations Research. "This is the only George Mason University Center that works with all of the University's departments," says Dr. Mark Pullen, the C4I Center Director. He describes the center as a cross-disciplinary research resource that provides direct services in support of government clients such as the Department of Homeland Security and private companies, such as Raytheon that also service the government.

For more information please visit: http://c4i.gmu.edu/

tion of our faculty in funded research activity and quality scholarly research output. Another goal is to recruit outstanding new faculty members for new research and teaching initiatives, as well as to reinforce existing areas.

Specifically, I would like to reward faculty who obtain prestigious grants such as the NSF CAREER Award and other honors. This can be done by reducing their teaching load so that they can devote more time to their research and the development of our Ph.D. students. We also want to recognize teaching excellence and to encourage our growing distance education initiative. Finally, I feel that service to the community is important so that we can remain rooted to the Fairfax and greater Washington, D.C. communities. They have been our best supporters and have been instrumental to the growth of Mason over the past twenty-five years.

Does the merger help recruit better talent, both faculty and staff?

Definitely! In the past two recruiting seasons, faculty candidates have been impressed with our strengths, which they were often unaware of before they visited. There is no longer the confusion of two CS departments.
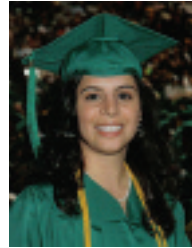
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She Stands Out In the CS Department
Yeganeh Moore, Leading By Example

It takes a keen mind to make the Dean's list six semesters in a row and a passion for your field of study to serve as an Undergraduate Teaching Assistant at the same time. Yeganeh Moore, this year's *Outstanding CS Undergraduate Student Award* winner, is truly a top performer who is described by Professor Tamara Maddox as, "bright, creative, and always willing to do what was required of her."

Yeganeh says that her involvement in outside activities, "gave me a chance to give back to the school and to learn to network and make lasting relationships." Yeganeh graduated in January but has since returned with her employer, Lockheed Martin, during Engineering Week to be a part of a recruiting event. She says, "I'm actively working with one of the managers at Lockheed to start a program at Mason with the ECE department."

Yeganeh joined Lockeed's part-time employment program in her last semester of school. The company was a good fit and she was offered a full-time position in January as a software engineer. She says that the CS program prepared her for this job because "many of our faculty encourage individual thinking, innovation, and staying up-to-date. I was surprised to find that I used many of the concepts and skills that I learned in CS classes."

Yeganeh's success and continued involvement helps her career and the university too. She says, "undergraduates should take advantage of anything and everything the school is offering, fun break activities, social events, career services and job fairs."

Chair's Message

Welcome to the Inaugural Issue of *Computing News*, the newsletter of the Computer Science Department in the Vogenau School of Information Technology and Engineering.

Our department has undergone great change over the past couple of years with the merger of CS and ISE to form the new Computer Science Department. The merger has gone quite smoothly, although there have been some bumps along the way, as one would expect in an academic merger. I wish to thank our faculty and staff for the cooperative spirit in which the merger took place. I would also like to thank Sanjeev Setia, the former Chair of the CS Department, for all his contributions and hard work over the 18-month period leading up to the merger.

We have strengths in many different areas of computing, particularly in Algorithms and Theory of Computation, Artificial Intelligence, Computer Vision and Robotics, Computational Biology and Biometrics, Databases and Data Mining, Evolutionary Computation and Machine Learning, Graphics and Image Processing, Information and Network Security, Parallel and Distributed Computing, Software Engineering, and Systems and Networks. We view the merger as a way to leverage the teaching and research expertise of our faculty, and we wish to take advantage of the new synergies and collaborative opportunities brought about by the merger.

In this first issue of *Computing News*, we focus on: welcoming several new faculty who have joined the department in the past thirteen months in the areas of bioengineering, computer game design, software engineering and security; and reviewing recent academic and research accomplishments by our faculty and students.

I hope you enjoy *Computing News*, and welcome any comments you may have. Please visit our departmental website for information about our faculty, our academic programs, and our research efforts.

Hassan Gomaa
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