GRADUATIONS

May 2010

B.S. in Mathematics
Adam Feller  Bryan Gannon
Matthew Hutson  Brian Lois
Haley Pemrick  Joseph Makouske
Keri Slama  Thomas McGlennen
Kathryn Trainor  Sarah Verdeliva

B.S. in Computer Science
Eric Anderson  Kyle Garms
Josh Hart  Francisco Hurtado
Kyle Jackson  John Luedtke
Lucas Trainer  Patrick Truskowski
Gabriel Van Eyck  Edward Weisse

B.A. in Mathematics for Elementary Teachers
Emily Wilson

M.S. in Computing
Brian Jahns

M.S. in MSCS
(Computer Science)
Samson Kiware

M.S. in MSCS
(Mathematics)
Erin Soderberg
Zhaoyang Teng
Kurt Vanderhoeft

M.S. in Bioinformatics
Dina Berchansky

ALUMNI NEWS

Suzanne Ratkowski
B.S. Physics and Math ’72
M.S. Physics ’86

Distinguished Alumna of the Year Award

I majored in Physics and Mathematics at Marquette, graduating in 1972 and received an M.S. degree in Physics in 1986. I entered the workforce in the Industrial Engineering department at UPS in 1976. At the time I was hired, UPS was expanding their use of technology in their trucking business, and my math background was very useful to them. Later in my career, I was transferred to the UPS center in Louisville, Kentucky, where I was a project manager working on a variety of technology projects that brought increased computer usage into the business, including the scanning technology that is now so ubiquitous throughout the small package business. In 2001, I took over management of the Airline Operations Research Department, and we had a very fruitful collaboration with Dr. Cindy Barnhart at MIT. This led to a first place in the INFORMS Edeleman prize competition in 2003. Working for a trucking company may have seemed a stretch for a mathematician or physicist, but there is a tremendous need for computer analysis and other analytics skills throughout the shipping business. There is no part of the logistics chain that doesn’t need constant tweaking and optimization to minimize transportation costs, particularly in a time of increasingly expensive oil and gas.

Mohd (Hamim) Talib
B.S. Computer Science ’96

I still remember the day Dr. Corliss provided our class with the opportunity to taste selections of cheese. I again see these varieties of cheese here in Scotland which reminds me of that class at Marquette. I would say that the Scottish weather and big farms reminds me of Wisconsin with the exception that it is surrounded by the sea.

Currently, I am pursuing my interest in the area of green technology. Since Scotland is located in the major oil region of Europe, the industry provides generous research support in the area of Environmental Sciences and Sustainable Energy technologies. I am working on research in wind energy, specifically in the area of how to harness and share the energy within the national grid so that the provider can reduce its dependence upon fuel based power generators. Of course my education in Computer Sciences from Marquette University is very useful for my research.

MSCS UPDATES

Colloquia - Spring 2010

January 29 – Xizhou Feng, Department of Mathematics, Statistics and Computer Science, Marquette University: Computational Approaches for Co-Evolving Technical Systems Modeling and Simulation

February 12 – Paul Bankston, Department of Mathematics, Statistics and Computer Science, Marquette University: Characterizing Topological Properties Using Continuous Functions

February 26 – Youhua Cui, Department of Statistics and Probability, Michigan State University: Gene-based Genome-wide Association Studies with Entropy

March 12 – Godmar Back, Department of Computer Science, Virginia Polytechnic Institute and State University: Optimizing Sparse Matrix Operations

March 26 – Suresh Choubey, CSE Chief Scientist, Applied Science Lab, GE Healthcare, Milwaukee: Research Trends in Healthcare Informatics

April 9 – Joseph S. Miller, Department of Mathematics, University of Wisconsin-Madison: Extracting Randomness is Hard

April 16 – Hans Volkmer, Department of Mathematical Sciences, University of Wisconsin-Milwaukee: Infinite Divisibility of Probability Distributions on the Nonnegative Reals

April 23 – Sarah Merz, Department of Mathematics, University of the Pacific: The Competition Graph and a Generalization

April 30 – Rebecca Sanders, Department of Mathematics, Statistics and Computer Science, Marquette University: Common Hypercyclic Vectors

Where in the World is Dr. Jones Now?

This quiz will be a bit tougher than those in the past. However, fluency in Spanish is not required to determine the correct geographic location. Prizes will be awarded to the top three correct entries. Please send responses directly to: newslet@mscs.mu.edu.

We would like to know where you are and what you are doing. Please send news and current address updates to: newslet@mscs.mu.edu
In our Fall issue, we reported on the world-wide nature of our first class of Computational Sciences students. Let’s meet two of those new students and learn more about their backgrounds, why they chose to come to our department, and their current interests.

Muge Karaman (pictured below) has an undergraduate degree in applied mathematics and a master’s degree in computational sciences from highly regarded universities in Turkey. “My previous graduate research had an applied and computational aspect which contributed to the solution of a significant real-life problem with a societal impact; particularly, in terms of saving lives and alleviating injuries in a disaster incident.” She was impressed by the unique research opportunities and coursework offered by the new program. Since she joined, she has also found that the close friendship among the students and the abundance of student-faculty interaction in our tight-knit community provides a stimulating and motivating study environment.

Muge is already deeply involved in Dr. Daniel Rowe’s Functional MRI laboratory, where a range of applied and computational research techniques are used for the analysis of brain activation. “I strongly recommend this Ph.D. program for those who have a background in applied sciences and want to be involved in an interdisciplinary research community.”

Ferdaus Kawser (left) came from Bangladesh with a background in computer science and engineering, having worked both in industry and in teaching. “I decided to pursue a Ph.D. because I came to realize that a career of meaningful research would be satisfying for me. I enjoy observing, making logical hypotheses and designing experiments to verify the validity of the hypotheses. I chose the MSCS program because it is interdisciplinary in nature. It tries to exploit the knowledge of different branches of science as the route to solving a particular problem. For example, we need statistical tools and mathematical models to draw meaningful and significant conclusions from our increased capability to capture large amounts of data and the increased computing capability to work with it.”

Ferdaus came here specifically to work with Dr. Iqbal Ahamed on pervasive computing. They have already published a conference paper on this topic. Look forward to following the progress of our Computational Sciences students in future issues!

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This newsletter is a publication written by students and MSCS faculty for alumni of the Marquette University Department of Mathematics, Statistics and Computer Science

FROM THE CHAIR

The 2009-2010 academic year bore the fruits of some very hard work. As you have read in past newsletters, we have been planning and designing a new Computational Sciences graduate program. Many hours were spent by MSCS faculty to design the overall program, and create the curricula and courses that comprise the core of this exciting new graduate degree.

This spring, we completed a very successful first offering of the computational sciences graduate core that consists of seven new courses: Probability, Simulation, Applied Mathematical Analysis, Applied Linear Algebra, Elements of Software Development, Parallel and Distributed Systems, and Research Methods/Professional Development Seminar. As an expansion of their studies, six of our computational sciences doctoral students will be involved in summer research projects in the coming months, thanks to funding provided by theWeltr Foundation. We are very excited about this program and invite you to learn more about it on page 3 of this newsletter.

This summer also brings us the second annual summer Research Experience for Undergraduates (REU, see http://acm.mscs.mu.edu/reu for more information). This REU will engage nine undergraduate students in faculty mentored research in mathematical modeling, high performance computing, embedded, mobile, and ubiquitous systems; and mathematics education. The program was extremely successful and well-received last summer.

I am also very happy to report that our department’s student credit hour enrollments continued to increase and the number of department undergraduate majors is at a 5-year high. In the last year, MSCS faculty published 33 journal articles, 17 conference papers, 2 book chapters and released 4 software packages/systems. MSCS faculty grant reviewing expertise was called upon by the National Science Foundation, National Institutes of Health, Luxembourg National Research Fund, Austrian Science Fund, and the Natural Sciences and Engineering Research Council of Canada. Seven MSCS faculty served as editors or editorial board members of scholarly journals. And, the department garnered over three quarter of a million dollars in grant funding.

We are proud of the work we have accomplished this year and are looking forward to an exciting summer. Feel free to stop by for a visit if you are in the area.

All good wishes for a safe and fun summer season.

Gary Krenz
Chair
Gary Krenz Runs
By Erin Soderberg - MSCS Graduate Student

Have you ever wished you didn’t feel so winded when you reach the top of the stairs in Cuadyh? So did Dr. Gary Krenz, his solution? Start running!

Dr. Krenz has been running “seriously” since 1999, including 13 marathons and numerous 5 and 10Ks (kilometers). Although he ran recreationally in college, he started running more regularly around 10 years ago when his doctor prompted him to live a less sedentary lifestyle.

Initially, his intention was not to train for a marathon: he started with a shorter 4-mile loop and slowly increased his distance. He ran his first marathon, the Lakefront Marathon, in 2001. Since his older brother is also a marathoner, Dr. Krenz trained for his second marathon in 2002, which he planned to run with his brother. However, shortly before the race, he injured his achillies during the Dinosaur Dash - a 5K race to benefit the Milwaukee Public Museum. As a result, he wasn’t able to run with his brother (and still hasn’t raced with him). The injury also encouraged him to do more cross-training to prevent further injury; now his workouts include pool running, weight lifting and biking. Other MSCS faculty have followed Dr. Krenz’s lead: Dr. Dennis Brylow and Dr. Praveen Madiraju have also both competed in the Lakefront Marathon.

In total, Dr. Krenz has run 13 marathons, including six Boston marathons, one in New York and one in Chicago. His best time was 2:56:54, his only sub-three-hour marathon. At his best, he approximates he was in the top 10 percent of marathoners, and for the last three years he’s won his age group at the Jacksonport Festival 10K in Door County. He says the coolest place he has ever run is in the redwood forests near Napa (though the Hollywood Hills are a close second), and his favorite route in Milwaukee is along the lakeshore.

And the best benefit of running? He can eat as much as he wants.

Dr. Krenz has run in 13 marathons...and was in the top 10 per cent of marathoners.

For a complete listing, please go to: www.marquette.edu/research/compendium.shtml

Sheikh Iqbal Ahamed
Presented: Secure Middleware for Pervasive/Ubiquitous Computing, at the University of Georgia, Athens, Georgia, January 2010.

Paul Bankston
Presented: Using Model Theory to Characterize When Two Classes of Mappings Coincide, at the Special Session on Interactions between Logic, Topology and Complex Analysis at the 2010 Spring Southeastern AMS Sectional Meeting [#1057] at the University of Kentucky, Lexington, Kentucky, March 2010.

Naveen Bansal

Dennis Brylow
Presented: Workshop, Teaching with Embedded Xim, at the Association for Computing Machinery Southeast Conference, Oxford, Mississippi, April 2010.

Karl Byleen

Anne Clough

George Corliss
Since last Fall, Dr. Corliss has visited the University of Louisiana at Lafayette (it snowed), Notre Dame (it snowed), and the University of Colorado at Denver (snowed twice) serving on several Ph.D. committees and working with graduate students on various aspects of scientific computing. He also visited McMaster University, Hamilton, Ontario, Canada, as an External Examiner for their Computer Science program.

Kim Factor

Rong Ge
Presented: Characterizing Energy Efficiency of Parallel I/O Intensive Applications on Power-Aware Clusters, at the 24th IEEE International Parallel and Distributed Processing Symposium in Atlanta, Georgia, April 2010.

Gholamhossein Hamedani

Kate Kaiser

Gary Krenz

Marta Magiera
Presented: Advancing Pre-service Teachers’ Competences in Algebra and Algebraic Thinking, with John Moyer and Leigh van den Kieboom, at the Associated of Mathematics Teachers Educators 14th Annual Conference in Irvine, California, January 2010.

Stephen Merril

John Moyer

Francis Pastijn

Daniel Rowe

Sherry Scott
Awarded: Travel support to attend the 2010 Frontier Talks Conference at the Norbert Wiener Center in the Department of Mathematics at the University of Maryland, College Park, February, 2010. This conference involves research areas that fall under the Harmonic Analysis and Applications umbrella.

Michael Slattery
Presented: Character Degrees of Some P-Groups of Maximal Class, at the Character Theory of Finite Groups in Honor of Martin Isaacs in Valencia, Spain, June 2009.

Elaine Spiller

Craig Struble

Craig Struble and Dennis Brylow
MSCS Undergraduate Research Has Strong Showing

MSCS faculty and students attended the 41st Association for Computing Machinery (ACM) Technical Symposium on Computer Science Education, as part of the Special Interest Group in Computer Science Education (SIGCSE) conference held in Milwaukee in March 2010. Two students were accepted to the poster session round of the ACM Student Research Competition.

Gabriel Van Eyck, above, (COSC and MATH, class of 2010) represented Marquette in competition with undergraduate and graduate researchers from around the country. He is pictured discussing his work on porting the Embedded Xino operating system to the multi-core Cell processor of the PlayStation 3 architecture.

Kyle Thurow, below, (COSC, class of 2011) explains his work on embedded network emulation. Kyle placed in the top five semi-finalists, and was invited to give a formal research talk on his work.

This is the second year in a row that a Marquette student has advanced to at least the semi-finals in the ACM Student Research Competition.

MSCS Undergraduate News

Pi Mu Epsilon

Congratulations and welcome to our new Spring 2010 inductees:

Matthew Brennan
Brett DeFreese
Konrad Hermann
Kaly Mueller
Anthony Rosen
Elizabeth Siebenlist
Allison Webb
Caitlin Collins
Jason Gaska
Jonathan McNally
Nathanial Quijano
John Shusterich
Joseph St. Marie
Stephen Wilhelm

PME Officers for Spring 2010: l. to r. Secretary, Konrad Hermann; Caitlin Collins, Vice Pres.; David Nowak, Treasurer; Anna Mohr, President

Upsilon Pi Epsilon

The Marquette chapter of Upsilon Pi Epsilon, the international honor society for the computing and information disciplines, inducted its third class of initiates on April 29, 2010. The Marquette chapter of UPE honors COSC and CDEN majors with outstanding academic records.

New UPE initiates for Spring 2010:

Matthew Brennan           Caitlin Collins
Jason Gaska                Jason Foerster
Adam Koehler               Andrew Pearson
Kristine Manning           Clyde Hoffmman-Pres.
John Fandel                Casey O’Brien-V. Pres.
Jason Fong                 Kyle Neuschafer-Secy/Treas.
Nicholas Yogerst
Paul Spillane

Farzana Rahman, MSCS Ph.D. student, has been selected as a recipient of the 2010 Grace Hopper Scholarship. She will present a poster at the Grace Hopper Conference in Atlanta, Georgia and will also participate in the Association for Computing Machinery student research competition at the conference.

Computational Sciences Students Receive Summer Research Grants

Six students in the Ph.D. Computational Sciences program received grants to pursue research in the 2010 inaugural Computational Sciences Summer Research Program. This program will provide participants with an intense, short-term research experience that is also closely mentored by an MSCS faculty member. The student recipients and their topics are:

Iain Bruce
"Reduced Image Noise with a Mathematically Correct Model for SENSE Imaging"
Faculty Mentor - Daniel Rowe

Jiping Hu
"Assessing Energy Efficiency of Parallel I/O Access"
Faculty Mentor - Rong Ge

Farzana Rahman
"Towards Lightweight Security Solution for Computational RGD"
Faculty Mentor - Sheikh Iqbal Ahmed

Karl Stamm
"Mitigating the Impacts of Missing Data with Entropy Analysis for Genome-wide Association Studies"
Faculty Mentor - Craig Stubble

Mohammad Tanviruzaman
"Facial Expression Based on Authentication System for Mobile Phones"
Faculty Mentor - Sheikh Iqbal Ahmed

Wutao Wei
"A New Framework for Multivariate Temporal Pattern Modeling and Analysis"
Faculty Mentor - Naveen Bansal

Research Presentations at Florida Conference

This March, Dr. Kim Factor had the pleasure of accompanying two of our Marquette graduate students, Erin Soderberg and Zachary Buelow, to the 41st Southeastern Conference on Combinatorics, Graph Theory and Computing at Florida University in Boca Raton, Florida. They are pictured above with Breann Tornsen, on left, a graduate student from the University of Colorado Denver. Erin and Zachary each presented papers at the conference.

Zachary presented his paper, "Strongly Connected Local Out-Tournament Adjacency Matrices with Full Rank". Erin presented on "An Investigation of Digraphs D with the Property Ug(D)=dom(D)". They also attended several other talks and returned with lots of ideas.

Both Erin and Zach received travel awards of $300 from the Marquette Graduate School. Erin also received travel funds from the Klinger College of Arts and Sciences.