Letter from the Chair

Although you won’t receive this newsletter until January, Christmas is knocking on the door as I write, and I extend to all of you my best wishes, and those of our department, for the season and for 2005.

I thought I’d take the opportunity in this edition of our newsletter to focus on our faculty.

Some names will be new to you and some will be blasts-from-the-past. Before I begin, I’m reminded of an important request to those of you who received advanced degrees from our department. In Dr. Gary Krenz’s column he discusses the upcoming review of our graduate programs and requests feedback from you about your experience with them.

This Fall, Dr. Rebecca Sanders began her career at Marquette University. A May 2004 graduate in Mathematics from Bowling Green State University, Ohio, she is a specialist in the fields of functional analysis and operator theory and will more than fill, metaphorically if not physically, the shoes of retirees Christian Braunschweiger and Robert Mullins in Mathematical Analysis. Rebecca’s husband, Dr. Bill Rolli, is also teaching mathematics for us this year and is looking for long-term employment in the area. Teaching computer science for us this year is Sadia Afroz, wife of second-year faculty member Dr. Iqbal Ahamed.

Ms. Sadia Afroz, Drs. Rebecca Sanders and Bill Rolli

I often run into Marquette alumni in Milwaukee, of course, and the names of Chris Braunschweiger and Clemens Hanneken often surface: not surprisingly, since they were both popular teachers of large calculus classes for many years. I am pleased to let you know that they and Bob Mullins, much more recently retired, attended our recent department Christmas party and are enjoying their retirements immensely. All still live in the Milwaukee area. In my last newsletter, I told you about Glenn Brookshear’s retirement. He has been working hard on his golf game, as well as on updates of his popular, groundbreaking computer science book *Computer Science: An Overview* and on the beginnings of a new one.

Dr. Philip Bender attended Glenn’s retirement party. Another popular teacher of calculus and other courses, Phil has made what at this time of year seems to me to be a very sensible decision: he moved to California.

Inside this newsletter, you will see a story from the Milwaukee Journal-Sentinel about Dr. Peter Tonellato, who retained a faculty position in our department when he moved to the Medical College of Wisconsin and is now Chief Scientific Officer for a local bioinformatics startup company, PointOne.

Going back a little further than Phil, but not as far as Chris and Clem, let me close my column with a warm tribute to Michael Ziegler. It’s from Dr. Michael Spurr, department alumnus, Associate Professor at East Carolina University and
In fact, I attribute my decision to pursue mathematics to the influence of an outstanding professor who taught several of my math courses at Marquette University. His name is Michael Ziegler. It is Dr. Ziegler I emulate when I teach today. I still vividly remember his calculus classes, the honors seminars he ran for us, and the advanced senior course he offered for us above and beyond his normal teaching schedule. Dr. Ziegler always shared his tremendous enthusiasm with us. His evident joy in teaching us mathematics still stands out in my mind. Those same qualities which he so generously shared with us, are the very ones I strive to offer my own students today.”  

Peter Jones, Chair

### Research & Publications

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<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Journal</th>
<th>Pages</th>
<th>Year</th>
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<tbody>
<tr>
<td>Iqbal Ahamed</td>
<td>Towards developing sensor networks monitoring as a middleware service</td>
<td>Proceedings of the International Workshop on Ad Hoc and Sensor Networks</td>
<td></td>
<td>2004</td>
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<td>Anne Clough</td>
<td>Quantification of bronchial circulation perfusion in rats</td>
<td>SPIE Medical Imaging 2004: Physiology and Function: Methods, Systems and Applications</td>
<td>387-393</td>
<td>2004</td>
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<td>Naveen Bansal</td>
<td>On estimating the largest scale parameter</td>
<td>Journal of Applied Statistical Sciences</td>
<td>255-266</td>
<td>2004</td>
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<tr>
<td>Hossein Hamedani</td>
<td>On estimating the largest scale parameter</td>
<td>J. of Statistical Theory and Applications</td>
<td>5-266</td>
<td>2004</td>
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<td>Craig Struble</td>
<td>Clustering MeSH Representations of Biomedical Literature</td>
<td>Proceedings</td>
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**Kim Factor**


**Hossein Hamedani**


**Peter Jones**


**Gary Krenz**


**FARNOOD (Scientific J. of the Society of the High School Mathematics Teachers of Isfahan, Iran)**

**Stephanie Sanders**


**Rebecca Sanders**

Published: *Clustering MeSH Representations of Biomedical Literature* (with C. Dharmanolla), *Proceedings*
Kim Factor

Nominated: Dr. Kim Factor nominated Amit Shankar Arora’s (M.S. in MSCS ’04) thesis, Discovering Principal Nodes in Networks Using Domination Graph Theory to the Graduate School for the 2005 Distinguished Master's Thesis Award. It is a national competition, where each university is allowed to submit one thesis to represent them. Marquette University has selected Amit's thesis to represent the university. It is a great honor for both Amit and Dr. K. Factor.


The conference was held at the Rochester Institute of Technology. The talk was on research Dr. K. Factor did in conjunction with her Summer Faculty Fellowship she was awarded in 2003.

Gary Krenz


Invited talk: A nonlinear model for analysis of viscosity bolus data, chaired a session on biomechanics, and was an invited Recent advances in mathematical biology discussant at the International Conference on Mathematical Biology at the Indian Institute of Technology-Kanpur, Kanpur, India, February 19-21, 2004.


Served: Member on the Biomedical Computing and Health Informatics Study Section, Center for Scientific Review, National Institutes of Health, Bethesda, MD, September 28-29, 2004.

Craig Struble


Bioinformatics Education and Research at Marquette University, CFEG Retreat, University of Wisconsin-Milwaukee, October 2004.

Pi Mu Epsilon

2004 Pi Mu Epsilon Officers

Adam Maruszewski – President  Tiffani Bilderback – Treasurer
Julian Kos – Vice President  Emily Stockhausen – Secretary
Dr. Wim Ruitenburg – Faculty Advisor

Our new initiate members: Emily Ballweg, Derek Board, Nicole Campbell, Richard Carlson, Jr., Paul Crosbie, William Cvengros, Matthew Daraskavich, Jason Darby, Sabrina Dechene, Sarah Drilling, Ron Fijalkowski, Brad Gabrielse, Joshua Godzdzialski, William Hall, Hammam Hanson, Pamela Harris, Kenneth Hartmann, Crystal Johnson, Becky Kohler, Robert Kondrad, Melissa Lemke, Mary Jo Maciejewski, Brian Marx, John McPheters, Daniel Merkel, Ismail Okasha, Rakesh Reddy, Samir Sangani, Jason Schoen, Wade Tollefsen, David Trautschold, Loren Wagner, Christian Wietholt, Christopher Wilcox, Kristin Wyer.

Colloquia by Paul Bankston

August 20: Lynda A. Thomas, University of Wales, Aberystwyth, Wales, UK: Johnny Can't Program, and Neither Can Johann.

September 17: Paul Bankston, Marquette University: In Search of Categoricity in Topology.


October 15: Douglas Harris, Marquette University: Patterns of Protocols.

October 29: Craig Struble, Marquette University: MeSH-Assisted Mining of Disease and Gene Relationships.

November 05: Luis Oliveira, Marquette University and Universidade do Porto, Portugal: Locally Inverse Semigroups and Pseudoelattices.

November 12: Xiaoxu Han, University of Iowa, Iowa City, IA: Real-Time Rendering of Large Geometric Data Sets.

Graduate News by Gary Krenz

A request for input from Masters and Doctoral Alums

In spring 2005, it is our department’s turn to conduct an internal review of its graduate program. As observed in the Graduate School Internal Review Guidelines, “Assessment and evaluation are crucial parts of the academic process to ensure programmatic quality. All within the Marquette University community share responsibility for gathering and weighing pertinent information: students, instructors, professors, chairs, deans, central administration, and alumni … The primary purpose for the internal review is to provide the academic unit with an opportunity for pedagogical self-reflection … [to] build upon strengths and address weaknesses.”

Having completed one of the department’s graduate programs, you, as alumni, are well-equipped to provide us with pertinent information regarding the elements of your graduate study that have proven useful or that have not been useful. We value your perspective and would like to hear from you. Please take a moment to seriously reflect on your Marquette Graduate Program experience and send a note that contains your program of study (BIIN, COMP, or MSCS) and comments to office@mcs.msu.edu or via postal mail to:

Graduate Program Comments
MSCS Department
Marquette University
P.O. Box 1881
Milwaukee, WI 53201-1881

We appreciate your continued support of Marquette and the MSCS Department’s Graduate Programs.

Graduations, August 2004

B.S. in Computer Science
Bryan Bartels  Sarah James
Sean McLean  Jason Vanderbilt

Graduations, December 2004

B.S. in Mathematics  B.S. in Teaching Mathematics
Shell Daigle  Kyle Garland
Ryan Wiesman

B.S. in Computer Science
Dylan Bain  Sheena Driver  Mark Krywaruczenko
Nicholas Nicastro  Sean Priest  Jacob Remitz
Talva Rogers, III  Marko Stojkovic  Ryan Wiesman

Master of Sciences in MSCS
Jinghui Luo  Sangeeta Nelson  Athina Stanitsa
Lihua Xing  Wei Zhou

Master of Sciences in Computing
Asim Siddiqui  Amitava Ghosh  James Kadia
Kevin Erickson  Kaliuga Kulandaivelu  Xinnan Niu
Leslie Cheung  Xiaolan Zhang  Murali Sudershanam

MSCS Receives the Largest In-Kind Contribution in the History of Marquette University by Dr. James Factor

In February 2004, Unigraphics Software (UGS), formerly an EDS company, made the largest in-kind contribution in the history of Marquette University to the Mathematics, Statistics, and Computer Science Department. The official acceptance of this gift was completed by the beginning of the Fall 2004 semester and consisted of 81 seats of UGS Unigraphics-NX family of software, which has a commercial value of $30.5 million. As part of this gift, MSCS will receive new releases at no cost and free training for faculty in the software’s capabilities. This software is considered a university resource and as such is available for use by students and faculty for both research and incorporation into university course work. IT Services at Marquette will provide network service to enable faculty and students across the university to explore applications of the UGS software.

“Our students will be at the cutting edge of the latest technology as a result of the opportunity to learn from the UGS software. And it won’t be limited to just one department. We
expect students from across campus in a variety of fields to be able to gain from the applications of the software,” said Dr. Michael McKinney, Dean of the Helen Way Klingler College of Arts and Sciences.

Dr. James D. Factor, formerly a research scientist and software developer at McDonnell Douglas and now a faculty member at Marquette, was instrumental in obtaining this donation for MSCS. Specifically, Jim is using the Unigraphics software to build the foundation of a cutting-edge geometric modeling lab. Dr. Peter R. Jones, Chair of MSCS, commented, “This software will enhance faculty research in our department and provide unparalleled opportunities for undergraduate and graduate students in Computer Science. It represents a true partnership in providing the Marquette community with access to this important technology.” This world-class software will serve as a state-of-the-art tool for research and analysis.

*The photo was taken in August 2004 in CU 392, the site of the 3D-Geometric Modeling Lab.*

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**Changes in MSCS Computer System by Dr. Craig Struble**

If I were to summarize what is happening to the MSCS computer systems with one word, it would be “change.” The past two years have seen significant changes in our lab and classroom environments. The JavaStations, once a major component of the labs, have been retired and replaced with Intel PC computers. Faculty are now able to teach classes using a wider array of tools, such as 3D Scheme, Unigraphics, and Rational Rose. Furthermore, students have access to friendlier versions of software such as Matlab, SPSS, R, and the Oracle database client.

The change to PCs in the labs and classrooms has not diminished our dedication to exposing students to diverse and modern environments. Unix and Linux continue to play important roles for education and research in the department. In the spring of 2005, we will introduce a new Unix system replacing studsys and several other aging Unix machines in

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**Alumni Update**

**Phillip Abramoff** (B.S. in Math ’86), son of retired MU Biology Professor Peter Abramoff, writes: “Since obtaining my MA/MS in Math/Stats from Michigan State (Dr. Hamedani’s alma mater) I’ve bounced around, trying different things, including high school teaching and seminary. Recently, I moved out to California to get married, and now have a tenure-track teaching position at Moorpark College (in Ventura County, just north of LA). I’ve become sort of the ‘stats expert’ in the department here, and have actually patterned much of my own teaching after Dr. Hamedani himself! Although my 3 years, so far, at Moorpark have been GREAT, 2002 was a bad year for me. I was hit by a serious arthritic condition in my feet that has left me handicapped. I teach sitting down. I’d like to hear from any old friends from MU, especially any MU grads that live near me in southern CA. Email me at pabramoff@vcccd.net or look on my website at www.moorparkcollege.edu/dir (click my name).”
Eamon Doherty, Ph.D. (B.S. in C.S., ’89) writes: “I wrote a book called Computer Recreation for Everyone, with Gary Stephenson, United Kingdom, Health Informatics consultant. The book will be available in January on the Barnes & Noble Website. The book has sections about computer recreation in the United Arab Emirates & Israel. The book also has a section with a game I created that allowed people in a coma or vegetative state to recreate. One man’s doctor upgraded his diagnosis from coma to TBI (traumatic brain injury) after seeing the results.”

Mark Rodenkirch (B.S. in Math ’90) writes: “Although I got my B.S. in Math from Marquette, my interests led me to be a software engineer. I worked in Chicago programming in assembler on an IBM 370 for almost seven years before spending a year in Springfield, MO. I came back to SE Wisconsin in 1998 working for a couple of different companies before coming to HK Systems in 2001, where I am developing in Java and PowerBuilder.

Since I moved back I met Carolyn (PT ’82) and we got married in 1999. We have two beautiful boys, Brian (who is 3) and Eric (who is 1). Brian is already showing an interest in numbers. He likes to count and can do very simple addition and subtraction.

One of the major things I’ve taken from Marquette is the game rogue, which many of us studsys users from the mid to late 80’s remember quite fondly from our Saturday marathons. That game prompted me to learn Java as I wanted to play the game on my PowerMac. I could compile and run the original source, but that wasn’t enough. I wanted to learn OO and Java and rewriting the program has been a great learning experience. Roy Tock (B.S. in C.S. ’90, M.S. in MSCS ’92) and I have completed more than half of the rewrite, but chasing your kids 24x7 limits our time to work on it. I ask anyone with unused computing cycles to donate them to one of the many distributed computing projects available. Enjoy.”

Jacqueline (Dier) Toepfer (B.S. in C.S. ’84) writes: “Thank you for taking the time to prepare such a wonderful newsletter! With my busy schedule I rarely have time to proactively keep up with the friends and activities from my alma mater. It is so nice to hear what is happening – especially when it is so positive! I never had Dr. Brookshear as a professor, but many of my friends did and he had a profound influence on them. I only remember one thing about him, it was when he told a group of us in a very animated fashion, how he had managed to talk his way out of a ticket after being pulled over by a Wisconsin state trooper! He must have been road testing the MG – again! I am currently employed as a Senior development manager at Interwoven, Inc. I am blessed to manage a team of brilliant developers – but no MU grads!”

Fanglin Zhong (M.S. in Comp. ’03) is working as a software engineer for Graphnet, Inc., in New York. Graphnet, Inc. provides integrated data messaging technology and services.

### People in the News

**Small is big for medical firm**

**Entrepreneur drawn to Tosa company focusing on complex genetic database work**

By KATHLEEN GALLAGHER

*Posted: Nov. 7, 2004*

After steering the successful October 2003 sale of Pel-Freez Clinical Systems LLC to Dynal Biotech ASA, Frank Langley got that familiar entrepreneurial itch again. He just couldn't get past the fact that Dynal was a big company, approaching $100 million in revenue.

Langley, 47, resigned from Dynal in April and spent the next four months in discussions to start, buy or join six different companies. He settled on PointOne Systems LLC, a 4-year-old Wauwatosa company that created ways to sort through clusters of complicated genetic and patient medical information and give doctors decision-making tools that help them identify, manage and monitor their patients’ conditions or tendencies to certain illnesses.

Once Langley got his hands on PointOne’s business plan, the company’s founder and chief scientific officer, Peter Tonellato, couldn’t resist joining him.

He left his primary faculty appointment at the Medical College of Wisconsin last week to devote himself full time to PointOne.

Now the company, which has fewer than 20 employees and had been fine-tuning its services and adding clients gradually, is positioning itself as a mainstream service for doctors, hospitals and clinics around the country and the world. An infusion of angel financing and funding from Aurora Health Care helped, too.

"It certainly has a lot of potential to become a much more substantial business because it's in an area that's just full of promise," said William Hendee, senior associate dean for research at the Medical College of Wisconsin. The Medical College foundation holds an equity position in PointOne related to its spin-off of the company in 2000.

PointOne's software and databases contain the most current research information about selected diseases and use complicated mathematical formulas to analyze the data in the context of patients' family histories and medical records.
The company generates reports for the patients and their doctors that recommend appropriate genetic diagnostic tests, and interprets the results of those tests, providing related information and treatment suggestions.

PointOne's models are one commercial application of some of the breakthroughs that stemmed from the Human Genome Project that mapped the genes that control the body's development, growth, functions and aging.

The constant and rapid pace of scientific discovery makes what PointOne does relatively complex.

Take a disease such as congestive heart failure. Doctors used to rely on echocardiograms, stethoscopes and physical exams to diagnose it. Recent studies, however, are prompting them to put more emphasis on new molecular tests with genetic influences such as the NT-proBNP test, which measures levels of the BNP protein, a marker for cardiac muscle damage.

PointOne's product for congestive heart failure helps doctors evaluate when to use the NT-proBNP test and how to interpret its results.

Tonellato, 48, is a database-savvy math whiz who was previously director of the Medical College of Wisconsin's Bioinformatics Research Center in Wauwatosa. That center is one of just a handful in the country where mathematicians, computer scientists and medical professionals work together to create and maintain huge databases of patient and medical research information, so Tonellato is one of a select group with such expertise. He said he will continue to collaborate on some research with the school's physiology department and its Human and Molecular Genetics Center.

Since arriving at PointOne in August, Langley has concentrated on developing PointOne's business plan. Major research hospitals and clinics such as the Mayo Clinic and Northwestern University Hospital are building giant databases to contain all of the new genetic information, but PointOne takes a more targeted approach.

PointOne - which says it already produces revenue through sales to U.S. customers - has some international prospects and products that cover six diseases, Langley said. Langley's challenge will be to develop business partnerships with institutions and organizations that can use its clinical tools, Hendee said. PointOne has one such partnership already with Aurora that involves pilot programs for breast cancer and congestive heart failure, but should be able to develop more outside the eastern part of Wisconsin where Aurora operates, he said.

Alumni News

Jinghui Luo (M.S. in C.S. ’96). On November 9, 2004, Jinghui Luo, along with Kevin Retlich and David Blair, were awarded patent US 6,816,817 B1 for Networked Control System with Real Time Monitoring.

Stephen Shauger (B.S. in MATH ’95) participated in the Putnam competition in 1993 becoming the top scorer that year. Stephen is one of Marquette top 10 scorers, overall. He went on to study graph theory at Texas A&M, and completed his Ph.D. in 2001. (Advisor: Arthur M. Hobbs, Dissertation: Graphs with Cycle Lengths in a Given Infinite Set). Currently he is an Assistant Professor in the Department of Mathematics and Statistics at Coastal Carolina University, Conway, SC.

On A More Personal Note

Weddings: Dr. Craig A. Struble and Erica M. Jasna were married on March 6, 2004 at Bay Shore Lutheran Church in Whitefish Bay. The reception was held at the Milwaukee County War Memorial Center.

Births: Dr. Ruta Bajorunaite and her husband Vytaras Brazauskas welcomed their son Kipras Brazauskas who was born on August 3, 2004.

Lingtao Zeng (M.S. in MSCS ’02) and his wife Rihong (Christine) Xu are happy over the arrival of their son Deri (Derek) Zeng born on September 19, 2004.

Staff Update

Uri Soroka worked for us as our Technical Support Specialist spending half of his time at Information Technology Services. Uri has recently moved to work full time for ITS in the College of Business Administration. We wish him well!

Postscript
Where is Dr. Peter Jones this year?

Each MSCS newsletter includes an “Alumni Update” section. We would like to know where you are and what you are doing. Who is your employer? Have you received further degrees or honors since you left MU? Please take a few minutes to complete this form and return it to the editor. If you would like your e-mail address published in Newsletter, please include it under your PERSONAL NEWS section.

NAME: ____________________________________________________________

ADDRESS: ____________________________________________________________________________________________________

YEAR OF GRADUATION: ____________   DEGREE (e.g., B.S. in CS):  ______________________________________________

PERSONAL NEWS: __________________________________________________________________________________________

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Please return to: NEWSLETTER
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