Dear CS alumni, friends, and colleagues:

I am pleased to share with you that the enrollment continued to go up in all programs offered by the department, including the newly established online MS in IT degree program. The department is now serving over 412 BS students, 83 MS students, 72 PhD students, and 45 MS in IT students, for a total of over 612 students. The quality of the students was also up. For instance, the average GPA and SAT score of freshmen entered this semester were 3.342 and 1199, respectively, compared to 3.229 and 1159 in the Fall semester last year.

I am delighted that three new faculty members, after an extensive national search, joined the department this semester. They are Dr. Yu Cao (Assistant Professor), Dr. David Adams (Lecturer), and Dr. Olga Lepsky (Lecturer). You will find more information about them in this issue. The department now has a total of 20 full-time faculty members, consisting of 4 full professors, 10 associate professors, 4 assistant professors, and 2 lecturers.

Requested by the Provost, the department decided to seek ABET accreditation for its BS in Computer Science degree program. The department was ABET accredited from 1984 to 2010. In 2009 the faculty voted not to seek renewal of ABET accreditation. We are now searching to fill two new full-time lecturer positions to meet the needs of increased enrollment, and the new hires are expected to lead our effort in seeking ABET accreditation.

The newsletter also includes other news items on faculty research activities and student and alumni achievements. I am sure you will enjoy reading them as much as I did. I am eager to hear from you about your achievements, thoughts, concerns, and suggestions on how to strengthen the UMass Lowell Computer Science Department for our students. I believe that a strong department will, in turn, help our alumni and make them feel proud of being graduates of our programs. If you would like to offer financial support to the department or to a specific program in the department, please specify that on your donation form.

Yours sincerely,

Jie Wang, PhD
Chair and Professor
wang@cs.uml.edu
978-934-3649
Holly Yanco was elected co-chair of the steering committee for the ACM/IEEE International Conference on Human-Robot Interaction and the Journal of Human-Robot Interaction. Her two-year term began in September 2013.

Holly received two grants this summer. The first was for "R-LUCID (Robot-Linked User Control and Interface Design)," a DARPA STTR Phase II project led by Boston Engineering, with a subcontract amount of $348,138 to UMass Lowell from 8/2013 to 8/2015. As part of this project, Holly led an evaluation of human-robot interaction at the DARPA Robot Challenge Trials (theroboticschallenge.org) in December 2013. Holly's second grant was an equipment grant from the Army Research Office for $204,299. These funds were used to buy a 3D printer and laser cutter for the NERVE Center, a Baxter robot, and equipment for Prof. Tom Shea in Biology. All of this equipment is supporting their joint work on the control of robots using mouse neurons.

Georges Grinstein co-chaired the annual VisWeek VAST Challenge. Participants were asked to use visual analytics approaches to solve three distinct mini-challenges: (1) continuously predict the opening weekend box office success of movies, (2) design a future situation awareness display for the fictitious company, Big Enterprise, and (3) identify unusual happenings on the computer network of a marketing company. (More VisWeek updates on Page 4)

Professor Grinstein and the Institute for Visualization and Perception Research (IVPR) were presented a Community Action Award by Community Teamwork, Inc. of Lowell on Oct. 23, 2013. The award honors recipients for “Creating Informed, Engaging Communities.” At the same ceremony, Prof. Grinstein and the IVPR were also recognized by the City of Lowell for “contributions to the city, the region and the world” and by the US House of Representatives for distinguished service to the Lowell community. These awards were based largely on the free data visualization and analysis software (Weave) developed by the IVPR and the work done to help non-profits understand and use data to make informed decisions.

Guanling Chen gave an invited talk at the IEEE Region 10 conference titled Automatic Mobile Photo Tagging Using Context. The conference took place in Xi’an, China.

Haim Levkowitz spent his sabbatical at the University of São Paulo in Brazil for the second time - “same place, same university, even the same funding structure,” as he put it. Prof. Levkowitz spent the first four months as a US Fulbright Scholar to Brazil and the remaining eight months supported by the State of São Paulo's research foundation (FAPESP). He taught a Fall Semester graduate course in 2012 and several short courses. He also helped with advising graduate students. In addition, he continued his 13-year-long collaboration with colleagues in the area.

Professor Levkowitz was invited to visit several universities in Brazil, where he gave talks, taught short courses, and discussed cooperation agreements with UMass Lowell. Overall, between those invitations, and other trips taken, he and his colleagues managed to travel more than 20,000 miles during the one year. Prof. Levkowitz says that they got to see some of Brazil, but as the country is as large as the continental USA, they still have a lot left.

Professor Levkowitz has also written, along with colleagues E. Schuster and O. N. Oliveira, Jr., a book on scientific writing. The book, Writing Scientific Papers in English Successfully: Your Complete Roadmap, is on its way to being published.

Tingjian Ge received a grant from the National Science Foundation (NSF) for “QUEST: An Integrated Query and Event System on Noisy Streams and Tables.” He was awarded $390,897 for the time period 9/15/2013 - 8/31/2016.
New Faculty

Olga Lepsky joined UMass Lowell as a Lecturer in August 2013. Previously, Olga taught at the Wentworth Institute of Technology, Northeastern University, and the Advanced Mathematics and Science Academy Charter School. She also worked as a software developer for Parametric Technology Corp. Her publications include work on numerical methods for partial differential equations and teaching algorithms. She enjoys teaching undergraduate programming courses, advising students, and working with our ACM chapter. Olga holds a BS and MS in Mathematics and Computer Science from Ben-Gurion University (Israel), as well as a PhD in Mathematics from Brown University. Olga’s hobbies include music, basketball, skiing, swimming, and travelling.

David Adams joined UMass Lowell as a Lecturer in August 2013. Previously, he taught for eight years at Grove City College (GCC) in Pennsylvania. While at GCC he taught a wide array of courses, advised the ACM student chapter and coached the ACM programming team. David received his MS and PhD from Virginia Tech and worked with his advisor, Layne Watson, on problems in high-performance and scientific computing. David is an active vocalist in his spare time, singing in barbershop choruses and quartets, as well as local choirs.

Yu Cao joined UMass Lowell as Assistant Professor in August 2013. Previously, he was faculty at the University of Tennessee at Chattanooga and at California State University, Fresno. Before that, he was a visiting fellow of Biomedical Engineering at the Mayo Clinic in Rochester, Minnesota. Dr. Cao received his MS and PhD degrees in Computer Science from Iowa State University in 2005 and 2007, respectively. In addition, he has received degrees in Computer Science from the Harbin Engineering University and the Huazong University of Science and Technology.

Dr. Cao’s research interests span a variety of aspects of algorithms and software infrastructure for data-intensive computational intelligence and biomedical informatics. His research has appeared in various prestigious journals, books, and refereed conference proceedings. He has served on Organizing and Programming Committees of more than 15 international conferences and workshops and was a guest editor for special issues of Springer Multimedia Tools and Applications (MTAP) and the Journal of Multimedia. Dr. Cao is a member of IEEE, ACM, and Upsilon Pi Epsilon.

NEW COURSE!

16.711 Computational Data Modeling

A new interdisciplinary course was offered this fall semester to graduate students from the Colleges of Science, Engineering, and Business.

According to its syllabus, 16.711 Special Topics: Computational Data Modeling aimed to “provide the student analytical and computational skills for deciphering information in large data sets with application towards developing discipline specific prediction, forecasting and decision models.” A particular focus was placed on learning algorithms and machinery for processing large data sets efficiently.

Lead instructors for the course were Professors Kavitha Chandra (ECE), Karen Daniels (CS), and Charles Thompson (ECE).

Supporting faculty were C. Barry (Plastics), D. Kazmer (Plastics), L. Motiwalla (Business), V. Mehta (MIT Lincoln Labs), A. Oztekin (Business), L. Pipino (Business), S. Yoon (Chem. Eng.), K. Saenko (CS), T. Yu (Civil Eng.) and X. Zhang (Civil Eng.).
Rover Hawks Win NASA RASC-AL Robo-Ops Competition!

Eight teams competed in the 2013 RASC-AL Robo-Ops Competition, which took place at the Johnson Space Center Rock Yard in Houston, Texas. While a team of students traveled to Texas, another team stayed behind at the NERVE Center to remotely operate the rover.

For the competition, each rover was weighed the night before, with the lightest rover earning the right to pick its competing slot first. Being the third lightest, the Rover Hawk was able to pick the 6th slot. With this advantage, the team was able to score 56 points from collecting specially marked rocks from the Rock Yard. Competing scores were 55 points from the University of Maryland and 54 points from Worcester Polytechnic Institute. Points were also scored from team outreach using social media sites, such as Facebook and YouTube. The combined points from the Rock Yard and outreach scores earned the Rover Hawk team first place and the top prize of $6,000.

Members of the 2013 Rover Hawks include, from left, Brigit Schroeder, Prof. Holly Yanco, James Dalphond, Eric McCann and undergraduate students Alejandro Salido, Adam DeFelice and Carlos Ibarra.

Photo Credit: http://www.uml.edu/News

VisWeek 2013

Professor Georges Grinstein and nine IVPR students attended IEEE’s Visualization Conference in Atlanta, Georgia.

At the conference, Professor Grinstein and IVPR students Ekaterina Galkina, Franck Kamayou, and Miriam Perkins presented Weave and the newly developed Analysts’ Workstation (AWS) in a presentation called Public Health’s Wicked Problems: Can InfoVis Save Lives? Ekaterina also presented a poster in the BioVis Redesign Challenge. The challenge was to redesign the conventional sequence logo for a protein sub-family. Prof. Grinstein co-chaired the semi-annual VisLies evening with Bernice Rogowitz and Kenneth Moreland and presented a tutorial, Visualization: A Modern Perspective, which provided historical background and an overview of data visualization, analysis, their integration and the role of reasoning in visualization.

New Robot on Campus

His name is Baxter.

Hailing from Rethink Robotics, Baxter is a manufacturing humanoid robot with two 7-axis arms, integrated cameras, sonar, torque sensors, and direct programming access via a standard ROS interface. The Robotics Lab will be using Baxter to help in its research on neural networks and mild traumatic brain injury (mTBI).

Baxter’s contributions will help the team with developing cultured neurons that could control a robotic arm in real time.
Student Achievements

UMass Lowell Students Win U.S. Department of Defense Hackathon!

Jeremy Poulin, Nick Ver Voot, Michael Stowell (Computer Science students), and Justin Mayhew (Veteran and Nutritional Science student) had 24 hours to develop an interactive mobile application for soldiers, dieticians, and other decision makers to find nutritional information on combat rations, such as Meals Ready to Eat (MREs). The team had to work with extensive data sets and nutritional properties of MREs that were provided by the Department of Defense. The team answered the challenge with an app they named the Mobile Access Ration Tracker and Energy Expenditure app (MARTEE).

Knowing that a soldier wouldn’t have the time or access to use the app while deployed, MARTEE was designed specifically to train soldiers to follow healthy eating habits while they are state side. Once the soldiers learned their nutrition needs for their daily routines, they would no longer need to rely on the mobile application. According to Poulin, the toughest challenge, aside from time constraints, was coming up with a practical application. “Soldiers don’t want to waste their time,” he says. Stowell added that the prize money wasn’t all he earned. “The biggest take-home was learning to collaborate effectively within a small team and to enjoy ourselves and laugh while doing so.” The team beat out ten other organizations for the grand prize of $3,000.

Four IVPR students, Sanjay Anbalagan, Andrew Dufilie, Phil Kovac, and Shweta Purushe, were accepted into the 2013 Google Summer of Code program. This program offers stipends to selected students who write code for open-source projects. Each IVPR student worked on expanding Weave with their own open source code.

UMass Lowell’s ACM Chapter was featured in ACM XRDS Magazine. The Fall 2013 article highlights efforts being made to increase student participation and to make Computer Science more accessible to all majors.

Doctoral candidates Yinjie Chen and Zhongli Liu won the best paper award at the 8th International Conference on Wireless Algorithms, Systems and Applications (WASA ’13). In their paper, Chen and Liu used a single device moving along a route for accurate and efficient localization without the help of positioning infrastructure or any trained signal strength map. In addition to developing an RSS sampling process, the two students derived a mathematical model to determine the RSS sampling rate given the target’s distance and its packet transmission rate.

Robotics Lab members Katherine M. Tsui, Kelsey Flynn, Amelia McHugh, Holly Yanco, and David Kontak earned the status of runner-up for Best Student Paper at this year’s International Conference on Rehabilitation Robotics (ICORR) in Seattle, Washington. The paper, Designing Speech-Based Interfaces for Telepresence Robots for People with Disabilities, covers an experiment in which participants used a telepresence robot in scavenger hunt task to determine how they would use speech to command the robot.

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Members of UMass Lowell ACM include (back) Unnamed Student, Unnamed Student, Ian Wixon, Shauna Thompson, Nick Forsyth, (front) Jeremy Poulin, Mike Forsyth, Jasmine Moran, Shawna O’Neal

For more information please visit www.umlacm.org
Jeremy Badessa BS ’10 is a software engineer at Symbotic (Wilmington, MA). His company provides automated robotic warehouse solutions for network supply chains. Jeremy’s building a system to analyze hardware data reported by the fleet of robots, to predict when robots will require maintenance, lowering total cost of ownership.

Michael Court BS ’08, MS ’09 started an internship at RSA Security (a division of EMC) while he was an undergraduate. He’s been employed there for five years and is a now senior software engineer.

Adam Dziki BS ’06, MS ’10 is a principal software engineer and technical product lead at Aptima (Woburn, MA), where he leads architecture, design, and development efforts for the company’s flagship mobile product. Adam feels that working at a smaller company has provided him with the ability to become acclimated with many different technologies.

Michael Feole BS ’11, MS ’13 is a software engineer at Redline Trading Solutions, where he utilizes low-level C programming to implement trading algorithms and large data processing at low latencies. Redline Trading Solutions is a developer of stock market software in Woburn, MA.

Mark Field BS ’13 is working as a web programmer in the University Relations Department of UMass Lowell.

Dan Hestand PhD ’11 is now the discipline lead for software engineering and architecture in the Embedded and Networked Systems Group at United Technologies Research Center in East Hartford, CT.

Junwei Huang PhD ’13 is a senior software engineer at HERE (a Nokia Business) in Burlington, MA. He works on an internal performance report website, which provides support to the whole organization. His wife Xiahui Xia is currently a Masters student at UMass Lowell. They live in Lowell with their two-year-old daughter, Angel.

Surendran Karavettill MS ’05 is a product manager for business process management software at Pegasystems (Cambridge, MA).

Ken Kleiner BS ’89 is enjoying his 15th year as system manager for UMass Lowell’s Computer Science Department. He received the ISACA Certified Information Security Manager Certification (CISM) in November 2013. Ken is working towards a Masters in Information Technology at UMass Lowell, and lives in Hudson NH with his wife Andrea and their three children.

Mark Micire PhD ’10 is a program manager at DARPA.

Veronica Payan BS ’04 is a software engineer at SkillSoft in Nashua NH. She is performing new design, implementation and maintenance of eLearning software in HTML5, CSS, JavaScript and jQuery for iPad and Android devices.

Greg Pilla BS ’07, MS ’09 began at Teradyne right after graduation. He develops drivers and libraries for test instrumentation that is built for military and aerospace customers. He recently bought a home in Wilmington and has been prowling the streets with his dog, Shen.

Three alumni of Prof. Fred Martin’s Engaging Computing Group have new daughters!

Matt Bailey BS ’07 joined software startup Viridity in 2009, where he worked at improving datacenter power efficiency. Since Viridity was acquired by Schneider Electric in 2011, he has been working as a senior software engineer on Schneider’s leading product in datacenter infrastructure management. He also collaborates with his brother in making visualizations of basketball statistics. Their work has been featured in Wired Magazine, ESPN, Sports Illustrated, NPR, and Mashable. Matt and his wife, Lisa Jackman, are proud to announce the birth of their daughter, Magdelyn.

Andrew Chanler BS ’05, MS ’07 is software engineer at EMC. He works on the enterprise storage array, Symmetrix VMAX, with focus on drive and link management for the Microcode Disk Adapter group. This year he and his wife Sarah are proud to announce the arrival of their daughter, Ava.

Michael Penta BS ’06, MS ’11 is faculty at Northern Essex Community College in the Computer and Information Sciences department. He says, “My first full year has been great. Students are awesome and I feel very supported there. There are lots of opportunities for me to grow professionally.” Michael and his wife Julie are proud to announce the birth of their daughter, Emily Elizabeth.

Dear Alumni - please send your updates to Fred Martin, fredm@cs.uml.edu
Selected Publications


“Exploring Structural Analysis of Place Networks Using Check-In Signals,” Xiang Ding, Jing Xu, and Guanling Chen, in Proceedings at IEEE Global Communications Conference (GLOBECOM), Atlanta, GA, December 2013.

“PIR: A Domain Specific Language for Multimedia Retrieval,” X. Huang, T. Zhao, and Y. Cao, in Proc. of IEEE International Symposium on Multimedia (ISM 2013), Anaheim, California, USA, 2013. (Oral, acceptance rate 25%)


New MS and PhD Graduate Theses


Xian Pan, Privacy Leaking and Enhancing for Modern Wireless Mouse, Ph.D. Thesis Committee: Xinwen Fu (Chair), Benyuan Liu, Tingjian Ge, and Kyungseok Choo. December 2013.

Adam Russell, Formulation and Application of Radial Visualization Properties, Ph.D. Thesis Committee: Dr. Karen Daniels (Advisor), Dr. Georges Grinstein, Dr. Patrick Hoffman (BFIT: Benjamin Franklin Institute of Technology). October 2013.

Congratulations!
Learning with Purpose

A newsletter from the
Department of Computer Science
One University Ave

Because of you, UMass Lowell students can achieve their dreams. Your contribution helps students acquire the knowledge and skills essential for their careers. Through your support, they graduate work ready, life ready, and world ready. Gifts to the Computer Science Department enable faculty and staff to enhance academic programming, keep equipment up-to-date, and fund research.

Yes, I would like to support UMass Lowell with a gift.

☐ $500  ☐ $250  ☐ $100  ☐ $50  ☐ Other

Please designate my gift to:
☐ Department of Computer Science
☐ Costello Robertson Family Scholarship
☐ Patrick D. Krolak Innovation Endowment
☐ Other: ______________________________________

☐ Check made payable to UMass Lowell is enclosed.
☐ Please charge my gift of: $____________________
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☐ My employer’s (or my spouse’s) matching gift form is enclosed

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