Dear CS alumni, friends, and colleagues:

I would like to share with you that Dr. Jim Canning, Director of the University’s Honors Program for several years, has been appointed Dean of the newly established Honors College starting in the Fall semester of 2014. Our department enrolls about 25 students in Honors each year.

The Computer Science faculty has decided to focus our growth in data science, including Big Data, Cloud Computing, and Cyber Security. We have been authorized to fill two tenured/tenure-track faculty positions.

Data Science is a new area across multiple disciplines. In particular, it involves all disciplines in the College of Sciences and in other colleges and schools at UMass Lowell, including Biomedical Engineering, Electrical and Computer Engineering, Economics, Health Sciences, Political Science, and Social Sciences.

In Big Data, we will hire faculty with expertise from these areas: fundamental methods in machine learning, network science and statistics, computational models of human behaviors and perception, image processing and recognition, spoken language recognition, and large-scale machine learning.

In Cloud Computing, we will seek faculty who focus on topics such as cloud architecture, cloud management, cloud system infrastructure, cloud storage, cloud queries with noisy data, and cloud security.

In Cyber Security, we will bring in faculty who focus on topics such as differential privacy, cyber forensics, cryptography, mobile computing security, and privacy.

The newsletter also includes other news items on faculty research activities, as well as 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

In Memory of Robert Lechner
1931 - 2014

Robert Lechner passed peacefully in the company of his loving family on September 16, 2014.

Bob was an early faculty member of the Computer Science Department and brought years of industry experience into his classrooms. During his tenure, Bob was an active contributor in developing the Ph.D. and M.S. computer science programs and helped in the creation of many course offerings. After retiring in 2001, he continued to be an active presence in the department. Bob inspired many and is remembered by all for his kindness, wisdom, and sense of humor. He will be deeply missed.
Anna Rumshisky gave a tutorial on Deep Semantic Annotation with Shallow Methods at the Lexical Resources and Evaluation Conference (LREC2014) that was attended by 50 people in Reykyavik, Iceland.

Benyuan Liu is the PI for a new DARPA grant ‘Mobile Infrastructure Assisted Ad-Hoc Network (MIANET) Phase 2 Program’ in the amount of $30,473. The grant is a sub-contract from BAE for the 2013 - 2014 timeframe. Liu is co-PI for a grant from the Office of Global Health Pilot Project Program at UMass Center for Clinical and Translational Science (UMCCTS). The $35,000 grant, ‘Understanding of the Intersection of Behavioral, Psychosocial and Cultural Risk Factors in the Context of Maternal and Child mHealth Interventions in the Peruvian Andes,’ is a joint grant with PIs at both UMass Medical School and UMass Lowell.

Fred Martin is the PI for a new grant from the NSF, ‘Middle School Pathways in Computer Science.’ The grant has awarded $1,198,639 and runs from September 1, 2014 until August 31, 2017.

Holly Yanco received a new NSF grant, ‘RI: Collaborative Research: Human-Supervised Perception and Grasping in Clutter,’ in the amount of $496,213. In this project, Holly’s lab will collaborate with Rob Platt at Northeastern to develop a scooter and wheelchair, each with a mounted robot arm for picking up objects.

Yanco also received a grant from NIST, ‘Research and Development of Test Methods for Autonomous Robots in Manufacturing Environments.’ The $181,380 will support research at the NERVE Center to enable the testing and validation of autonomous robots.

Georges Grinstein was one of four nationally recognized researchers to make up the Battlespace Visualization Independent Review Team (IRT). The team reviewed and generated a report on the organization's future course and areas the IRT feels are important for consideration.


The IVPR lab has a new grant from Charles River Analytics in the amount of $80,000. IVPR is responsible for visualization of Semantic Networks for debugging algorithms and for generating 3D scenes of real-time streaming text document and interpretations.

Jesse Heines won the 2014 Student Organization Advisor of the Year award during the Student Activities’ Leadership Banquet in appreciation for the work he has done with our ACM chapter.

Professor Heines also saw the completion of two more Performamatics Workshops at UMass Lowell and New York University. Performamatics is a NSF-supported program that “leverages students’ nearly universal interest in music as a context and springboard for engaging in rich computational thinking experiences.”

Jie Wang is the PI for a new grant from Wantology, LLC in the amount of $180,000. The grant, ‘Mining and Processing Public Big Data,’ will run from August 15, 2014 until August 15, 2015.

Kate Saenko gave a talk, ‘Learning Object Detectors From Weakly Supervised Image Data,’ at Yandex in Moscow. (Yandex is Russia’s equivalent of Google.)
Professor Jim Canning Appointed Dean of New Honors College

The recent elevation of the Commonwealth Honors Program into a full-fledged Honors College will mean expanded resources, new courses, and opportunities for those enrolled in the Honors program. New initiatives include an extensive co-op program, interdisciplinary studies, and new housing. Leading these initiatives is the new Honors College Dean, Prof. Jim Canning.

Canning began his work on initiating an Honors College in the summer of 2011, while he served as Director of the Commonwealth Honors Program and taught courses within the Computer Science program. When the UMass Board of Trustees elected to elevate the program into an Honors College, Canning’s tireless efforts led him to be chosen as the Dean for the newly formed college.

Canning views the Honors College as a program that “challenges, encourages, and celebrates undergraduate students from all majors.” Many computer science majors are enrolled in the program, and Canning has been excited to work with students of all majors.

“The best part of my job has always been working with students and now, being part of the Honors College, will enable me to engage students all across campus.”

Canning would love to reconnect with his past students and learn how they are doing. He hopes that “life has been good to you!”

Professors Holly Yanco and Xinwen Fu received national media coverage for projects in their labs

In a June 2014 article entitled ‘You Should Learn to Trust Robots. It’s for Your Own Good,’ Wired magazine featured Professor Holly Yanco’s research on trust and autonomy. In a series of experiments, Yanco had users drive a robot named “Junior” through a maze.

The robot was programmed to make mistakes—but also to inform users it might be doing so by displaying an indicator of its “self-doubt” to the driver. Yanco and her team expected people to trust robots less when they revealed their own “insecurities,” but the experiments revealed that people would trust them more.

The article concluded, “As robots insinuate themselves ever more deeply into our lives, understanding their limitations will be as crucial as knowing their capabilities. And so we need machines that cop to their own vulnerabilities.”

Professor Fu’s Cyber Forensics Lab has received national media coverage for their work with PIN-capturing. Fu’s team developed video recognition software that can detect passwords based on its understanding of a device’s geometry and the position of the user’s fingers. The team then utilized Google Glass, among other video-enabled devices, to capture PIN information from as far as 10 feet away.

The work done by Fu and the Cyber Forensics Lab has been featured in a June 24, 2014 article, ‘Google Glass Snoopers Can Steal Your Passcode With a Glance,’ by Wired Magazine. Their research has also received coverage by CNN during its domestic airings on July 7, 2014, as well as its international airings on July 9, 2014.

The major vulnerability outlined is that keys are always in the same place on the keyboard. There are tools that can randomize the location of the keys on the keyboard, but there are few applications available and the practice isn’t common. Through their research, Fu’s team hopes that such precautions will become more mainstream.
Andrew Dufilie presented his paper titled ‘Feathered Tiles with Uniform Payload Size for Progressive Transmission of Vector Data’ at Web and Wireless GIS 2014 in Seoul, South Korea. The paper describes cutting edge technology incorporated in the Weave project, developed by students at the IVPR.

Ph.D. students Ming Jia (advised by Prof. Jie Wang) and Zheng Li (advised by Prof. Tingjian Ge) won the 2014-2015 College of Sciences Graduate Research Scholar Award.

Ph.D. student Peng Xia’s thesis research on user behavior analysis and prediction of online dating sites has been reported by the MIT Technology Review, Men’s Fitness Magazine, the Conversation (UK), and many other news sites. Peng is advised by Professor Benyuan Liu.

Bhanu Kaushik received UMass Lowell’s May 2014 Outstanding Graduate Student Award.

Ekaterina Galkina, a graduate student in the IVPR, attended the iV2014, MediViz track at University Descartes, Paris, France. She presented her paper titled, ‘Regional Differences in Diagnostic Conversion to Dementia’ and reported her findings on which risk factors predict a change in diagnostic status from normal cognitive function to dementia.

Forance and Martin collaborated on the course’s final assignment, which involved parsing error logs from actual devices that had failed in the field. The InTouch time clocks are embedded Linux computers, and they produce runtime text file logs that may be reach 50 MB in size - far too large for manual inspection.

Using regular expressions, the Computing IV students wrote C++ programs that verified the devices’ boot sequences, including timing, sequence, and successful launch of dozens of necessary background processes. Students used the Boost C++ regex and time parsing APIs, and were responsible for figuring out their own approach to parsing the data in the logs.

All students wrote project reports on their implementation and findings. Working with logs from five InTouch units, they confirmed correct behavior of the device and discovered various anomalies.

Martin provided the reports to Forance, who selected the winners: Matt Barden ($50 gift certificate), Willie Boag ($50 gift certificate), and Joshua Smolinski (honorable mention).

Many of the students liked the real-world aspect of the assignment, and learning about regular expressions. As Smolinski described, “The core design concept for this project was regular expressions. Regular expressions allowed us to specify bits of information that we knew about certain log messages, have it fill in the rest using a wildcard operator, and use the sub matches to create better formatted output.”

Forance and Martin are planning future collaborations.
UMass Lowell’s ACM Chapter was honored with the Rising River Hawk Award for its dynamic programming and emerging leadership as a student organization. The chapter currently boasts a roster of 88 members across various disciplines at UMass Lowell.

Members of UMass Lowell ACM include (back) Mike Stowell, Ian Wixon, Mike McGinty (Director of Special Projects), (front) Jeremy Poulin (Vice President), Jasmine Moran, Shawna O’Neal (President) and Jesse Heines (Advisor)

Shweta Purushe and John Fallon, IVPR graduate students, were accepted into the 2014 Google Summer of Code program. Shweta’s project involved developing a web-based framework for multivariate analysis of large ‘omics’ and other biological data. John’s project initially involved the IVPR’s Weave interface, and eventually had him working on a visualization tool. John recommends Google Summer of Code as a worthwhile experience for Computer Science students looking to work on open-source software.

John Fallon also participated in the 2014 IEEE Visual Analytics and Technology Challenge (VAST), serving as a member of a committee with co-chair Professor G. Grinstein, visualization researchers at Pacific Northwest National Laboratories, and officials from the Air Force.

Shweta Purushe also attended the Leverage Big Data 2014 Summit, where she demonstrated IVPR’s Weave and observed as researchers and enterprises provided potential solutions to dealing with the storage, management, and analytics of massive data.

Selected Publications


Alumni News

Dhvani Badwaik BS ’05 worked at Dell for more than two years and at EMC for over five years. She met her husband Andrew at EMC, and they have two wonderful sons - Nitai and Arjuna. Dhvani plans on attending graduate school next year.

Ryan Buckley BS ’08, MS ’09 is working at Fractal Audio Systems where he designs digital guitar amplifiers and effect processors. Over the past two years he’s worked with some of rock and metal's biggest names such as Metallica, Alice in Chains, Guns N Roses, Nine Inch Nails, Megadeth, and Shinedown.

Robert Casey BS ’04, MS ’06 is one of the first alums of Prof. Yanco’s Robotics Lab. He’s worked previously at Segway, and at Harvest Automation. He’s now working at Levant Power in Woburn, developing fully active suspension systems for the automotive industry. His second child, a baby girl, was born on August 8, 2014.

Amit Choudhary MS ’13 was born in Dhanbad, India. Since graduation, he has been working as a Software Engineer for a startup called Sepatron Inc., which was recently acquired by Hitachi Data Systems. Amit wishes to thank all of his prior professors and Ken Kleiner. “The education I have received at UML is an invaluable experience for my personal and professional growth.” Amit is engaged, and his wedding is planned for December 2014.

Chris Dietsch BS ’10, MS ’12 has been all over the country since graduation. He was in WA, then HI at Referentia, then CA at Check Inc., before it was acquired. Now he is in NC at Qualcomm as a contract software engineer and enjoying every minute of it.

Jill Drury ScD ’02 is head of the 40-person Collaboration and Social Computing department at MITRE (Bedford, MA). In the last ten years, she’s steered three employees into UML’s MS CS program, hired four alums, and fostered collaborative work with Prof. Holly Yanco.

Mark Field BS ’13 loves UMass Lowell so much that he decided to join the staff after finishing his degree! He is now working as a web developer for University Relations.

Antonio Fredericks MS ’93 is a Visiting Assistant Professor of Computer Science at St. Norbert College in De Pere, Wisconsin.

Kathleen Grace BS ’86, MS ’03 works in K-12 education as an Instructional Technology Specialist at Winchester High School. Last year, she took over teaching Javascript to math classes during the ‘Hour of Code’. Her youngest will follow his brother and sister to UML this year.

Adrien Grise BS ’95, MS ’03 has worked for several companies over the years in a software engineering capacity, including IONA Technologies, Cisco Systems and Bigelow Aerospace. He’s presently in Las Vegas, NV as a Software Engineer with International Game Technology, which specializes in the design, development, manufacturing, sales and distribution of gaming machines. Adrien says, “Enjoying the super nice weather here!”

Zebulon Heisey BS ’03, MS ’06 is working as a Software Engineer at iCad in Nashua, NH.

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

Brian O’Neill BS ’90, MS ’95 joined iuvo Technologies, an IT consulting firm based in Westford, MA, two years ago. He recently became the Director of Infrastructure and Technology. Brian runs Sci-Fi Storm, a long-running science fiction news website, and occasionally visits TV sets and schmoozes with actors!

Lisa Panagopoulos BS ’84 in CS, MS ’88 in Computer Engineering, worked for 10 years as a Software Engineer and then came back to her alma mater and began teaching IT courses as adjunct faculty. She is now Assistant Director of Faculty Development for Online Learning at UMass Lowell. Lisa says, “It’s a rewarding job which allows me to train and support faculty who want to teach online. I happily still teach as adjunct at UML, namely the Introduction to Information Systems fully online course.”

Martin Schedlbauer BS ’88, MS ’91, PhD ’06 is a full-time faculty member in Computer and Information Science at Northeastern University.

Todd Sharpe BS in CS and EE ’13, MS in CS ’14 started a job at Microsoft as a Software Developer on the team responsible for driver development and research in partnership with Intel on next-generation hardware and devices.

Mary Beth Smrtic PhD ’12 is an interactive data visualization software developer at athenahealth, Inc. in Watertown, MA.

Michael Staub BS ’12 took two challenging internships—at AMD working on GPU device drivers and at Blue Sky Studios working on animated feature films—and is now very happy working at Lucasfilm in beautiful San Francisco! He got his first official movie credit last month for Michael Bay’s Transformers 4.

Nick Ver Voort BS ’14 is a software engineer at Black Duck Software in Burlington, MA. Nick says, “I’m having a lot of fun so far!”

New Honors, M.S., and Ph.D. Graduate Theses


Edward Klein The Visualization of Privacy Filters for Sharing Sensor-based Health Data, PhD. Thesis Committee: J. Heines (Advisor), L. Abdallah (School of Nursing), G. Chen (CS), B. Liu (CS). May 2014.


Zhongli Liu Aerial Localization of Wireless Targets: Theory and Implementation, PhD. Thesis committee: X. Fu (advisor; CS), B. Liu (CS), J. Forest (Graduate Program in Security Studies), and I. Raptis (Mechanical Engineering). May 2014.


Haiyang Zhang Exploiting Many-Core Processors to Optimize the Performance of Simultaneous Localization and Mapping, PhD. Thesis committee: F. Martin (Advisor), W. Moloney (CS), and T. Padir, (ECE, Worcester Polytechnic Institute). August 2014.

Congratulations!

This issue was edited by Prof. Fred Martin and Shawna O’Neal
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:
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