University Designated a National Cyber Defense Center of Academic Excellence

NSA and Department of Homeland Security Recognize UMass Lowell’s Contributions to Cyber Safety

The U.S. National Security Agency and Department of Homeland Security have designated UMass Lowell a National Center of Academic Excellence in Cyber Defense Research in recognition of the university’s intensive cybersecurity research and academic programs.

For more than a decade, UMass Lowell’s education and research programs have helped meet the growing demand for a highly trained cybersecurity workforce needed to secure the nation’s critical infrastructure and classified data, says Xinwen Fu, associate professor of computer science and co-director of UMass Lowell’s Internet Security and Forensics Education and Research (iSAFER) team.

Cyberthreats will continue to rise as the number of internet-connected devices grows exponentially. In 2015 alone, more than a billion personal information and medical records were stolen or lost to cyberthieves, according to a recent Internet Security Threat Report by Symantec Corp. And ransomware attacks, through which cybercriminals ensure personal computers, smartphones and other network-connected devices and hold their data hostage until a payment is made, increased 35 percent last year.

UMass Lowell researchers at iSAFER, in collaboration with various academic, industry and federal agencies and national labs, have been actively conducting cyberdefense research, creating security awareness and developing advanced cyberdefense tools and technologies.

For example, Fu and his students demonstrated how Google Glass and other video-recording devices can be used to track and steal the passwords of users of smartphones, tablets and ATMs. Other research by faculty and students targets digital forensics, network and mobile security, data privacy, cryptography, hardware security and sensor networks.

“Our Ph.D. candidates are working on research projects ranging from studying the security and privacy of drones and Big Data to detecting malware in mobile devices,” says Fu. “Our faculty and students have published more than 60 papers on cyberdefense in peer-reviewed journals over the past five years and have given presentations at premier cybersecurity conferences across the country.”

The Departments of Computer Science and Electrical and Computer Engineering and the School of Criminology and Justice Studies offer undergraduate and graduate degree programs in a variety of cyberdefense-related subjects. The Division of Online and Continuing Education also offers a graduate certificate program with Hanscom Air Force Base.
Textiles Help Teach STEM Concepts

Professor Hopes to Reduce Math Anxiety in Women

Knit one, purl two, increase by one stitch, decrease by two.

As knitters, beaders and quilters know, most popular handcrafts involve math—and lots of girls and young women enjoy them.

That’s why psychology Prof. Sarah Kuhn thinks using textiles in the classroom could reduce math anxiety in girls and young women.

Kuhn assembled a team of math, engineering and education professors, students and fiber artists to develop STEM (science, technology, engineering and math) lessons using textiles. The project, Lowell Tex, piloted lessons at Lowell National Historical Park and on campus in the spring. In park classrooms, middle-schoolers learned about circuits by making a paper bracelet with a circuit of copper tape, a tiny battery and the leads of an LED. When they closed the copper tape circuit with a “switch,” the LED lit up.

In Asst. Prof. Christopher Hansen’s Materials Science for Engineers labs, students applied tensile force and shear stress to a grab bag of textiles from knits to woven fabric, and then measured how the fabrics stretched, deformed and buckled. The lesson was a hit.

A 16-harness production loom installed in the MakerSpace on North Campus is controlled with a binary peg system that allows the weaver to make binary math and complex intersecting planes visible in the fabric.

Libraries Compile Beat Literature Collections into One Research Space

In his 30 books of prose and poetry, Lowell native Jack Kerouac helped define the Beat Generation. For those wanting to learn more about Kerouac and his contemporaries, the UMass Lowell Libraries have brought their Beat literature collections together into one research space at the new Kerouac Room at the UMass Lowell Center for Lowell History.

“We’re hoping this generates a lot of interest by having all of the materials from Jack and his cohorts in the Beat Generation together,” says Libraries Program and Project Coordinator Mehmed Ali, who credits University Archivist Tony Sampas for compiling the collection.

The Kerouac Room’s shelves are stocked with the university’s existing works, which include donations from Kerouac’s first wife, Frankie Edith Parker, and a collection of oral histories from Kerouac biographer Gerald Nicosia. There also are more recent donations from the Lowell Celebrates Kerouac! organization and author Paul Marion, retired executive director of community relations at the university.

The Center for Lowell History, which is part of the university’s library system, is located inside the Patrick J. Mogan Cultural Center at 40 French St.

Honors College Welcomes Record First-Year Class

Admission Standards Climb with Numbers

This year, the Honors College welcomed its largest-ever class of new students—even as it raised admission standards. The incoming class includes 476 first-year students with an average high school GPA of 3.97 and average SAT scores above 1300, as well as 108 transfer students. There are now a total of 1,432 undergraduates in the college, says Dean Jim Canning.

Demand for housing in the Commonwealth Honors Living-Learning Community for first-year students overflowed from Leitch Hall into the university’s Inn & Conference Center. Starting next fall, University Suites will become dedicated honors housing for students in Commonwealth Honors LLCs.

The Honors College is offering a record 24 sections of the First-Year Seminar in Honors, “Text in the City,” which is required for all freshmen.

The class teaches students about Lowell’s history as the first planned industrial city in the U.S. and home to successive waves of immigrants from around the globe, as well as its present as a thriving community of artists and innovators and a model for historical preservation and reuse.

Each faculty member is free to customize the curriculum; most bring their students to the Merrimack Repertory Theatre to see a play, and nearly all visit the Lowell National Historical Park.

The faculty include Adam Baacke, former Lowell city planner and now the university’s director of planning and development, and Paul Marion, retired executive director of community relations and author of “Mill Power: The Origin and Impact of the Lowell National Historical Park.”
University Partners with City to Combat Opioid Addiction

**Grants Involve Public Health, Criminal Justice Faculty and Students**

Faculty who specialize in public health, opioid use and crime research are partnering with the Lowell Police Department and other city and nonprofit agencies to better understand and address opioid addiction, thanks to two federal grants totaling nearly $1.3 million.

The university’s Center for Community Research & Engagement and faculty in criminal justice and public health will get about 10 percent of the grant money to help with research on the city’s efforts to tackle opioid overdoses and deaths.

The grants will focus on identifying people who misuse and abuse prescription opioids and heroin, looking for related trends, removing barriers to treatment and getting addicts and their children the services they need—instead of further involving them in the criminal justice system, says Robin Toof, co-director of the Center for Community Research & Engagement.

Toof and Wilson R. Palacios, an associate professor of criminology who specializes in substance-use disorders and the criminal justice system, lauded the progressive, public health approach of the Lowell police and the Middlesex County District Attorney’s Office.

“This is the essence of good community policing,” Toof says. “The police department wants to get people the help they need instead of locking them up.”


**Divided Loyalties: Remembering World War I and the Irish Rising**

**Ireland and Irish-Americans Divided by War, 1916 Easter Rising**

Cyril Mack was 19 years old when he enlisted in the Royal Irish Fusiliers in January 1916 to fight as part of the British Army in World War I.

As soon as he finished training, Mack was instead sent to Dublin to help put down the 1916 Easter Rising, when Irish rebels took over key city buildings in the fight for independence from British rule.

“He was so confused. He was told he was going to fight the Germans,” said Fiona Byrne, historical engagement officer for the Living Legacies 1914-18 and the university.

Many Irish and Irish-Americans initially opposed the Easter Rising, but public opinion turned fiercely against the British after they arrested the rebel leaders, secretly court-martialed them and began executing them by firing squad, Byrne said.

That was especially true in northern U.S. cities like Lowell, where nearly one-third of the population was of Irish descent. A prominent Lowell citizen, Joseph Smith, raised thousands of dollars in rebuilding funds for Dubliners, noted University Prof. Robert Forrant of the History Department.

When the war was over, the separatist party Sinn Fein won the majority of Irish seats in the British Parliament, but instead declared a free Irish republic and formed a provisional government.

Ireland, the Cork Folklore Project, Living Legacies 1914-18 and the university.

Managed by the Association for the Advancement of Sustainability in Higher Education, STARS is a self-reporting framework that measures the sustainability performance of more than 700 colleges and universities in 21 countries around the world.

The university’s STARS Gold plaque was unveiled at University Crossing during an event hosted by Gov. Charlie Baker’s administration celebrating the fact that more than 50 state-owned buildings have achieved Leadership in Energy and Environmental Design certification. That includes four here on campus: the gold-certified Emerging Technologies and Innovation Center and the silver-certified Health and Social Sciences Building, University Suites and University Crossing.

“This STARS Gold rating is a true reflection of UMass Lowell’s position as a leader in sustainability, from academics and research to community and public engagement and, of course, to green building design and operations,” said Chancellor Jacquie Moloney, who noted that while the university continues to grow, its impact on the environment has shrunk.

Moloney attributed this success, in part, to the recent addition of “clear and defined goals” for sustainability to the university’s 2020 Strategic Plan, including targeted reductions in greenhouse gas emissions and the ascension to STARS Gold—both of which have now been achieved.

Next stop: Platinum.

UMass Lowell earned a gold rating from the Sustainability Tracking, Assessment & Rating System for its campuswide sustainability efforts, becoming only the third higher education institution in the state to reach that mark.

Chancellor Jacquie Moloney shakes hands with Department of Energy Resources Commissioner Judith Judson after unveiling the university’s STARS Gold plaque at University Crossing, which also received a LEED silver plaque.

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Alumni, Students and Families Brave Rainy Weather for Annual Event

From selfies with Rowdy the River Hawk to reunions, musical performances and a pair of Division I men’s ice hockey games, Homecoming offered plenty of fun for alumni, students and their families, faculty and staff.

Students became human bowling balls and slid, dunked and jumped in bouncy castles and inflatables at “Rally Alley,” a party on East Campus before Friday’s hockey game against St. Lawrence (a 5-2 win).

Alumni crowded into a reunion reception at Hawkeye Way outside the Tsongas Center before Saturday night’s hockey game against Clarkson (a 4-3 loss) to reminisce with friends.

“I’m reveling in my own memories,” said Dan Conley ’86, as he paged through the 1986 yearbook and looked at photos of the Undergraduate Society of Entrepreneurs, the Student Government Association and The Connector, all of which he’d joined.

Heather Makrez, director of alumni relations, said that even in the cold and sometimes rainy weather, hundreds of people attended the free festival on Hawkeye Way and the rally on

“We give back because the education we received here played a significant role in the success we enjoyed in life,” said Frank Spinola ’66 (left, with scholarship recipient Alex DelTorto ’17 and wife Mary Jo ’66) at the annual Celebration of Scholarship.

East Campus, while a record 1,000-plus people registered for Homecoming events over the weekend, including a luncheon to honor retiring faculty and staff; Jennifer’s 5K Fun Run and Walk; alumni reunions and games, including special events for Greek and athletic alumni; a reception for students’ parents and families; the Celebration of Scholarship luncheon; and a 30th anniversary celebration for the Model United Nations program.

“It was great to see alumni come out in this monumental show of support, despite the weather,” Makrez says. “They came back to see old friends, faculty and staff who mentored them in college and beyond.”

Hundreds of alumni and other supporters attended the annual Celebration of Philanthropy reception, where Chancellor Jacquie Moloney announced that Our Legacy, Our Place: The Campaign for UMass Lowell has already attracted nearly $90 million in gifts and pledges toward the $125 million goal.

And at the Celebration of Scholarship brunch on Saturday, honors chemistry major Abby Giarrosso ’18 told the audience of scholarship donors and student recipients that “so many of my opportunities for success have stemmed from scholarships.”

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