Inside This Issue...

1 Helping Hands Make the Biggest Difference

2 Signature Moment for Pulichino Tong Business Center

3 Researcher Investigates Surface Erosion in Naval Vessel Components

For more information, go to: www.uml.edu/news.

University Becoming a Leader in Autism Research and Education

Programs Meet an Increasing Need

One in 68 children is diagnosed with autism spectrum disorder, according to the Centers for Disease Control and Prevention, and UMass Lowell faculty are leading the way in research and education to develop prevention and intervention strategies.

Seven members of the psychology faculty are engaged in autism research that spans childhood to adulthood, mild to severe disability, cultural and income differences, and practical interventions to possible causes of autism spectrum disorder. For example, Assoc. Prof. Doreen Arcus, a developmental psychologist, is examining whether the quantity of suspected neurological toxins emitted as air pollution affects the rate of ASD diagnoses. Initial results strongly suggest that it does.

Assoc. Prof. Ashleigh Hillier, whose research mostly involves high-functioning teens and young adults, is heading up a new, interdisciplinary autism research and education group that includes faculty in psychology, economics, computer science, nursing, clinical lab and nutritional sciences, chemical engineering, education and music. And the Department of Psychology, which already offers a master’s program in autism studies and an online graduate certificate in behavioral intervention in autism and, plans to add a research track to its master’s program.

Both undergraduate and graduate students have plenty of research opportunities. Emmanuel Abraham, a senior psychology major, asked Arcus if he could help with the next phase of her environmental research: comparing autism diagnosis rates in the most-polluted and least-polluted counties in each U.S. state, based on how many millions of pounds of suspected neurotoxins are emitted from smokestacks each year.

The existing master’s degree program in autism studies prepares candidates to become board certified behavior analysts—which involves 750 to 1,500 hours of working directly with people with ASD in public schools or at a community agency.

Master’s degree candidate Devon White has a younger brother on the autism spectrum. That inspired her to design a study looking at whether preschoolers with ASD develop better social skills by interacting with an older, neurologically typical sibling.

Graduate student Joseph Veneziano conducted research that found people with ASD—who often can’t make or hold eye contact—performed better in job interviews when they focused on the edge of the interviewer’s face instead of completely off the face. He will present his work at the national conference of the Association for Psychological Science.

Undergraduates—who can specialize in developmental disabilities or minor in disability studies—also can conduct research or participate in service learning with people on the autism spectrum, including fellow students. Hillier, who runs a support group for students with ASD, also works with the university’s office of Disability Services on a mentoring program that pairs students with ASD with neuro-typical peers.
Helping Hands Make the Biggest Difference

DIFERENCEMAKER Idea Challenge Rewards Innovation

eNABLE Lowell, a team of students dedicated to supplying low-cost, 3D-printed prosthetic hands for children, landed the top campuswide DifferenceMaker award and a cool $6,000 purse at the fourth annual DifferenceMaker Idea Challenge.

In all, 10 teams split $35,000 in prize money. The event, hosted by the university’s Center for Innovation & Entrepreneurship at University Crossing, featured teams of finalists, narrowed down from more than two dozen entrants.

A panel of eight judges heard from teams making five-minute presentations. The pitches ranged from an emergency alert technology to a web-based platform to help military veterans negotiate the morass of paperwork required when applying for disability benefits.

“This is so rewarding,” said Peter Larsen, senior biology major and main speaker for eNABLE. “We don’t plan to stop. There are a lot more families out there who need help.” Other eNABLE team members are exercise physiology major Katherine Bilodeau, biology major Kreg Kaminski, mechanical engineering major Alexander Peters, exercise physiology major Allison Dunbar and business administration major Shannon Maguire.

During its pitch, the eNABLE team showed pictures of Ethan, an 8-year-old Florida boy born with a right hand with a thumb and no fingers, who is using the first of the team’s prosthetic hands.

“The DifferenceMaker program really symbolizes everything great about this university,” Chancellor Jacquie Moloney told the students. “It allows students to take an idea and do something wonderful, go out and change people’s lives.”

Signature Moment for Pulichino Tong Business Center

Manning School’s Virtual Beam Signing Draws Alumni and Donations

Dan Grealish graduated from the Manning School of Business in 2014, one year before ground was broken on the school’s future home, the Pulichino Tong Business Center. But thanks to a virtual beam signing web page set up the university’s Web Services team, Grealish was able to leave his mark on the new building—and feel a sense of connection to his alma mater.

“I felt as if it was part of my legacy at UMass Lowell to have my name up in the new business building, where future students will get to learn and grow just like I did,” says Grealish, who now works as a compensation analyst for Cengage Learning in Boston. “I have a lot of pride for UMass Lowell, and to be able to even have the opportunity like that is very special to me.”

The new building is scheduled to open in spring of 2017.

This is the second time the university has provided a virtual beam signing for a new campus building, the first being for University Crossing in 2013. Students, alumni, faculty, staff and community members who visited the web page could sign their name using their desktop computer mouse, or their fingertip on a smartphone or tablet.

“It’s much better on the mobile experience, since you have more control,” says Gerry Nelson, executive director of web services.

Mathematical Modeling Helps Make Smart Weapons Smarter

Researchers’ Analysis Improves Performance

Destroying an enemy target that is heavily fortified or buried deep underground requires a special type of bomb or missile. The so-called “bunker buster” delivered by aircraft is designed to penetrate steel-reinforced concrete or granite bedrock before exploding, thereby maximizing its effectiveness.

A team of researchers from the university’s Structural Dynamics and Acoustic Systems Laboratory led by mechanical engineering Prof. Peter Avitabile recently received more than $425,000 in funding from Eglin Air Force Base in Florida to help improve the efficiency of the bunker buster’s conventional fuze, which detonates the bomb once it has penetrated deeply enough to destroy the target.

The four-year project utilizes mathematical modeling and analyses to develop the design tools.

“Current missile-penetration strategies need to be augmented with ‘smart’ fuzes that quickly assess the structural health of a missile in real time as it penetrates barriers and very rapidly make decisions regarding the mission profile,” says Avitabile, who is the lab co-director and the project’s principal investigator. “The damage detection that provides the missile’s current condition needs to be identified at an extremely fast pace.”
Reseacher Investigates Surface Erosion in Naval Vessel Components

**Elastomeric Coating May Help Lessen Cavitation Damage**

Cavitation poses a major challenge to Navy ships and submarines. The process occurs when water (or any other fluid) is moving very fast over a solid surface. When the pressure in the fluid drops, air and vapor bubbles are created.

“The bubbles eventually collapse and burst, and if this happens near the solid surface, the resulting intense shock wave can cause surface damage,” explains mechanical engineering Asst. Prof. Alireza V. Amirkhizi. “Eventually, this process may even create pits or holes in the fast-spinning metallic components of ships and subs such as propellers, turbines and pump impellers and gears.”

The Navy recently awarded Amirkhizi with a three-year grant totaling more than $300,000 to find the mechanisms of premature wear, damage or failure in materials exposed to cavitation conditions.

“Our goal is to find out whether compliant coatings, such as those used in everyday applications like truck-bed linings, may be used to combat this issue,” he says.

According to Amirkhizi, elastomeric materials have surprising resilience and have been used in applications under extreme dynamic conditions. “This is the reason why we are approaching this potential nonconventional solution to a problem that previously was only approached by fabricating increasingly hard materials to resist erosion,” he notes.

**Tsangas Digital Archive Comes to Life**

**Library Staff Makes Lowell Icon’s Papers Available Online**

Over the course of 34,000 archived pages, students, scholars and anyone with a thirst for political history can now explore the legacy of Lowell’s own Paul Tsongas.

For years, scholars and researchers had to visit UMass Lowell’s O’Leary Library to view papers belonging to the late U.S. senator. Now, thanks to a project that began in 1986, anyone can access the Paul E. Tsongas Congressional Collection from his or her computer or smartphone.

The university has unveiled its vast digital archive of papers belonging to Lowell-born Tsongas, who served his city, state and nation before a long battle with cancer, which eventually took his life. A presidential candidate in 1992, Tsongas died at age 55 in 1997.

During a recent gathering at O’Leary Learning Commons, U.S. Rep. Niki Tsongas–Tsongas’ widow—and Chancellor Jacquie Moloney snipped a ceremonial red ribbon across a flat screen beaming an image of Tsongas from the ’70s.

Boldly prescient, Sen. Tsongas’ work on the environment, human rights and the economy remain ahead of their time decades later, and he helmed Lowell’s renaissance from the depths of economic despair.

“I remember Paul making the decision about where all his papers would go,” said Tsongas. “He was a graduate of Dartmouth, but in the end Lowell is where his home is, where he knew they would be valued and taken care of.”

When asked what he would have said about the new digital archive, Tsongas’ widow added, “I wish he was here to see it.”

**Naraghi-Anderlini Seeks a Voice For Women at Peace Negotiation Tables**

Sanam Naraghi-Anderlini, co-founder and executive director of the International Civil Society Action Network, spent three weeks this spring meeting with students, faculty and religious and community leaders as the seventh Greeley Peace Scholar at UMass Lowell.

Born in Iran, Naraghi-Anderlini was 11 years old when she left the country on a 10-day vacation with a suitcase full of homework. Her school had closed because of massive protests that quickly culminated in the 1979 Islamic Revolution. Her family remained in England for seven years, unable to return to Iran or reunite with her father, who’d stayed behind. That experience inspired her activism.

“I was driven by questions like, ‘How do you stop a war? Is peace possible?’” she says.

In 2000, Naraghi-Anderlini helped draft and secure passage of United Nations Security Council Resolution 1325 after visiting conflict zones and asking women leaders what they wanted. The resolution calls on governments to protect women and girls from gender-based violence during armed conflicts and stresses the importance of including women in all efforts to prevent conflict, negotiate peace and rebuild societies after war.

Historically, the international community has viewed peacemaking as getting military and political leaders to negotiate a ceasefire and power-sharing agreement, she says, noting that more than half of such traditional deals fall apart within five years, while research shows that when women peacemakers and other civilians are included in peace negotiations, a deal is much more likely to last.

“Women have a history of doing this,” she says. “They handwrite ceasefires, call leaders what they wanted. The resolution calls on governments to protect women and girls from gender-based violence during armed conflicts and stresses the importance of including women in all efforts to prevent conflict, negotiate peace and rebuild societies after war.”

Asst. Prof. Alireza V. Amirkhizi. "Eventually, this process may even create pits or holes in the fast-spinning metallic components of ships and subs such as propellers, turbines and pump impellers and gears.

“The bubbles eventually collapse and burst, and if this happens near the solid surface, the resulting intense shock wave can cause surface damage,” explains mechanical engineering Asst. Prof. Alireza V. Amirkhizi. “Eventually, this process may even create pits or holes in the fast-spinning metallic components of ships and subs such as propellers, turbines and pump impellers and gears.”

The Navy recently awarded Amirkhizi with a three-year grant totaling more than $300,000 to find the mechanisms of premature wear, damage or failure in materials exposed to cavitation conditions.

“Our goal is to find out whether compliant coatings, such as those used in everyday applications like truck-bed linings, may be used to combat this issue,” he says.

According to Amirkhizi, elastomeric materials have surprising resilience and have been used in applications under extreme dynamic conditions. “This is the reason why we are approaching this potential nonconventional solution to a problem that previously was only approached by fabricating increasingly hard materials to resist erosion,” he notes.

**Tsongas Digital Archive Comes to Life**

**Library Staff Makes Lowell Icon’s Papers Available Online**

Over the course of 34,000 archived pages, students, scholars and anyone with a thirst for political history can now explore the legacy of Lowell’s own Paul Tsongas.

For years, scholars and researchers had to visit UMass Lowell’s O’Leary Library to view papers belonging to the late U.S. senator. Now, thanks to a project that began in 1986, anyone can access the Paul E. Tsongas Congressional Collection from his or her computer or smartphone.

The university has unveiled its vast digital archive of papers belonging to Lowell-born Tsongas, who served his city, state and nation before a long battle with cancer, which eventually took his life. A presidential candidate in 1992, Tsongas died at age 55 in 1997.

During a recent gathering at O’Leary Learning Commons, U.S. Rep. Niki Tsongas–Tsongas’ widow—and Chancellor Jacquie Moloney snipped a ceremonial red ribbon across a flat screen beaming an image of Tsongas from the ’70s.

Boldly prescient, Sen. Tsongas’ work on the environment, human rights and the economy remain ahead of their time decades later, and he helmed Lowell’s renaissance from the depths of economic despair.

“I remember Paul making the decision about where all his papers would go,” said Tsongas. “He was a graduate of Dartmouth, but in the end Lowell is where his home is, where he knew they would be valued and taken care of.”

When asked what he would have said about the new digital archive, Tsongas’ widow added, “I wish he was here to see it.”

**Naraghi-Anderlini Seeks a Voice For Women at Peace Negotiation Tables**

Sanam Naraghi-Anderlini, co-founder and executive director of the International Civil Society Action Network, spent three weeks this spring meeting with students, faculty and religious and community leaders as the seventh Greeley Peace Scholar at UMass Lowell.

Born in Iran, Naraghi-Anderlini was 11 years old when she left the country on a 10-day vacation with a suitcase full of homework. Her school had closed because of massive protests that quickly culminated in the 1979 Islamic Revolution. Her family remained in England for seven years, unable to return to Iran or reunite with her father, who’d stayed behind. That experience inspired her activism.

“I was driven by questions like, ‘How do you stop a war? Is peace possible?’” she says.

In 2000, Naraghi-Anderlini helped draft and secure passage of United Nations Security Council Resolution 1325 after visiting conflict zones and asking women leaders what they wanted. The resolution calls on governments to protect women and girls from gender-based violence during armed conflicts and stresses the importance of including women in all efforts to prevent conflict, negotiate peace and rebuild societies after war.

Historically, the international community has viewed peacemaking as getting military and political leaders to negotiate a ceasefire and power-sharing agreement, she says, noting that more than half of such traditional deals fall apart within five years, while research shows that when women peacemakers and other civilians are included in peace negotiations, a deal is much more likely to last.
University Launches $125 Million Fundraising Campaign

First-ever Comprehensive Campaign Has Already Raised $78.5 Million for Scholarships and Other Initiatives

“We will do remarkable things together—we will change lives and leave a legacy we can be proud of.”

With those words, Chancellor Jacquie Moloney ’75, ’92 officially kicked off Our Legacy, Our Place, UMass Lowell’s first-ever comprehensive fundraising and alumni engagement campaign.

The $125 million campaign, which will run until 2020, focuses on significantly increasing student scholarships and supporting faculty recruitment and research, campus improvements and the Division I athletics program. Those priorities grow out of the university’s 2020 Strategic Plan, which outlines the ways in which UMass Lowell will become one of the country’s leading public research universities.

The campaign has already raised $78.5 million from early donors, Moloney announced at the Campaign Kickoff Gala, including a new $1 million gift from Campaign Chair Robert Manning ’84, ’11 (H), who is also a UMass trustee.

“I have never found a better investment than UMass Lowell,” said Manning, chairman and co-CEO of MFS Investment Management. His gift will create an endowment within the School of Nursing and will honor his wife, Donna ’85, ’91, ’11 (H), an oncology nurse at Boston Medical Center.

Vice Chancellor for Advancement John Feudo said this fundraising effort “will provide support for those who make us great—our outstanding students and our amazing faculty.”

Moloney singled out the importance of addressing student loan debt, which she noted is “one of the major economic challenges of our time.”

Two decades ago, 70 percent of the university’s budget was supported by the state; today, that figures stands at 21 percent, shifting more education costs directly onto students.

“Our Legacy, Our Place is our chance to change that,” Moloney said. “I am making a commitment that we will decrease the average level of student debt at UMass Lowell during this campaign. Together, we can ensure that the high-quality education we offer tomorrow’s leaders is also an affordable one.”

The gala also featured the University Alumni Awards, honoring eight graduates, including William Rhodes ’82, a senior manager at Sandia National Labs in Albuquerque, N.M., where he focuses on national security issues.

“I came here with few resources, and left with fully developed principles, values and academic abilities to succeed,” Rhodes told the audience. “I owe whatever success I’ve had to UMass Lowell.”

In addition to Rhodes, the following alumni were presented with University Alumni Awards: Ciana Abdollahian ’09, a customer programs manager at Zerto, a Boston high-tech company; Stephen Driscoll ’66, ’72, a Department of Plastics Engineering faculty member since 1968; Edward Gallagher ’84, senior vice president and general manager of sales for Comcast’s Northeast Division; Amy Hoey ’88, executive vice president and chief operating officer of Lowell General Hospital and Circle Health; Kazeem “Dayo” Ibraheem ’02, a longtime volunteer coach with the UMass Lowell track and field team; Patrick Kaplo ’04, an award-winning physics teacher at Windham (N.H.) High School; and Paul Marion ’76, ’05, who recently retired as UMass Lowell’s executive director of community relations.

For more information about Our Legacy, Our Place, please visit uml.edu/ourlegacy-ourplace.