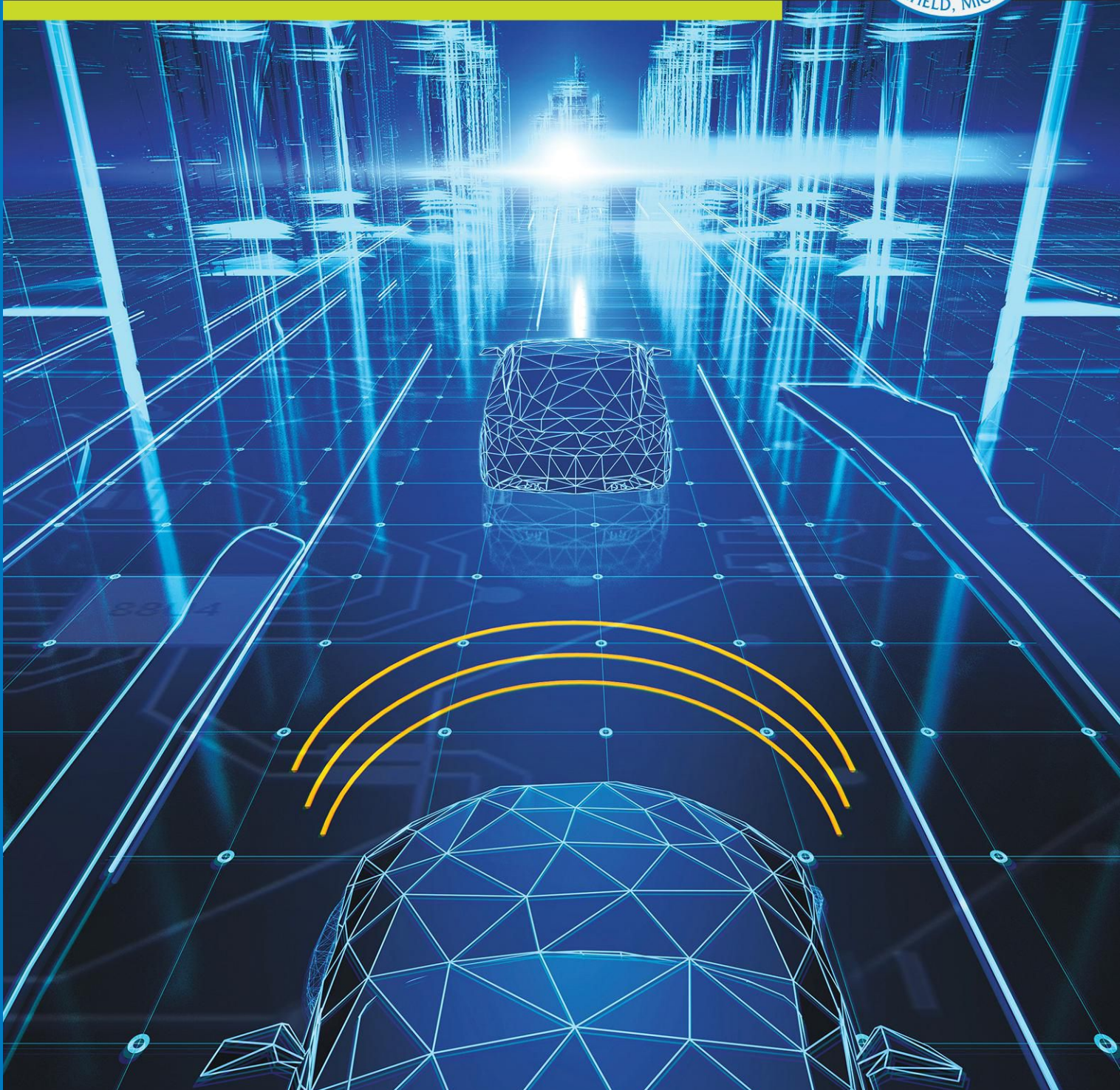


WINTER/SPRING 2018

Lawrence Tech[®]



LAWRENCE TECHNOLOGICAL UNIVERSITY MAGAZINE



Autonomous vehicles: alumnus helps build global test center

Outcomes: a look at notable alumni | Grant to boost diversity in STEM | Marburger STEM Center's busy first year
High schoolers design a better Detroit | Alumni News & Notes | Report to Investors | and more

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On the cover: Autonomous vehicle research is a growing emphasis of Lawrence Tech students and faculty, as well as for alumni like Mark Chaput, BSCE'87, featured in the lead story in this issue. Cover illustration from iStock.

Lawrence Tech®

LAWRENCE TECHNOLOGICAL UNIVERSITY MAGAZINE

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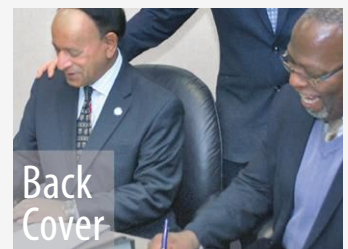
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“Education thrives in an atmosphere
of free and open discussion”



Virinder K. Moudgil

F R O M T H E P R E S I D E N T

A December article on Politico.com reported that college presidents feel their institutions are under attack from all sides of the political spectrum – from the left, for pandering to the wealthy, and from the right, for being elitist. Increasingly, more people wonder whether college is worth the cost.

This comes despite the fact that the value of a college degree has never been higher.

In our annual Hotelling Memorial Lecture in October, Federal Reserve economist Daniel R. Carroll noted that in the early 1990s, college graduates could expect to earn twice as much as a high school graduate. Today, that figure is *three times* as much. Carroll called education “the engine of [economic] mobility.”

Also, virtually all fast-growing, high-paying occupations require at least a two-year degree, and in most cases a four-year degree. It’s clear that despite the clamor over rising college costs, higher education is still a sound investment – especially in fields related to the occupations of tomorrow, which is where we at LTU concentrate our efforts.

Education thrives in an atmosphere of free and open discussion. But perhaps what we have is an over-emphasis on the free and open discussion of political ideology, and an under-emphasis on what, in most cases, really drives higher education’s contribution to a better world – free and open discussion of issues in science, technology, and engineering. While free and open political debates are a cornerstone of democracy, the white heat those debates generate can blind us to the incredible advances coming out of America’s universities.

At LTU, our research efforts are growing, leading to exciting new discoveries in fields as varied as astronomy, computer science, architecture, materials science, and business management.

Our students win competitions in everything from autonomous vehicles to racing toboggans made of concrete. Our graduates have gone on to do great things, from designing sensors on NASA Mars rovers to designing the Ford GT and the Dodge Demon, to designing the second tallest building in the world. Our faculty are showing the world how to build sustainable cities and bridges that last 100 years.

This magazine details their efforts.

Virinder K. Moudgil
President and CEO



lawrencetechu



LawrenceTechU



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Lawrence Tech Alumni



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For the latest about Lawrence Tech, visit
www.ltu.edu/news



The world's next auto starts here

This rendering shows a possible buildout for the American Center for Mobility's headquarters and other research and garage buildings for ACM clients.

Alumnus Mark Chaput in charge of construction for the nation's foremost driverless vehicle proving grounds

Sitting behind the wheel of a big Ford pickup truck, Mark Chaput, BSCE'87, presses the broadcast key of the portable radio and says, "ACM 3, entering highway loop."

The voice from the control center crackles back quickly: "Copy, ACM 3, clear to enter highway loop."

With that, Chaput inches forward over a highway bridge, easing down an access road on a snowy day, clearly eager to show a visitor the completed portions of the highway-speed test course at the American Center for Mobility in Ypsilanti Township, west of Detroit.

The site has a storied history as a World War II defense plant designed for Henry Ford that cranked out a B-24 Liberator bomber every 55 minutes, and later as a huge automatic transmission plant for General Motors' Hydramatic Division. And now, it's primed to make history again as the research center that might just let America take its hands off the wheel.

Chaput drives along an entirely average-looking freeway, past entrance and exit ramps, 65-mph speed limit signs, bridges, guard rails, even a tunnel.

What isn't there? Other vehicles. Not yet, anyway, at what Chaput calls the foremost center for autonomous and connected vehicles. The best in the world, he says, even though the control center is still in a construction trailer, the temporary ACM headquarters is in an old Willow Run Airport hangar, utility hookups are still underway, and several old buildings on the massive,



The tunnel that is part of the freeway-speed test track at the American Center for Mobility. At left and the upper middle, Wiard Road and US-12 can be seen. Photo: The American Center for Mobility



500-acre site still need to be torn down.

Chaput is a career employee of the Michigan Department of Transportation (MDOT), most recently deputy director of its Bureau of Field Services. He led MDOT's statewide construction, maintenance, and operations divisions, along with the department's research and intelligent transportation systems (ITS) program offices. That included research into self-driving cars – autonomous vehicles – and cars that talk electronically to each other and the highway infrastructure – connected vehicles – and the supporting transportation infrastructure.

The latter expertise prompted fellow alumnus Kirk Steudle, BSCE'87, MDOT director, to "loan" Chaput out to ACM, a consortium of state government, the auto industry, advanced electronics companies, and higher education. Today, Chaput's title at ACM is vice president

of construction and infrastructure development. Over the course of 2017, he oversaw the construction of the 2.3-mile highway speed loop, with a full freeway interchange, a bypass road with a 700-foot tunnel, and a 1.3-mile-long 55-mph two-lane road. Also constructed was a six-lane boulevard with Michigan U-turns that would look familiar to any Detroit. On the drawing boards are test environments to replicate big cities, small towns, residential, and commercial districts, even an off-road driving area. There'll also be a technology park with a permanent ACM headquarters and garages for companies using the test track.

Chaput is particularly proud of the highway speed loop because it required extensive negotiations with federal and local governments. US-12 used to be a six-lane divided highway past the north and west borders of the Willow Run site – something that was needed to move 50,000 bomber plant employees a day in and out back in the 1940s. Today, that infrastructure wasn't justified, so under Chaput's leadership,

The freeway interchange and six-lane boulevard part of ACM's test track.

westbound US-12 traffic was redirected to the eastbound lanes of the former divided highway – two lanes in each direction. Using the existing interchange ramps, the westbound lanes became part of the ACM's highway speed test loop and the two-lane "urban arterial" roadway. Parts of Washtenaw County's Wiard Road and Airport Road rights-of-way were also absorbed into the ACM test track system, which required additional negotiations with the Washtenaw County Road Commission.

"This is the only automotive test track in the world that has active public highways running right through it," Chaput said.

Vehicles being tested on that loop are discreetly blocked from public view by privacy fencing, part of the site security inherent in any test track. There are also video security towers throughout the site.

ACM opened Dec. 11 and welcomed its first customers, the auto supplier Visteon and

Mark Chaput in the temporary headquarters of the American Center for Mobility, an airplane hangar at Willow Run Airport.

Toyota Research Institute. Besides vehicle testing, Chaput said, "these customers received their facility orientation and safety training, and received their facility licenses and badges."

"Just as Michigan put the world on wheels, today we are leading the way in the mobility revolution," Michigan Gov. Rick Snyder said on the occasion of the opening. "With ACM open for testing, we are taking one giant step in the right direction to affirm Michigan's place as the undisputed leader in mobility."

That's just the very beginning, Chaput said: "We're in discussions with many of the OEMs and several of the Tier 1s. We're also in conversations with sensor companies, software companies, infrastructure providers, and even insurance companies.

There are so many business sectors involved in this technology, ACM's potential is unlimited."

ACM currently has just eight full-time employees and also has several supporting consulting groups on board. It named London-based Intertek

Group PLC to provide operations and maintenance services. Chaput said more employees will be added "as we have need."

As for ACM's eventual completion, Chaput said, "we anticipate initial completion by 2020, but it'll probably be a continuous construction effort for maybe eight to 10 years. Once we build an environment and users start using it, there may be different things that they want, or things they decide they don't need, so we will be continually building and adjusting this facility based on customer input." Permanent garages and a headquarters building are likely coming in 2019-20.

Overall, Chaput described his involvement in the project as "just amazing. Being able to bring my infrastructure experience to the table, along with my interest and knowledge of where ITS is going and advancements in connected and automated vehicles, to bring all that together, and be involved in the construction of a premier facility like this, is really exciting."

Visteon tests a driverless car at the American Center for Mobility's proving ground.

ACM's founding investors are AT&T, Ford, Hyundai, Toyota, and Visteon, along with \$50 million from the Michigan Economic Development Corp. and the Michigan Strategic Fund. All told about \$110 million has been pledged for the center. □MR



About Mark Chaput

Chaput joined MDOT immediately after his graduation, part of a class of construction engineering grads that included MDOT Director Kirk Steudle, BSCE'87. In fact, Chaput, Steudle, and a third classmate, James E. Like, BSCE'86, resurrected the LTU student chapter of Associated General Contractors of America during their time as students.

Chaput worked on many high-profile construction projects during his years at MDOT, including the I-696 extension from I-75 to the Lodge Freeway, the widening of M-59 in Oakland County, and the resurfacing of I-75 in Wayne and Oakland counties. He was named deputy director of the MDOT's Bureau of Field Services in 2011. The bureau runs the department's construction, operations, and maintenance, along with research into intelligent transportation systems (ITS) programs. The latter was the key to Chaput getting involved with the ACM, since he was already familiar with ITS systems involving vehicles that can communicate with each other and with roadside infrastructure.

Chaput, a Southfield native and 1982 Southfield High School graduate, said he stayed close to home for college after looking at "a couple of Big Ten schools" because of LTU's "reputation in engineering."

"I definitely value the education and training I received at Lawrence Tech," Chaput said. "The whole approach of 'Theory and Practice,' being able to immediately apply what you learn, not just learn the theory, really is a valuable approach to education that Lawrence Tech has demonstrated over the years." □MR

LTU joins American Center for Mobility Academic Consortium – see story, page 32



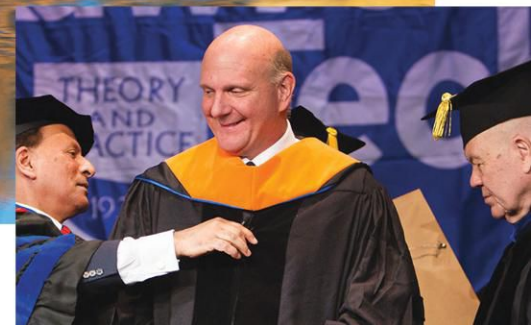
Outcomes

Just as the splash of a stone thrown into a still pond radiates outward in ever growing circles, so too is the impact of LTU alumni on their professions, communities, and the lives of countless others.

Nearly 40,000 men and women have graduated since 25 brave pioneers walked across the stage at LTU's first commencement ceremony in the dismal Great Depression year of 1933. Tens of thousands more men and women have attended classes without earning a degree – sometimes taking one or two classes based on a particular interest, sometimes taking many more to earn certification, a raise, or qualify for promotion.

LTU alumni, both graduates and former students, are well represented among the fields you might expect: engineering, architecture and design, all areas and levels of management, construction, computers, and the sciences. But they also have found niches in such fields as law, banking, accountancy, medicine, government service, the military, academics, and even the clergy. While most alumni reside in Michigan, they are also represented in all 50 states as well as over 60 countries.

Conveying the impact of Lawrence Tech through only a few individuals is difficult when so many are worthy. It's likely that you or someone you know should be on this list, too. Consider these men and women typical of the breadth and depth of what was, and is, the Blue Devil experience.



Steven A. Ballmer,

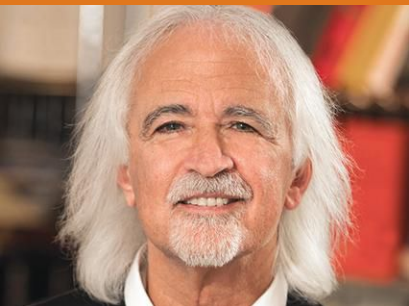
HD'13, retired as CEO of Microsoft in 2014, the world's largest technology company, and today owns the Los Angeles Clippers NBA team. In the early 1970s he participated in Lawrence Tech's Summer Science Institute for promising high school students and then spent a yearacing six of Lawrence Tech's top mathematics classes while still in high school. He then enrolled as a sophomore at Harvard where he became dorm friends with Bill Gates. Later they launched one of the most innovative and successful businesses in history.



Rosemary Bayer, CI-MBA'03, is co-founder and CIO of ardentCause L3C, serving IT needs of nonprofits, and co-founder of the Michigan Council of Women in Technology, which provides STEM programming and support for girls and women around Michigan. She is a 2018 candidate for the Michigan Senate, District 12.

The late **Bennie L. Benjamin, BSCivE'55,** worked his way up over 40 years to direct one of the nation's largest water and waste treatment organizations – the Detroit Water and Sewerage Department. DWS provides water and waste treatment service to Detroit and 125 suburban Michigan communities – serving nearly half of the citizens of Michigan.





John Buffone, BSAr'74, BAr'75, is vice president of architecture for Olympia Development. Over the past 39 years he helped restore Detroit's landmark Fox Theatre and develop Comerica Park, home of the Detroit Tigers, which opened in

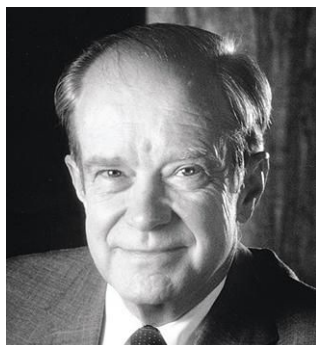
2000, and its continuous upgrades. His main focus over the past 10+ years has been the programming of the new Little Caesars Arena in Detroit, part of a team led by Christopher Ilitch, president and CEO of Ilitch Holdings, that went through an extensive benchmarking process. Four of the six staff in his department are graduates of LTU.

The late **Donald W. Date**, BSArE'49, was chief architect of the United States' Panama Canal Co. During his tenure in the 1950s through 1970s, the huge number of improvements and modernizations to buildings and infrastructure that he managed at what was then an American enclave significantly increased efficiency and tonnage transported through the Canal, one of the world's engineering wonders and busiest routes of commerce.



The late **John Z. DeLorean**, BSIE'48, led General Motors' Pontiac and Chevrolet Divisions and was GM executive vice president in the 1960s. He is credited with developing the first "muscle car," the Pontiac GTO, along with a host of other innovations. After leaving GM, he launched the stainless steel-bodied DeLorean automobile, made even more famous as the time machine in the trilogy of "Back to the Future" movies.

The late **Edward Donley**, BME'43, HD'76, HD'87, advanced to chairman of Air Products and Chemicals, Inc., Allentown, PA, and during his career grew it from a few dozen employees into a Fortune 200 company. Donley also served as president of the United States Chamber of Commerce and worked with several U.S. presidents, state governors, and others to improve the education process and outcomes at all levels.



Vincent G. Dow, BSEE'79, retired as vice president and chief engineer of electric distribution operations at DTE Energy. He oversaw DTE's electrical system, including new customer connections, engineering, power plant electrical equipment, and all distribution system construction. He also oversaw distribution contract management, performance management, the Smart Grid efforts, and NERC standards and compliance for DTE.



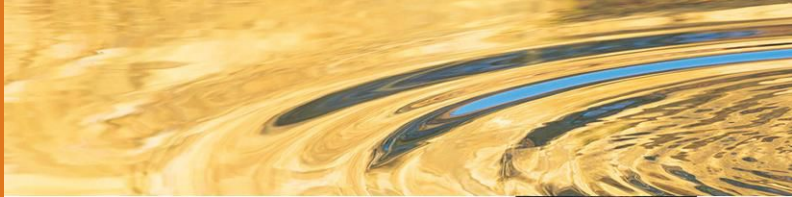
Hajj Flemings, MBA'03, founded Brand Camp University, which focuses on entrepreneurial and digital technology training. He is also the author of *The Brand YU Life: Re-thinking Who You Are Through Personal Brand Management*. His clients include Disney, the U.S. Olympic Committee (Paralympics), and the U.S. Department of Defense.

Beverly Hannah Jones, BSAr'85, BAr'88, MAr'00, is president and CEO of Hannah & Associates, Inc., managing partner of Hannah-Neumann/Smith, LLC, and CEO of Arawana Construction Trucking. She is among the first five African-American women to found their own architectural firms. *Ebony* magazine in 1995 discovered there were 800 minority architects in the country, 10 percent were female, and only five women had launched their own firms.



Jennifer A. Hitchcock, BSME'88, MGLM'09, DBA'15, PE, is executive director for Research and Technology Integration at the U.S. Army Research Development and Engineering Command (RDECOM), Tank Automotive Research Development and Engineering Center, in Warren. One of eight such major research, development, and engineering centers in the country, RDECOM is the Army's largest technology developer. Hitchcock leads research and integration of Army ground vehicle mobility, power and energy, survivability, and robotic and vehicle electronic architecture technologies. The civilian equivalent of a brigadier (one-star) general, she oversees more than 600 people and manages the planning, execution, funding, and selection of technology programs the Army will pursue to meet emerging battlefield challenges.

CONTINUED



Elizabeth Howell, BSEE'92, now an independent consultant, was vice president of operations at ITC Holdings Corp., the nation's largest independent electric transmission company. She was responsible for the operation of the high-voltage electric transmission system of ITC's operating subsidiaries, including more than 15,000 miles of interstate transmission lines in seven states. She also led the successful operational integration of two acquired companies.



Larry A. Lawson, BSEE'80, was president and CEO of Spirit AeroSystems, Inc., one of the world's largest non-OEM designers and manufacturers of aerostructures for commercial aircraft. Formerly executive vice president of Lockheed Martin Corp. and president of Lockheed Martin Aeronautics, Lawson held leadership positions in engineering, advanced development, business development, and program management. At Lockheed Martin, Lawson oversaw key aircraft production programs, such as the F-35, F-22, F-16, C-130J, and C-5, including highly classified programs in the world-renowned Skunk Works® organization.



The late **William D. Innes**, BSME'53, HD'68, worked 39 years with Ford Motor Company. He led Ford's Engine and Foundry Division, working with such motorsports icons as Carroll Shelby to develop Ford's dominant powertrains in the 1960s, contributing to the company's unprecedented success at Indianapolis, Le Mans, and Daytona. As executive vice president in 1970, Ford's number three position, he managed Ford's North American Automotive Operations, consisting of 15 divisions and over 250,000 employees. He is credited with manufacturing processes that shortened downtime between model changeovers and engineering advances that led to the development of safer, more pollution-free automobiles.



Gretchen Minnhaar, BSArE'59, was principal of Gretchen Minnhaar Designs in Grand Rapids. As an architect, she worked on the Gerald R. Ford Museum and the renovation of the Amway Grand Plaza Hotel. As an artist, she exhibits all over the world.

Amy Mioduszewski, BSPH'91, is a scientist at the National Radio Astronomy Observatory in New Mexico. She researches and images the radio counterparts to X-ray binaries, known as microquasars. X-ray binaries are close binary systems of stars where one member of the binary is a compact object, such as a black hole or neutron star.



Ronald P. Knockert, BSEE'63, invented the laser bar code scanner, developed computers that helped land Americans on the moon, pioneered remote keyless door locks for automobiles, and helped perfect intelligent transportation systems for consumer vehicles that provide directional, traffic, and service information.



Javad Mokhbery, BSME'79, and his late brother, **Mohammed Mokhberi**, BSIM'78, founded FUTEK Advanced Sensor Technology, Inc., of Irvine, Calif., which makes sensors for the aerospace, medical, robotic/automation, and automotive industries. They developed two sensors for the robotic arm of Curiosity, the NASA Mars rover, used to take core samples during its historic mission. They also worked with NASA on several other projects, including the creation of parts for the craft that will replace the space shuttle in 2020.

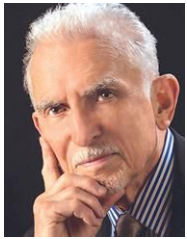


The late **Jack W. Laister**, BSAeroE'38, during World War II developed the revolutionary high wing/rear door cargo plane design still used in cargo aircraft worldwide. The plane he designed also carried the heaviest payload of its era and had one of the highest security clearances of the war. The huge glider was developed for an expected aerial invasion of Japan, to ferry troops and supplies had the atomic bomb failed to bring an end to the conflict.





View a capsule history of Lawrence Technological University at www.ltu.edu/about.



James P. Ryan, BSArE'66, is retired as owner and principal of JPRA, one of the nation's leading architectural firms that specializes in commercial and shopping center development. Highly acclaimed local designs include the Somerset Collection and Great Lakes Crossing malls.

Heather Scalf, BSIA'01, is global commodities lead, color and trim at General Motors Co. Working three to five years in advance, she and her colleagues create strategic solutions for materials, finishes, and colors that consider each brand's aesthetic, customer tastes, and regional differences.



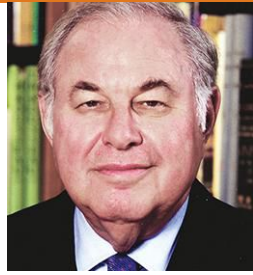
The late **George Sierant**, BSME'47, developed the first viable child safety seat in 1966. Because of Sierant's meticulous research, testing, and collaboration with medical authorities, the design he developed for General Motors remains the standard used by child seat manufacturers today. Proposing a then-controversial backward-facing design that cradled youngsters on impact by absorbing momentum and shielded them

from crash debris, Sierant's biggest challenge was overcoming the conventional thinking of the day. No infant-sized crash dummies existed at the time so he proved his point in crash-sled testing using dolls weighted with lead shot.

Kirk T. Steudle, BSCE'87, PE, has served as director of the Michigan Department of Transportation (MDOT) since 2006, the highest-ranking state official among LTU's alumni. Steudle oversees MDOT's more than \$4 billion budget and is responsible for the construction, maintenance, and operation of nearly 10,000 miles of state highways, more than 4,000 state highway bridges, and some 2,500 employees. He also administers multi-modal transportation programs and projects that range from aviation to the Zilwaukee Bridge. Steudle is a national expert in connected vehicle technology, a high-tech highway operations technology that enables vehicles to communicate with roads and each other to improve safety and mobility.



The late **A. Alfred Taubman**, HD'81, a former Lawrence Tech architecture student, was one of the nation's leading real estate developers, retail innovators, and owners of shopping malls throughout the United States. He also owned Sotheby's auctioneers and the A&W restaurant chain. He was generous in sharing his knowledge with students as a visiting professor and underwrote campus presentations by numerous accomplished architects.



Gina Van Tine, BSAr'89, BAR'94, AIA, LEED AP, co-founder with **Kenneth Van Tine**, BSAr'85, BAR'86, AIA, of inFORM studio. Their 2011 AIA Firm of the Year designed, developed, and built the award-winning Bagley Street Pedestrian Bridge in Detroit as part of the \$170 million Michigan Department of Transportation Ambassador Gateway Project. The firm also designed LTU's East Residence Hall, now under construction.



The late **Lewis C. Veraldi**, BSME'68, as the father of the wildly successful original Ford Taurus, was credited by many for products that restored fiscal health to the Ford Motor Company. As vice president in charge of car development, Veraldi pioneered cross-disciplinary personnel teams in the late 1970s and early 1980s that led to the launch of cars that were among the highest selling and most innovative new automotive lines in history. The "team" development process he innovated became the industry standard – widely adopted by other manufacturers for numerous consumer products.



Daniel Winey, BSAr'74, BAR'75, COO of Gensler, the world's largest architecture firm, oversaw the building of the Shanghai Tower, the world's second tallest building and the tallest building in China. He also leads Gensler's Pacific Northwest and Asia regions and served as a chairman and member of Gensler's Board of Directors.

David Wright, BSME'86, is the founder and CEO of Wi Inc., a groundbreaking contract medical device development company, and the holder of over 40 patents. His company won a gold award in the Medical Design Excellence Awards for its LifePort Kidney Transporter, a new generation mobile perfusion device targeted to improve organ care between harvesting and transplantation. Another product delivers therapeutic energy through the skin and deep into tissues. □BJA



To boost diverse STEM education, LTU wins grant from Howard Hughes Medical Institute

Lawrence Technological University will transform its classroom instruction and outreach efforts in the STEM disciplines to increase diversity under a grant from the Howard Hughes Medical Institute.



Lior Shamir

LTU was the only school in Michigan – and one of only 24 nationwide, out of more than 500 applicants – to be selected for the award under HHMI’s Inclusive Excellence Initiative.

The Howard Hughes Medical Institute, with an \$18.2 billion endowment, is the largest private nonprofit supporter of science education in the United States.

The objective of the initiative is to help colleges and universities encourage participation and cultivate the talent of more students in the natural sciences. In particular, the HHMI initiative focuses on those undergraduates who come to college from diverse backgrounds. These “new majority” students include underrepresented ethnic minorities, first-generation college students, and working adults with families.

Said HHMI President Erin O’Shea: “The challenges this program addresses are important for all of us who care deeply about developing a more inclusive and diverse scientific community.”

Finding a way to include all students, from all backgrounds, in STEM is critical for building future generations of American scientists, said David Asai, senior director for science education at HHMI.

“Science excellence depends on having a community of scientists that is rich in diversity of people and perspectives,” Asai said.

In Lawrence Tech’s case, the goal of the project is to “revolutionize teaching in the College of Arts and Sciences, transforming it into a college that bases its education on classroom-based research experience,” or CRE, said Lior Shamir, associate professor of mathematics and computer science.

Shamir said courses in multiple disciplines, covering all departments and programs in the college, will be modified into CRE courses, providing research experiences to all students as part of the curriculum. Shamir said these experiences “will be designed in a culturally responsive fashion, allowing students to express their culture and identity through research.”

Shamir said participating in research as an undergraduate student has been proven to increase student retention and gradu-

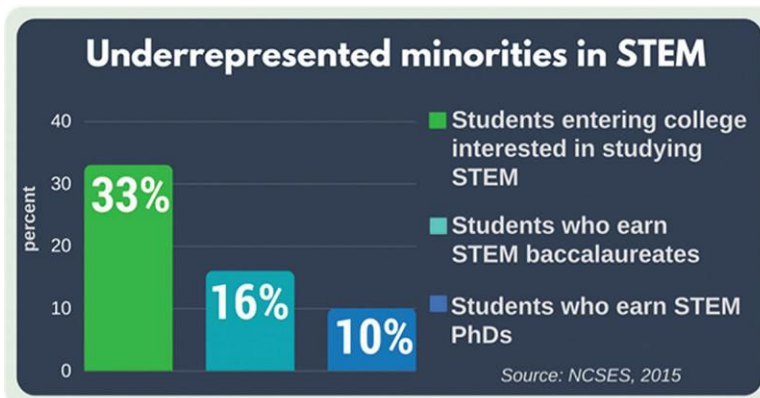
ation rates, as well as boosting GPA and the likelihood of moving on to graduate school.

For decades, educational grants – including some awarded by HHMI – have focused on interventions aimed at students, such as summer research apprenticeships, tutoring, advising, and summer bridge programs designed to ease the transition from high school to college. While these interventions can help the students involved, they don’t generally address long-term issues that, if changed, could have a more sustained impact, Asai said.

“Our goal is to catalyze changes that last well beyond the lifetime of these five-year grants,” he said.

An essay by Asai on the topic, “A New Strategy to Build Capacity for Creativity,” is

“
... the goal of the project is to revolutionize teaching in the College of Arts and Sciences
”



available at www.hhmi.org.

“This award shows once again how Lawrence Tech is truly living its longtime motto of ‘Theory and Practice,’” LTU President Virinder Moudgil said. “Adding research experiences to all classes in the College of Arts and Sciences that are relevant to each student’s cultural background will increase the likelihood of student success, and will increase participation and excellence among people who are now underrepresented in science.” □MR

A third of U.S. first-year college students intending to study STEM are underrepresented minorities (green). But only one-sixth of STEM baccalaureate degree recipients (turquoise) and one-tenth of STEM PhDs (blue) are underrepresented minorities.

Lionel Messi is, without a doubt, the best soccer player in the world.

He's also the most overpaid, according to a Lawrence Technological University study of the salaries of 6,082 soccer players in professional leagues in Europe.

Lara Yaldo, an LTU master's degree student in computer science, and computer science Associate Professor Lior Shamir used a variety of algorithms to analyze the salaries of European footballers versus their on-field skills and performance. The results provide a fascinating glimpse into the intersection of sports, data science, and economics.

The study drew widespread media attention in Europe – prominent mentions in numerous British and French newspapers and websites – spreading LTU's name throughout the continent. But it drew barely a peep in the United States, where pro soccer gets far less media attention.

Yaldo and Shamir said they came up with the idea for the study last year in a brainstorming session for her master's degree project.

"I love soccer, and I really want to do data science, so this was both soccer and data science," said Yaldo, who got her bachelor's degree in computer science from Lawrence Tech in 2009 and now works as a high-performance computing administrator at EASi Engineering in Troy.

The study, published in the July issue of the academic publication *International Journal of Computer Science in Sport*, analyzed 55 variables of player skill, including passing accuracy, heading accuracy, dribbling, shooting, ball control, speed, balance, and acceleration. The researchers used pattern recognition with machine learning to create a single composite score of the value of each player versus the other players in the European leagues.

Then they took publicly available salary data from the European leagues to determine which players were the most overpaid and underpaid, versus the salary they would receive based on their skill score. (The study didn't include the extra income star players earn from endorsements.)

The study found Messi, an Argentine who plays for the Spanish club FC Barcelona, is the most overpaid player, with an actual weekly salary of 550,000 Euros (€), versus a predicted salary of €235,026. He was followed by Angel Di Maria, another Argentine, who plays for the French team Paris Saint-Germain, with a

LAWRENCE TECH STUDY

FINDS EUROPE'S MOST OVERPAID, UNDERPAID FOOTBALLERS

Messi prepares to shoot with his dominant left foot during the final of the 2014 FIFA World Cup. Photo by Agência Brasil, a public Brazilian news agency, via Wikimedia Commons.



The study drew widespread media attention in Europe



Lionel Messi in 2016. Photo from Save the Dream at the Match of Champions, via Wikimedia Commons.

weekly salary of €230,000, versus a predicted wage of €58,974.

The most underpaid player? That dubious distinction goes to Bernardo Silva, a Portuguese player for the English Premier League club Manchester City, with an actual weekly wage of €10,000 versus a predicted salary of €119,907. He was followed by Harry Kane, a Brit who plays for the English Premier League team Tottenham Hotspur, with a weekly wage of €15,000 versus a predicted salary of €119,798.

The study also found which attributes contribute most to players being overpaid or underpaid. In general, sheer size and strength contributes most to being overpaid, while the traits of reaction time, agility, balance, acceleration, and sprint speed most tend to be discounted.

Yaldo and Shamir said they weren't surprised that the study found many top players are overpaid compared to their peers.

"There is a premium to being the best," Shamir said. "If you are the best, you make more than you deserve, because your contribution is more than your abilities. The impact of just having you on the team has a value." Added Yaldo of Messi: "We don't mean to tear him down. He's very talented. He should be the highest-paid player."

Yaldo plans to graduate from LTU in May 2018 and then pursue a PhD in data science. She and Shamir said the same computer model could be used to analyze the skills and salaries of athletes in other professional sports.

"I'd really like to try this with baseball," Yaldo said. As perhaps the most statistics-obsessed professional sport, "America's pastime" certainly seems ripe for the effort. □MR



Denby High School students learned about women in STEM careers in a Marburger STEM Center program.

Andre Clemons of Dassault Systèmes speaks to the Blue Devil Scholars, middle schoolers at the Sampson-Webber Leadership Academy in Detroit, during a celebration of the relationship between LTU and the K-8 school. Clemons challenged the students to think creatively about establishing their own businesses and developing ideas to further help their communities.

Marburger STEM Center Year Two plans:

FUNDRAISING, STUDENT

T

he way Sibrina Collins sees it, failure is not an option.

When it comes to filling the future talent gap in STEM (science, technology, engineering, and mathematics), the first-ever director of LTU’s Marburger STEM Center says, “We have to succeed. We just have to. As educators and institutions, we have to do a better job of selling STEM to young people.”

Collins said on the first anniversary of the STEM Center that its first year “was really about getting publicity and doing all we could do to draw attention to ourselves.”

The second year, she said, “will be about building partnerships and fundraising, because if you don’t have funding, you can’t do what you want to do.”

Another key part of the STEM Center’s second year, she said, will be developing current LTU students into Marburger STEM ambassadors, and have them conduct outreach among middle and high school students – because “young people would rather talk to young people, rather than us older folks.”

Some of the STEM Center’s second-year activities are already in the books. On Sept. 9, LTU led a hands-on science activity at a program called “Girls in STEM” sponsored by the organization Women of AT&T. LTU student ambassador Cynthia Turner led a workshop to teach girls how to prepare an organic lip balm.

“Beauty products is an industry people don’t think of as STEM, but it’s all chemistry,” Collins said.

Also on Sept. 9, an LTU “Extreme Science Saturday” program for high schoolers featured Jeffery Morrisette, assistant

professor of natural sciences, and a program called “Murder and Maggots,” which Collins described as “disgusting but fascinating.” Morrisette showed how crime scene investigators can determine the time of a murder by examining the number of generations of flies that have bred in rotting flesh.

Other programs planned for this year include:

- Ask the Professor, a workshop at Detroit’s Denby High School where students will read articles Collins has written about scientists of color whose stories are seldom told in history books, then work in groups to prepare a poster about their favorite scientist. Creators of the poster judged the best will receive LTU apparel.

- Pizza and a Prof, an on-campus program where students will be recruited as Marburger STEM Center ambassadors. Those ambassadors will work with LTU faculty to develop engaging, hands-on research projects that can be conducted in a middle school or high school classroom. “The key for us will be to work with the middle school and high school teachers to make sure what we are presenting aligns with the current curriculum.”

Events such as this, Collins said, also help LTU understand first-hand how better to sell the opportunities in the STEM disciplines to future students. “I want to develop relationships with our students so they can tell us what the problem is, and how we can fix it.

- NBA and Mathematics, a program in the continuing relationship between LTU and the Detroit Public Schools’ Sampson-Webber Leadership Academy, a K-8 magnet school on the



**Marburger
STEM Center
Director Sibrina
Collins working
with students
attending LTU's
summer camps
in architecture
and design.**

LTU's STEM ambassadors: STEM is fun, but needs more mentors

For Cynthia Turner, it's becoming the mentor she never had.

For George Terrell, it's showing young people the power of mathematics – and that they can figure it out.

Both are among the early student ambassadors for programs at the Marburger STEM Center.

Turner said she's wanted to be an astronaut since she was 6 – and that she's wanted to mentor younger people almost as long.

"Coming from a family where I'm the only person who had an interest in engineering, I wanted to be that role model, that mentor that I never had," Turner said. "I want kids to be able to look at me and say, 'She's doing what I want to do.'"

Turner, a Detroit native and graduate of Davis Aerospace Technical High School, is working toward a bachelor's degree in mechanical engineering at LTU and plans to graduate in December 2018.

For Terrell, a sophomore in computer science and computer engineering, it's a desire to help young people "understand the power of mathematics and computer science – it really does give people almost superhuman powers, when you use mathematics to understand the world better. They need to know this is obtainable, this is an option for them. Lots of kids look at math and computer science and think that it's either impossible for them or irrelevant. But once they see what they can do with it, maybe they'll be inspired. I know I was."

Turner believes workers in STEM fields are partly to blame for not making their careers seem more exciting to young people.

"I don't think a lot of STEM workers

like to explain what their job is, because they're so used to talking to other people in their industry, and when you have to explain it to people outside that industry, it can be hard to explain," she said. "And I don't think a lot of people who made it through STEM degrees want to talk about their struggles. They don't want to admit that they might not have done that well in school at first, that they had to work really hard and ask for help."

Turner is happy to talk about her struggles and successes with young people – and to remind them that STEM turns up in a wide variety of industries that most people don't realize.

Take cosmetics, for instance. Turner's hands-on project at a recent STEM event had girls making an organic lip balm.

"Engineers work in cosmetics, food, fashion," Turner said. "You have to take into account chemistry, the mathematics of handling the materials and how they work. People don't think about all the science and engineering that goes into their everyday life."

Terrell, for his part, wants to fuse artificial intelligence with data science to improve web search.

"Google beat Yahoo because Yahoo lost its focus on search," Terrell said. "I think Google is doing that same thing right now, getting into cars, making watches. They're so big I think they've gotten stagnant in search, and I think I have some pretty good ideas on how to make that relevant again."

Unlike some big names in tech – calling Elon Musk – Terrell isn't afraid of AI.

"Computers only do what you tell them to do," he said. □MR

city's west side. "What we're doing here is teaching them math without telling them it's math," Collins said. In this exercise, students will analyze NBA players based on statistics like points per game, assists per game, rebounds per game, and field goal percentage, to determine who truly should be the NBA's Most Valuable Player. Students will also work in teams to create a poster of their chosen player. Assisting in this effort is LTU STEM ambassador George Terrell, a computer science student.

• The Marburger STEM Center Seminar Series, a series of events for LTU students on STEM careers. In the next installment, Seun Phillips, vice president of the Michigan Science Center, will talk about the center's STEMInista project, in which the center is identifying women STEM professionals to serve as

AMBASSADORS

role models and mentors to girls. "We will also take the opportunity to educate our students about volunteer opportunities at the science center."

• Wayne County Community College District's fall seminar for women in STEM will feature an LTU presentation on the University's many STEM programs, including Robofest and summer camps.

• Another STEMsation night for students at the Sampson-Webber Academy in spring 2018, building on last spring's successful inaugural event.

• The second annual Science and Technology Showcase, where LTU STEM students will show off their research projects to an audience of selected STEM industry professionals, which is again co-hosted with Medical Main Street, Oakland County's life sciences industry economic development initiative.

• Participating in Michigan State University's Science Festival Day on Belle Isle again next spring. Last spring, Collins and Meaghan Markiewicz, Marburger STEM Center program associate, met with more than 1,000 students and parents, conducting fun, hands-on scientific experiments.

The Marburger STEM Center was made possible by a \$20 million gift from former Microsoft CEO Steve Ballmer, who took mathematics courses at LTU while still a high school student at Detroit Country Day.

"Knowing what Mr. Ballmer's passions are – reaching out to diverse populations and supporting those kids – that's what our focus is," Collins said. □MR



Meaghan Markiewicz (right), Marburger STEM Center program associate, and LTU students led an effort at the Detroit Science Center allowing youngsters from Detroit to design their own community park.

DESIGNING A BETTER DETROIT

Lawrence Tech class gives Denby High students a hands-on look at architecture, design

A high school class in architecture, taught in the spring 2017 semester by Lawrence Technological University staff, has produced at least one budding architect, as well as a whole bunch of good ideas on building a better bus shelter.

The class was taught by Meaghan Markiewicz, BSAr'14, MAr'17, MUD'17, who is now working as STEM program associate at LTU's Marburger STEM Center, the clearinghouse for the University's K-12 science, technology, engineering, mathematics, and design education outreach efforts. The class was held at LTU's Detroit Center for Design + Technology (DCDT) in Midtown.

In the class, students from Denby High School were asked to choose a vexing social issue in their neighborhood on Detroit's east side. Students chose everything from homelessness to lack of educational achievement to gang violence to teen pregnancy.

Then, the students researched the social issue, including digging up national and local data on the problem. Finally, they were asked to design a bus shelter that would contribute to solving the problem.

Along the way, the students also learned about the basics of architecture – how to calculate scales and square footage, how to prepare floor plans and elevations, and the basics of construction materials.

The students then created posters about the problem they chose to tackle, using their

research on the issue and their architectural design, learning architectural and graphic design software along the way.

Finally, they each gave a presentation on their poster to industry experts.

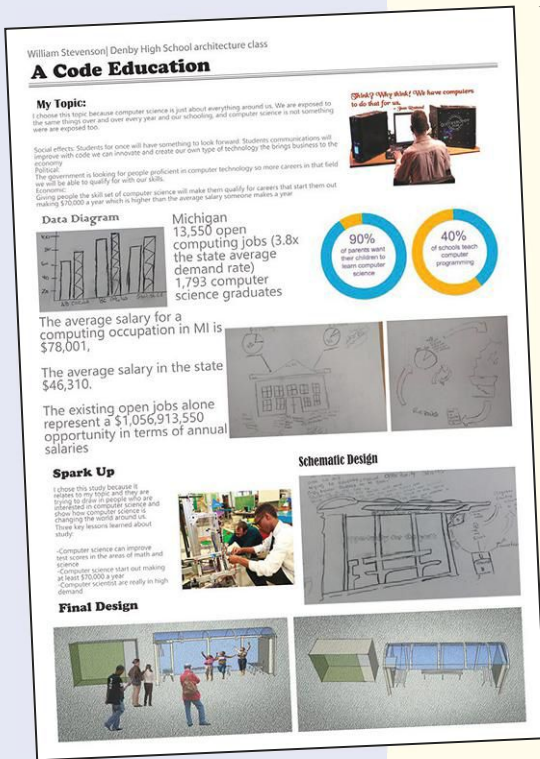
Ideas included bus shelters with unusual features:

- A shelter with a mini-library inside to promote reading;
- A shelter promoting continuing education and college attendance;
- A shelter with information on fighting stress;
- A shelter providing child care resources for young parents.

LTU also brought in guest speakers to talk about architecture and design, including Andrea Rosefield, founder and CEO of Embrace Creatives, a website designed to connect artists and creative professionals; Rebecca Marshburn, MUD'16, who is a content manager for the Petify and Airbnb websites; and Christopher Stefani, associate director of the DCDT, who developed the curriculum for the course.

Stefani said the course “was created to engage the students in an architectural context to employ skills of critical thinking and address issues of blight and vacant land present in the Denby neighborhood from a local youth perspective.”

The effort produced at least one future architect, Eric Smith, who graduated in June and is now attending LTU, majoring in architecture. He said he had never considered architecture as a career, but after a few classes, “I began to see the value of architecture, because you get to design structures that people really need in their everyday lives, and if I'm an architect or



Students were asked to choose a vexing social issue in their neighborhood

Denby High School Architecture Class
My Food Zone

Education and healthy food
This topic because health students affect school which has been a large discussion topic for the school year.

Students who are overweight or not the same as others who are not and may not want to come to school.

The resources used to provide food is an issue that the government has to deal with.

This health issue not only affects students but it affects the economy because it's missing with everyone including the medical expenses.

Map of Michigan
Map showing Michigan's population density by county.

Case Study: Detroit Food Academy
I chose this case study because it provides lots of information about healthy food.

They have learned about studying Small Business Development Center (SBDC) and how to start a business. They also learned about how to start a business and how to start a business.

Schematic design
Below is a schematic showing how my design for the bus shelter can provide health resources for students.

Final Design
After successfully completing their food business at Market Food Stores, they are now starting to build their own business and are looking for ways to grow their business.

Maurice Malone | Denby High School
You Are Welcome Here

Depopulation
I chose this topic because in 2010, as I was entering the adult stage of life and in making the decision of where to live, I had to research why people decide to move and move out of Detroit.

Social: To affect the perspective of Detroit residents.
Political: To change the way America views Detroit.
Economic: Millions of dollars into construction and renovation will help improve Detroit's appeal.

Data Diagram
A map showing Detroit's population density and a bar chart titled "Detroit's growth and decline" showing population from 1950 to 2010.

Case Study: Cornelia Lane: Gentrification
I chose this case study as it directly pertains to Detroit and live bicycling program provides a different perspective to citizens similar to my own project.

Schematic Design
From observing this project I've learned that when you take a major highway, many people of Detroit's economy are going to other parts of the city and you can get the message across.

Final Design
There are many people out there who give back to the city and have the resources.

Brittany Bryant | Denby high school architecture class
Education Station

My Topic: Education
I chose this topic because poor communities have lower levels of education.

Social: Raise the level of proficiency in low income communities.
Political: If public schools become more proficient in reading, then they could eventually receive more funding for their schools.
Economic: If the level of education eventually went up within these schools, it could help each get into a good college and eventually get a good job, which will help them and the economy.

Data Diagram
A map showing Detroit's population density and a bar chart titled "Only 4% of Detroit public school eighth graders are proficient or better in math and only 7% in reading." with a table of statistics for Michigan schools.

Case study: Mercy Education Project
I chose this program because this is a program that teaches math and reading and helps them develop more skills. They also offer after school programs such as after school meals, transportation, and after school activities. This is a good education and are considered.

Schematic design

an urban planner I can help my community and make it better.”

Smith added: “My favorite part about the class was being able to design something myself, having the freedom to design a bus shelter that would benefit people.”

Smith said he’s “extremely excited” about his classes at LTU. “I’m ready to increase my knowledge and be around like-minded individuals,” he said.

Markiewicz, for her part, said “the progress of the students throughout the semester was incredible. Many students did not believe they would be able to complete a final project but pushed through coming early, staying late, and even staying after school to make sure they presented a design they were proud of. These students tackled issues that some designers are not even talking about. In combination with their research and personal experiences, they produced impressive final presentations.”

An LTU adjunct professor who was also involved in the effort, Tiffany D. Brown, added: “Working with this group of kids was tough at first. But over time, Meaghan and I were able to form relationships with many of them and teach them about being a voice in their community, and to think about how architecture and design shapes their lives. I remember being a student at what was considered a failing Detroit Public School, and someone from LTU came to an assembly to talk about architecture. If I can reach at least one person in the room like that recruiter was able to do for me, I consider my mission accomplished. I truly enjoyed being part of this program.” □MR

3RD HR ARCHITECTURE CLASS

DENBY HIGH SCHOOL - DETROIT, MI



SESSION 1 - ARCHITECTURE 101

STUDENTS WENT THROUGH LESSONS IN ARCHITECTURAL METHODS, LEARNING HOW TO IDENTIFY, READ AND CREATE BASIC ARCHITECTURAL CONSTRUCTION DRAWINGS USING THE CONCEPTS OF MEASURING, SCALE, SYMBOLS, DIMENSIONS AND LABELS.



THE ARCHITECTURE OF MY COMMUNITY

For more information on how Lawrence Tech’s Marburger STEM Center can help other institutions create similar design-based educational and professional development events, contact Meaghan Markiewicz at mmarkiewi@ltu.edu.

Tost[ada] of the town

International student speeds up production at Detroit food firm

A Lawrence Technological University international student has helped a Detroit food company get faster and more efficient on the production line.

Ana Magaña, an industrial engineering major from Mexico City, first visited Hacienda Mexican Foods as part of an ergonomics class assignment from Donald M. Reimer, college professor in the College of Engineering.

Reimer has known the company's founding family since the 1980s, when they attended business conferences together. Co-founder Lydia Bermudez said Reimer has been both a friend and a business consultant as Hacienda grew from a food distributor in 1990 to a Mexican food manufacturer with several locations and 70 employees.

Gabriel Bermudez, Lydia's son, was looking for ways to make his company's operations more efficient and hit on the idea of using LTU student talent. Magaña visited the plant and said, "I really liked it, and I decided I wanted to work there."

So Magaña was offered a summer position. And Bermudez said Magaña "almost from the first day was a big contributor."

"When she came in, I gave her one problem, to analyze the process of how we manufacture tostadas," Bermudez said. "A tostada is a flat fried tortilla. It's very labor intensive, the process is very arduous, and the product is very fragile. I didn't frame what I wanted, I just told her to study it. After two weeks, she made a presentation and pretty much blew the whole staff away with what she was able to put together with minimal input. She was extremely well prepared."



LTU industrial engineering student Ana Magaña at the end of the tostada line that she helped improve for Hacienda Mexican Foods in Detroit.

Magaña said she studied the line to determine how workers spent their time, interviewed the most experienced employees, and developed new product handling techniques and changed the layout of the production line to reduce waste. She also implemented a new production logging form to gather more data about the product.

Magaña also conducted studies that sped up the cooling and drying process for tostadas and identified machine maintenance issues that caused variabilities in production.

Of the overall experience, Magaña said, "I loved it."

Magaña plans to graduate in May 2018. She's also a member of the Blue Devil golf team, which she said is how she heard about LTU – "I was in a program to look at colleges in America, and I wanted to study engineering, which is very difficult. A lot of coaches don't like it. But at LTU, they don't mind."

□MR



Tostadas – flat, fried tortillas, delicate and hard to handle – are packed for shipment.

Coming home to ... **LTU**

Hundreds of Lawrence Tech alumni returned to campus for festivities during Homecoming Week 2017. Some highlights are shared here.

Free footlong hot dogs? Don't mind if I do!



LTU's Bookstore set up shop just outside the Alumni Tent with the latest in Blue Devil fashion.



The Blue Devils scored out of this scrum in front of the opponent's net.

Old friends reconnected in the Alumni Tent.



Coming home CONTINUED



An LTU player gets ready to bury the ball in the back of the net.



Blue Devils dare to score again.



The LTU Dance Team and hundreds of spectators stand for the National Anthem.



The Home-coming alumni celebration included fun activities for all ages.



The LTU Dance Team provided pregame entertainment.



Members of the LTU Dance Team took advantage of a face-painting station.

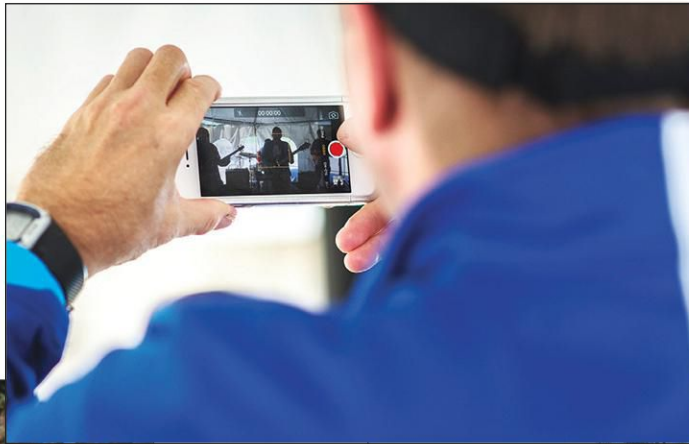


The stands were packed for the men's soccer game.



Save the date!

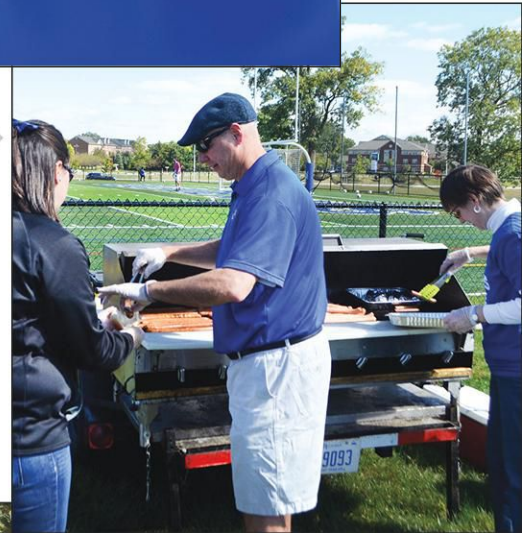
Homecoming Week 2018 runs Oct. 7–13, and will be capped by the University's first-ever Homecoming football game!



This alumnus apparently thought the live entertainment in the pregame Alumni Tent was good enough to commit to video.



Dean of Students Kevin Finn, center, on duty in his usual spot, cooked up free hot dogs for alumni and friends of the University. Dearborn Sausage donated foot-longs for the event.



The Blue Devil Pep Band provided lively entertainment.

The True Blue Society's evening celebration was a highlight of the week.



Homecoming week offers traditions, new events

For 85 years, Blue Devils have provided reasons to celebrate excellence. This year's Homecoming week was no exception. From student events that collected dollars for hurricane victims and canned goods for those in need in our local community, to alumni events that honored achievement and generosity, to exciting athletic contests, there was no shortage of accomplishments to celebrate.

For alumni, the week of activities culminated in the very first Blue & White Night: an evening of dinner, dancing, celebration, and the unveiling of the new Alumni House on campus. At the event, the first members were inducted into the new True Blue Society, created to recognize Lawrence Tech's most loyal alumni donors. Some of the inductees have been donating to the University for more than 35 years.

The LTU Alumni Association also donated \$20,000 toward the renovation of the Alumni House.

"This Alumni House reminds each of us that we do indeed always have a home here at LTU," said Diane Cairns, president of the LTU Alumni Association. "The commitment of the University to provide this house is just the beginning of our commitment to make it a home."

The Alumni House was designed by Earl Pellerin, LTU's first dean of the College of

Architecture and Design. It was originally occupied by E. George Lawrence, who carried on his brother Russell's dream, after Russell passed away unexpectedly just two years after founding Lawrence Institute of Technology. Following George's retirement in 1964, LIT alumnus Wayne Buell was named president and moved into the home, where he lived until his retirement in 1977. At that point, the house began its transition – first as LTU's Distance Learning Center, then serving as the Presidents Conference Center, and finally transitioning into the Professional Development Center. The house enters a new era as it is transitioned back into a home – a home for alumni. The space will now serve as an events and resource center for alumni returning to campus in the years to come. □KC

Event attendees enjoyed caricature drawings throughout the evening.



The first ever Blue & White Night featured dinner and dancing, accompanied by LTU alumnus Vic Favot's band, The Favorites.



Champion members of LTU's True Blue Society receive recognition at Blue & White Night for 20–34 years of continuous giving. Left to right are Roger Shtogrin, Chip Sestok, and Ken Cook, with President Virinder Moudgil.



Guardian members of LTU's True Blue Society Chuck Koury (left) and Jim Pizali received recognition at Blue & White Night for 35-plus years of continuous giving.



The LTU Alumni Association presents a check to President Virinder Moudgil for \$20,000 to begin the renovation of the Alumni House.

Left to right are Roger Shtogrin, Ron Muccioli, Rob McCalpin, Bill Schwerin, Anita Satkiewicz, Patrice Patrick-Banks, Gary Lowell, Chris Jasman, Moudgil, and Diane Cairns.



Ambassador members of LTU's True Blue Society receive recognition at Blue & White Night for five–19 years of continuous giving.

Left to right are Jerry Sobieraj, Mohammed Samhouri, William Polom, Eric Lewis, Rae Killips-Parker, Al Flamme, Joanne Wade, Paul Erickson, Susan Collet, Diane Cairns, and Edward Bisson, with President Moudgil.

Autonomous taxi research funded, feted

Lawrence Tech has begun the research and development of an autonomous campus taxi thanks to donations from several corporate partners.

Hyundai MOBIS, the parts and service division of the Korean automaker, donated \$15,000 for the purchase of a Polaris GEM e2 two-seat electric vehicle. Dataspeed Inc., a Rochester Hills engineering firm specializing in mobile robotics and autonomous vehicle technology, converted the vehicle to an autonomous drive-by-wire system.

Also donating to the effort were a pair of Ann Arbor high-tech firms. Soar Technology Inc. provided a LIDAR (laser-based radar) unit to help the vehicle find its way, while Realtime Technologies Inc., a simulation technology firm, provided a cash donation.

David Agnew, director of advanced engineering at Hyundai MOBIS, formally turned the keys of the vehicle over to LTU Provost Maria Vaz and C.J. Chung, professor of computer science, in a ceremony on the LTU campus. Vaz thanked the sponsors for providing a great learning and research opportunity.

LTU computer science students have already won an international award with the vehicle. They developed software to make the car operate autonomously – well enough that it took first place in the new Spec 2 division of the Intelligent Ground Vehicle Competition, held at Oakland University in June. The Spec 2 competition (IGVC), required multiple self-driving vehicle functions, such as lane following, lane change, traffic sign detection, obstacle avoidance, and left turns.

After winning at IGVC, team members began reprogramming the vehicle to serve as

an autonomous taxi on the LTU campus. It's been rechristened ACT, an acronym for Autonomous Campus Transport/ Taxi, in a naming contest won by Nick Paul, one of the team members. Chung said the University is planning to introduce Level 3 autonomy with the vehicle – allowing both hands and eyes off the road – by August 2018.

□MR



David Agnew of MOBIS hands over the keys of a Polaris GEM e2 converted to a drive-by-wire EV by Dataspeed Inc. to Maria Vaz, LTU provost.

Left to right: C.J. Chung (LTU faculty), Serge Danielson-Francois (LTU faculty), Gordon Stein (LTU faculty), Chris Kawatsu (SoarTech), Devson Butani (LTU mechanical engineering student), Avram Kluger (LTU advancement staff),



David Agnew (MOBIS), Mitchell Pleune (LTU computer science student), Jane Tarakhovsky (MOBIS), Nick Paul (LTU computer science student), Patrick Nelson (LTU faculty), Maria Vaz (LTU provost), Brian Neumeyer (Dataspeed), Alex Sebastian (Dataspeed), and Howard Davis (LTU advancement staff).

LTU student wins boat race poster contest

Graphic design senior Daniel Stack won the Metro Detroit Chevy Dealers HydroFest poster design contest held to celebrate a century of boat racing on the Detroit River.

Selected by a combination of online public voting and the selections of jurors, Stack's poster was produced in a limited print run and sold at the 2017 boat races, held in August. Stack also had the opportunity to meet fans and autograph his poster.

"The opportunity for LTU's graphic design students to participate in an extracurricular design competition for HydroFest offered an exciting real-world challenge," said Lillian

Crum, assistant professor of art and design. "Students enjoyed learning more



about the significant event in our Detroit community. While the results were ultimately close, Daniel's design conveyed informed aesthetic references and a quality that appropriately celebrates the 100 years of the event."

The HydroFest is one of the Motor City's longest-standing sports traditions and the longest continuously running hydroplane race on the H1 Unlimited circuit. The winner of the race receives the prestigious APBA Gold Cup, the oldest active trophy in all motorsports. □MR

Five alumni named to Engineering Hall of Fame

Five alumni were inducted into the LTU College of Engineering Hall of Fame during the University's Homecoming festivities.

"These alumni perfectly embody the University's longtime motto, 'Theory and Practice,'" LTU President Virinder Moudgil said. "They have achieved great success in their respective fields through innovation and leadership, using technology to make the world a better place."

Mitchell J. Clauw, BSME'86

Clauw's rise in engineering began as an LTU co-op student at General Dynamics and General Motors. He joined Chrysler Corp. after graduation, rising to senior manager of Dodge Truck Quality and Reliability by 1998. He is now head of global pre-programs, program management, and planning at Fiat Chrysler Automobiles (FCA), where he is responsible for ensuring the worldwide application of standard and robust engineering, research, and development estimation, product development, timing, governance, and financial processes. He holds two U.S. patents and is a longstanding member of the industrial advisory board at LTU's A. Leon Linton Department of Mechanical Engineering.

Judith Curran, BSEE'83

Curran began her career as an engineer for United Technologies and joined Ford Motor Co. in 1986. She worked on the first electronic controls for fuel injection in engines at Ford, and on the first electronic control to manage the shift strategy of automatic transmissions. She is now director of global vehicle components systems and engineering planning and strategy, where she has



From left to right are Engineering Hall of Fame inductees Judith Curran, Elizabeth Howell, James Danahy, and Cheryl Gregory, LTU President Virinder Moudgil, Hall of Fame inductee, Mitchell Clauw, College of Engineering Dean Nabil Grace, and LTU Assistant Professor Selin Arslan.

global responsibility for strategy, tactics, and cycle plan timing for significant cross-vehicle components and systems related to connectivity, electronics/infotainment, and interior/exterior and chassis functions. She holds eight U.S. patents. Curran serves as Ford's partnership champion for Lawrence Tech and is a member of LTU's College of Engineering Advisory Board. She received the LTU Alumni Achievement Award in 2014 and was named one of the 100 Leading Women in the North American Auto Industry by Automotive News in 2010.

James A. Danahy, BSME'89

As executive director and global functional leader of chassis engineering at General Motors since 2016, Danahy oversees eight directors and nearly 1,200 employees in Mexico, Korea, China, and the United States. He is responsible for the

global design, development, and performance for fuel system, suspension/steering, brake system, tire/wheel, driveline system, fastening, and powertrain interface components. A third generation GM employee, Danahy brings a performance mentality to the company's chassis team with his extensive experience working on the Chevrolet Corvette and the Cadillac XLR.

Cheryl L. Gregory, BSCE'88, PE

Gregory is vice president and senior transportation project manager at the private consulting firm of Spalding DeDecker, Inc., an employee-owned, Michigan-based civil engineering and surveying firm. Gregory joined DeDecker in 2003 and served as the transportation department manager and director of engineering, tripling the company's revenue in the transportation market. Gregory began her career as a civil engineer with the Michigan Department of Transportation (MDOT) after graduating from Lawrence Tech. In 1998, MDOT made her the first transportation service center manager in the MDOT Metro Region. She has served on LTU's Civil Engineering Advisory Board since 2010 and

volunteers regularly with local STEM initiatives at K-12 schools, helping students learn about careers in engineering.

Elizabeth Howell, BSEE'92

Howell grew up in a small town in northern Michigan and attended LTU on a Buell Honor Scholarship. She began her career as an engineer at DTE Energy and joined the start-up ITC Transmission, which later became the publicly-traded ITC Holdings Corp., the nation's largest independent electric transmission company. At ITC, Howell led the successful operational integration of two acquired companies and oversaw the startup of a new state-of-the-art control center. Since retiring from ITC, Howell practices as an independent consultant. She has returned the favor of her scholarship, establishing the Elizabeth A. Howell Endowed Scholarship in Engineering and championing the creation of the ITC Power Engineering Endowed Scholarship. Howell received the LTU Alumni Achievement Award in 2014 and is a member of the University's Board of Trustees.

□MR

LTU moves up in rankings – again

Lawrence Technological University has moved up in the rankings of “Midwest Regional Universities” according to the annual *U.S. News & World Report* survey of best colleges for 2018.

LTU has again been named one of the best universities in the Midwest, according to the Princeton Review. Only 156 colleges and universities in 12 Midwestern states made the list for 2018.

On the *U.S. News* list, LTU was ranked 38th among 165 listed Midwest regional universities. That’s up from 40th last year and 54th the year before that. And it puts LTU in the top quarter of the listed universities.

“The strong performance of our overall academic program in this prestigious national survey reflects our ongoing commitment to enhance the value of a Lawrence Tech degree,” said LTU

President Virinder Moudgil. “It is gratifying that LTU’s efforts are being recognized.”

U.S. News also placed Lawrence Tech on its list of “A+ Schools for B Students,”

which the magazine defined as schools where students who might not have been “superstars” in high school have a chance to be accepted for admission – and where they can grow and thrive.

Princeton Review editor-in-chief Robert Franek said the education services company “chose Lawrence Tech and the other outstanding institutions on this

list primarily for their excellent academics. We also give careful consideration to what students enrolled at the schools reported to us about their campus experiences on our student survey for this project.”

The Princeton Review’s list is



based on an 80-question student survey, a survey of administrators at several hundred colleges in each region, staff visits to schools, and the perspectives of college counselors and advisors whose opinions the company solicits.

The student survey included questions that prospective applicants might ask on a campus visit. The survey asks students to rate their colleges on several issues – from the accessibility of their professors to the quality of their science labs – and answer questions about themselves, their fellow students, and campus life.

The Students Say section of LTU’s listing on the website noted that “Lawrence Tech nets students that are ‘very driven and like to succeed.’ Indeed, ‘most students are very enthusiastic about their major and discuss their studies outside of the classroom’ ... They also stress that ‘there is no typical student at Lawrence Tech. Everyone is very different. There are athletes and computer programmers and

artists all mixed in with business majors and Greek life.”

The Princeton Review also cites Lawrence Tech as one of the nation’s top Green Schools for its environmental programs and focus. LTU is also ranked No. 29 in the country for top undergraduate programs in game design.

In October 2017, the Michigan-based news website Mlive.com released data from the U.S. Department of Education showing Lawrence Tech is fifth among the state’s colleges and universities for the average annual earnings of its graduates, at \$59,800.

Zippia.com, the San Mateo, Calif.-based career guidance website, ranked Lawrence Tech fourth in Michigan on its list for “best colleges for mechanical engineering majors.” The results were based on average earnings after six and 10 years in a career, the percentage of graduates at the institution who were mechanical engineering majors, rates of admissions and graduation, and cost and debt. □MR

Southfield Michigan Works! office now located in LTU Enterprise Center

The Southfield office of Michigan Works! moved to Lawrence Tech’s Enterprise Center, at 21415 Civic Center Drive, in July.

Michigan Works! was established in 1987 to provide services and support to Michigan’s workforce development system. It has eight offices in Oakland County. For the job seeker, Michigan Works! provides career management and job search assistance, labor market information, information about

upcoming job fairs, and weekly workshops to assist job seekers with every aspect of their search.

Services for businesses include talent recruitment, labor market information, and training support.

In Southfield, Michigan Works! has a new partnership with Cisco Net Academy to offer free access to self-paced courses in a variety of areas, including cyber-

security, IT essentials, mobility, and entrepreneurship. These training courses allow beginner to intermediate technical users to explore and become more familiar with career possibilities in information technology.

The Enterprise Center also houses the LTU Collaboratory, a business accelerator offering a wide variety of services to entrepreneurs and emerging businesses. □MR



The ribbon is about to be cut on the new Michigan Works! office.

Recognizing LTU's best at Lawrence Excellence Awards

Lawrence Tech faculty and staff gathered Oct. 10 for the annual Lawrence Excellence Awards to celebrate institutional eminence

The winners were:

■ **Justin Vail**, a systems analyst in IT Service Delivery, received the Mary Ann Marcum Customer Service Award.

■ **James Mynderse**, assistant professor of mechanical engineering, received the Henry B. and Barbara J. Horltd Excellence in Teaching Award.



Justin Vail



James Mynderse

■ **Eric Ward**, professor of practice in the College of Architecture and Design and director of the LTU-National Council of Architectural



Eric Ward

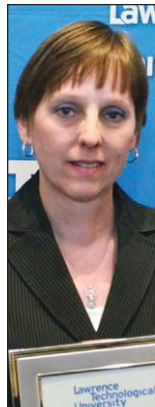


William Madden

Registration Boards (NCARB) Integrated Path to Architectural Licensure (IPAL) program, received the Teaching Using Technology award.

■ **William Madden**, associate professor of chemistry and director of natural sciences programs in the College of Arts and Sciences, received the Hsu Family Distinguished Award for Creativity.

Also presented were the Mary E. and Richard E. Marburger Awards, as follows:



Dorrie Frontera

■ Staff Person of the Year: **Dorrie Frontera**, secretary in the Office of Student Affairs

■ Faculty Member of the Year: **Liping Liu**, assistant professor in LTU's A. Leon Linton Department of Mechanical Engineering

■ Administrator of the Year: **Jody Gaber**, director of the LTU media communication program

■ Mary E. and Richard E. Marburger Champion for Institutional Excellence and Preeminence Award: **Lior Shamir**, assistant dean for research in the College of Arts and Sciences and associate professor of mathematics and computer science; and **Mary Ann Meltzer**, head coach of LTU's women's lacrosse team.

"We are delighted to recognize the extraordinary work of these individuals as well as the generous support of the donors who have provided honorariums," said Virinder K. Moudgil, LTU president. "The accomplish-

ments and innovative solutions that these awards recognize inspires us all." □MR

Congrats!



Liping Liu



Jody Gaber



Lior Shamir



Mary Ann Meltzer

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- Mechanical Engineering

LTU's Civil Engineering program is ranked fifth in the nation by U.S. News & World Report.

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'It's the right time, you're the right people, and you're in the right city'

With those inspiring words, Ford Motor Co. executive Marcy Klevorn helped kick off the new academic year for about 500 incoming first-year students at Lawrence Tech's annual Convocation ceremony, held in August.

She received LTU's fourth Global Citizen Award, presented annually to individuals who have shown great character and leadership in addressing global issues and promoting international understanding.

As Ford's executive vice president and president of mobility, Klevorn is responsible for Ford Smart Mobility LLC, which was formed in 2016 to accelerate the company's plans to design, build, grow, and invest in mobility services, as well as information technology and global data, insight, and analytics. She is also a member of the LTU Board of Trustees.

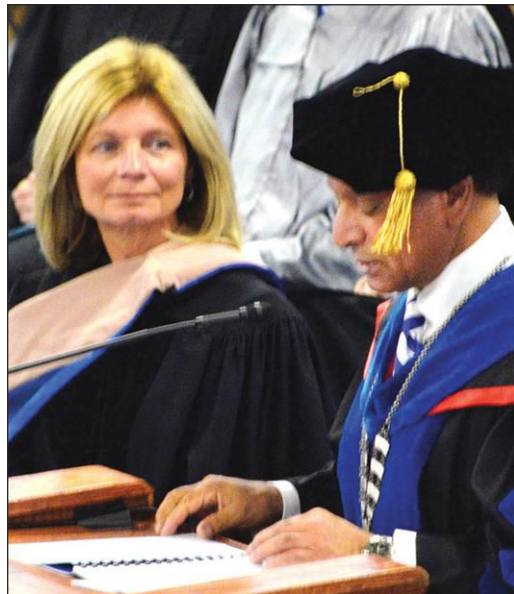
Klevorn noted that four great trends are shaping the future of both transportation and society:

- The growth of cities, which makes mobility more challenging
- Air quality is getting worse worldwide, although transportation is only the no. 3 cause of it, behind cities themselves and agriculture
- The growth of the global middle class, with fewer people living in abject poverty
- Changes in customer attitudes – thanks to electronics, customers now expect everything to happen at lightning speed

She told the students that they were the right people to meet those challenges, because "you grew up with technology, and you're accustomed to working collaboratively and working as a team."



Lawrence Tech's Class of 2021 and their families are welcomed to campus at the University's annual Convocation ceremony.



She said they're in the right place because "Detroit has been a tech hub since 1903. Innovation is in our DNA."

LTU President Virinder Moudgil also addressed the students, congratulating them on choosing LTU and introducing the University's deans and top faculty members. □MR

Marcy Klevorn, Ford Motor Co. executive vice president and president of mobility, smiles as she receives the Global Citizen Award from President Virinder Moudgil.

Global Village on the grow

Lawrence Tech's Global Village Project attracted a record number of students – 91 – as the program devoted to exposing new students to cultural diversity welcomed its sixth class.

Global Village dates back to 2012, when Virinder Moudgil became president of the University.

Lisa Kujawa, assistant provost for enrollment management, called Global Village "a great way to open the University in the fall, create a tradition for the start of freshman year, and most importantly, allow international students to see the state of Michigan. It opens their eyes and widens their ability to know who we are."

The program includes speakers, diversity exercises, and poetry readings from various cultures. The group also visits Underground Railroad sites and the Motown Museum and takes a Detroit architectural tour.

About 15 of the participating students were natives of the United States. The rest were international students, hailing from China, France, Germany, India, and Japan. □MR

Stormwater management: More public investment, more green technology

Urban growth and climate change are making stormwater runoff management an increasing challenge for the nation's civil engineers and urban planners.

More than 250 of them gathered at LTU to continue working on solutions at the fifth annual Regional Stormwater Summit. The event was sponsored by the Oakland County Water Resources Commissioner's Office and the nonprofit Pure Oakland Water.

Keynote speaker Helen C. Noehammer described how her employer, the city of Mississauga, Ontario, became the largest municipality in Canada to impose a stormwater runoff management fee on city water and sewer bills. Noehammer is director of transportation and infrastructure planning for the city.

The "stormwater charge," as it's called, raised \$41 million in 2016, its first year of existence – money badly needed to maintain her city's 1,200 miles of storm sewers, 51,000 catch basins, and 150 miles of stormwater ditches and swales along roadways and developed areas.

Before the stormwater charge,

Noehammer said, the city paid for stormwater management out of property taxes. That wasn't very fair, she said, because commercial buildings – factories, offices, multi-family housing – create the most stormwater runoff because of their large expanses of "hard surface area," meaning parking lots and roofs. Commercial land paid just 31 percent of the property taxes in the city. Now those properties pay 60 percent of the stormwater charge under the city's formula, which is based on the amount of hard surface area on a property. (That amount was determined using existing aerial surveys of buildings in Mississauga, a city of 800,000 on Lake Ontario just west of Toronto.)

There are various credit programs for commercial properties that install green technology to minimize runoff, and subsidies for places of worship, veterans' organizations, working farms, low-income seniors, and low-income persons with disabilities. Properties that drain directly into Lake Ontario are exempt, since management of the lake is the responsibility of the province, not the city.

Noehammer said a massive public information campaign before the charge was imposed included social media, postcards, bus shelter ads, and booths at community events. "Still, we surprised some people," she said. The owner of an average Mississauga home pays \$100 a year under the charge.

Organizers of the conference say stormwater management is a growing problem, given the increasing frequency of extreme rain events. Mississauga, for instance, has had six so-called 100-year floods in the past 13 years. Overwhelmed, aging stormwater systems can turn those rain events into flooded basements and streets.



Keynote speaker Helen C. Noehammer makes a point during her presentation.

"We can't build our way out of the problem underground, because there isn't room, and the cost would be staggering," Jim Nash, Oakland County Water Resources Commissioner, said at the event's conclusion. "Green infrastructure is the way to keep that water from ever hitting the system."

That includes green building technologies such as water-permeable pavement, and plant-based systems like green roofs and bioswales, using the earth's natural processes to minimize runoff.

Projects discussed at the conference included ReRoot, an urban farm planned for Pontiac that will include fruit trees and berry bushes, and a wide variety of runoff mitigation techniques in the 10-year, multi-billion-dollar rebuilding of Ford Motor Co.'s engineering complex in Dearborn. □MR



LTU Professor Don Carpenter, Oakland County Water Resources Commissioner Jim Nash, keynote speaker Helen C. Noehammer, and President Virinder Moudgil greeted guests after the event.



The summit included an industry exhibition, with more than a dozen companies displaying products and services for stormwater management.



The Architecture Auditorium was nearly full for the stormwater summit.

LTU deepens relationship with Detroit Academy

Several events over the summer and fall continued the close partnership between the University and Detroit Public Schools Community District's Sampson-Webber Leadership Academy.

In the spring, it was a rain-soaked dedication of an outdoor classroom, a partnership between LTU and the Ford Motor Co. Fund. A storm forced the event indoors for a while, but eventually the skies cleared, and the celebration went on.

The outdoor classroom, which is equipped with solar photovoltaic panels, a rain harvest system, and an instructional garden, will serve as a living, teaching laboratory for subjects from biology to earth science and physics. LTU's efforts at the school are coordinated through the Marburger STEM Center, established to improve and expand LTU's K-12 efforts to promote and encourage education and careers in the STEM disciplines – science, technology, engineering and mathematics – along with architecture and design. The project includes curriculum designed to teach students about the generation of renewable energy, conserving water, and reinforcing sustainability.

Later in the spring, LTU hosted a computer coding workshop for Sampson-Webber parents. The primary focus was to expose and engage parents in technology-related fields. The workshop was provided free, with additional resources provided for the parents to continue learning.

To introduce the workshop, Sibrina Collins, Marburger STEM Center executive director, talked about the importance of coding, using the popular film, "Hidden Figures," as an example.

"The movie highlighted the mostly untold story of three African American women – mathematicians all – who were major contributors to the race to space," she said.

Collins then taught the parents how to write computer code to create a program. They cheered when she announced, "You have now just written your very first program!"

Finally, in October, LTU recognized the first class of 16 Sampson-Webber Blue Devil Scholars. LTU established the Blue Devil Scholars Program in 2015. After graduating from Sampson-Webber, the scholars will attend Detroit Collegiate Prep at Northwestern, where they will earn not only a high school diploma but 12-15

college credit hours toward a STEAM degree from LTU. At a dinner at the school, the students received a certificate of appreciation, along with an LTU backpack and flash drive. These

students will be tracked through the rest of their middle and high school years to ensure their college readiness and will be eligible for scholarships to LTU. □MR/SC



Rain did not dampen the enthusiasm during the spring dedication of LTU's outdoor classroom at the Sampson-Webber Leadership Academy.



In the fall, LTU brought successful STEM professionals to the Sampson-Webber Leadership Academy to inspire middle school students.



After a brief thundershower, the ribbon cutting goes on, with LTU Provost Maria Vaz (fourth from left) and Marburger STEM Center executive director Sibrina Collins (fifth from right) representing the University.

LTU student wins national plumbing engineering scholarship

Architectural engineering student Rachel Gendich received a \$3,000 scholarship from the American Society of Plumbing Engineers (ASPE), the top award of its Alfred Steele Scholarship program.

"The education committee did a very thorough review of the applications," said ASPE President Mitch Clemente. "The

committee was very impressed with the candidates' achievements and goals and determined that three applicants should be recognized this year. The committee assigned a monetary value based on the applicants' ranking, and the Board of Directors unanimously approved the recommendations." □MR

Rost's photos a hit in China

A display of photos of a small Chinese village taken by Steven Rost, chair of the Department of Art and Design in LTU's College of Architecture and Design, was part of the "International Forum of Sustainable Development and Design" in Anlong County in south-central China over the summer.

Rost was invited to the 10-day workshop through a connection between Jin Feng, director of LTU's Master of Interior Design program, and the director of the event, who works for an urban design consultancy in China.

The government-funded workshop seeks to turn the Chinese village into a model of sustainability and artful design, while improving the local economy. The village in question is outside the city of Xingyi in Guizhou Province, just north of Vietnam.

"It's hilly, forested, with cone-shaped hills," Rost said. "The landscape is beautiful, the architecture is modest. Every square foot of available land is in agriculture." Tobacco, rice, and corn are major crops, and incense and corn whiskey are major exports from the area. And despite the



LTU Art and Design Department Chair Stephen Rost found these arresting images in the everyday life of a small Chinese village during a summer visit.

relative poverty, Rost noted, "Everyone is walking around with smartphones."

At the event, held at a local hotel, Rost showed his photographs, along with a presentation called "Image and Sense of City," about using the five senses to understand your place in an urban environment.

Rost said the presentations went well. How does he know?

"I got invited back for next year," he said with a laugh.

While in China, Rost also visited the Shanghai University of Engineering Science (SUES), a Chinese institution with which LTU has had a long and close working relationship. Visiting scholars from SUES will soon be working and teaching at LTU.

□MR



Innovation Encounter engineering competition marks ninth year

A design competition for engineering students invented at Lawrence Technological University is entering its ninth year with enthusiastic support from industry.

Initial financial support for Innovation Encounter came from the Kern Family Foundation. The Wisconsin-based foundation, founded by the family behind Generac generators, seeks to boost the level of entrepreneurship education in the nation's engineering schools.

Innovation Encounter is now self-sustaining through its sponsors. The competition itself was created by Donald Reimer, then a college professor of engineering at LTU, now an adjunct

professor and director of the event's planning committee. He based the competition on an innovation event that LTU attended at the Illinois Institute of Technology in 2007.

Since the first Innovation Encounter in 2010, more than a dozen universities from coast to coast have participated. Most have been members of a group of schools called KEEN, the Kern Entrepreneurial Engineering Network, universities that have had grant support from the Kern Foundation. Industry sponsors over the years have included ElingKlinger Automotive Manufacturing Inc., Faurecia, Ford Motor Co., Masco Corp.,

Continued

Microsoft Corp., Sundberg-Ferar Inc., and Visteon Corp.

Lawrence Tech won the event in 2015, placed second in 2014 and third in 2016.

"Innovation Encounter continues to engage students and industry in solving real-world engineering problems," Reimer said. "Lawrence Tech is proud to host this event as an example of the University's longtime motto, 'Theory and Practice.'"

In this year's competition, held in October on the LTU campus, Marquette University placed first, Ohio Northern University second, and Worcester Polytechnic Institute third. Student teams are given a real-world engineering challenge developed by the event's sponsor. This year, the sponsor was Dürr Systems Inc., the Southfield-based subsidiary of the German mechanical and plant engineering firm Dürr AG. Three Dürr engineers served as



Innovation Encounter participants and faculty.

the competition's judges.

The problem statement presented by Dürr focused on infrastructure upgrades of an existing automated industrial paint shop. The teams were challenged with doubling the production output, while not increasing the length or footprint of a coating systems production line.

Although Innovation Encounter is an engineering challenge, by the very nature of the competition, students

with non-engineering majors also add needed diversity to the teams. "It was interesting to watch the students' thought process as they tackled the challenge problem," said Tim Devries, Dürr project manager.

Designs and calculations were not enough to bring home the win. The teams also needed to show confidence as they presented their challenge solutions and answered questions asked by the Dürr judges.

"Innovation Encounter is an excellent opportunity for students to obtain practical experience with a real-world engineering issue," said Gina Zasadny, entrepreneurial coordinator at LTU. "This provides a terrific platform to stretch technical, creative, and business skills that will transfer to the workplace. Ultimately, this type of experience makes the student stand out among their collegiate peers." □MR

Award-winning architect: computers changed everything, but human touch still crucial

Technology has forever altered the practice of architecture, but architects will always need a deep human connection with their clients to make projects successful.

That was the word from John A. Vitale, BSAr'76, BAR'80, president of Royal Oak-based Stucky Vitale Architects, as he received the 2017 Distinguished Architecture Alumni Award from LTU's College of Architecture and Design.

In his lecture following the award presentation, Vitale outlined the many changes in the profession since he earned his degrees at LTU.

"The digital revolution has transformed architecture," he said – noting that the ability of computers and software to cre-

ate completely accurate three-dimensional models of designs, spin them around, and "fly" through them has made it far easier to communicate design concepts to clients.

However, he said, architects still should "always listen to the client. I can't stress that enough."

That goes beyond merely being attentive, he said – it involves a deep understanding of the ideas the client is trying to convey.

Vitale joined the firm he now leads in 1986 after working at Giffels Associates Inc., in Southfield. He became president of the firm in 1997.



Stucky Vitale has 20 employees and has been involved in numerous high-profile projects in the Great Lakes area, including the conversion of an industrial building into the headquarters of now-defunct Borders Inc., the Palladium in downtown Birmingham, the headquarters of Asset Acceptance Corp., and the Pontiac domestic violence shelter HAVEN. A current major project is the design of a 70-story mixed-use skyscraper in downtown Columbus, Ohio. □MR

John A. Vitale, winner of the 2017 Distinguished Architecture Alumni Award, is flanked by Nicole Gerou, BSAr'13, MAR'16, chair of the LTU Architecture Alumni Cabinet, and Constantine G. "Gus" Pappas, BSAr'77, BAR'78, FAIA, principal at CGP Architecture in Royal Oak. Pappas won LTU's Distinguished Architecture Alumni Award in 2006.

'The craziness keeps me sane' Dr. Scott Schneider, educator, activist, and fan

Scott Schneider, LTU associate professor, got interested in physics because it "explains how things fit together."

He got into sports because somebody asked him to be a guest volleyball coach. And now, Schneider describes himself as "happily addicted" to both.

That first night as an LTU guest volleyball coach, Schneider said, "I was lucky. They were winning, having an easy night, so I could do silly stuff like play 'Duck, Duck, Goose' around the huddle." So Schneider decided to attend a few other Lawrence Tech sporting events. Then like so many others who learn from athletic competition, he says his eyes were really opened by the attitude of LTU teams who weren't having such an "easy night."

"It's the determination our teams play with, even when they're down, even when there's no hope of winning – they still play as though they just need one more point," Schneider said. "How do you not cheer for that? How do you not root for that? So I'm addicted now, happily addicted."

The crazy get-ups that Schneider is now famous for were a gradual evolution, he says. "I noticed that Party City carries blue stuff, leg warmers, crazy wigs, so I just started buying stuff," he said. Now, at LTU contests, Schneider is – well, as he put it, "infamous is the word I think you're looking for."

Schneider said he even tries to follow LTU sports teams when they go on the road. "But I can't always because academics comes first," he said. "And that's another thing I like about our sports programs. The students are true scholar-athletes.

Academics comes first."

Speaking of that, Schneider said he's fascinated by astrophysics, the way physics explains the nature and behavior of planets and moons. He's working with a physics student on a senior project, investigating the forces and motions of the moon.

"One way of looking at it is that the sun should have ripped it away from us," Schneider said. "Since we still have a moon, we're looking more carefully at our calculations – hah!"

Schneider said he's inspired by his students, particularly undergraduates, saying "I feel like I can make more of a difference at the undergraduate level."

Schneider, a native of Poughkeepsie, N.Y., earned his bachelor's degree in physics from New York's Rochester

Institute of Technology, and his PhD in physics from the University of Albany in 1993. He came to LTU as a lecturer in 1992, became an assistant professor in 1993, and a tenured associate professor in 1999. Since 2001 he has also served as grand marshal at the annual Commencement exercises, leading the processional and escorting all students, faculty, and staff into the ceremony

"It's the right size school for me," Schneider said. "I'd get lost at a big school. I like that we're agile, small but scrappy."

Like most who love to teach, Schneider said he learns a lot from teaching.

"If I come out of a physics course and I haven't learned 17 new things that semester, I'll know that it's time for me to hang it up," he said.

And that learning extends to his sports persona: "It's fun to play the crazy, 'yelly' fool. But I'm actually an introvert by nature."

It also extends to his work in the community: "The students inspire me. I've become more socially aware, more of a social activist, over the past four to five years," he said. He serves as faculty advisor for the LGBT student organization, OUT! At LTU With Friends, and supports his latest cause, breast cancer awareness.

LTU's athletic staff nominated Schneider to be the University's representative in the "Real Men Wear Pink" campaign to raise funds for breast cancer research, and so throughout October, Schneider wore a different combination of pink attire every day. Schneider is also faculty advisor for the Society of Physics Students and an advisor for the Delta Phi Epsilon sorority.

"I've gotten pretty good at attracting people's attention," he said. "The craziness keeps me sane." □MR



LTU associate professor Scott Schneider (in the blue beard) in his familiar role as Fan No. 1 of LTU athletics ...

... and in his equally familiar role as grand marshal of LTU's Commencement exercises.

LTU offers a safe look at the solar eclipse

Lawrence Tech's campus was the site of a major solar eclipse watching party on Aug. 21, the first day of fall semester, as Associate Professor Scott Schneider set up solar telescopes on the University's quad for public viewing.

Schneider, a physics teacher and an avid amateur astronomer, had the telescopes ready from about 12:30 p.m. to the conclusion of the eclipse shortly before 4 p.m.

Michigan was not in the path of totality for the eclipse, but at its peak, at 2:27 p.m., more than 79 percent of the sun's disk was covered by the moon, causing a noticeable dimming of the sun's brightness outdoors. □MR



Hundreds gathered on the LTU quad to view the eclipse in a variety of ways.



Associate Professor Scott Schneider, in a pink cancer awareness hat and shirt, helps youngsters get a safe view of the eclipse through a solar telescope. Students, faculty, staff, and community guests responded to his invitation to witness the event on the campus quadrangle.



A thin layer of cloud couldn't obscure the magnificent sight of a near-total solar eclipse.

Symposium covers tech as a force for social good

Technology can be used to serve the public good and promote inclusiveness, a panel discussion at Lawrence Tech argued during Homecoming week.

"Inclusive Technology: Seeking to Do Good" was part of the annual President's Symposium Series, and hosted this year by the College of Architecture and Design. Created by LTU President Virinder Moudgil, the President's Symposium Series focuses on technology and its applications to improve the quality of life.

Panelist Mercedes Mane, a serial entrepreneur, talked about her background, which included a failed attempt at designing an electric vehicle, and a successful

digital fabrication consultancy called the Product Manufactory. Among the projects she's now involved in are a countertop "smart oven" coupled with a meal plan to offer the average person gourmet meals, and an internet-connected moisture sensor that tells users when to water their plants.

Meg Green, experience architect at Brighton-based Pillar Technology Group LLC, spoke of a teaching career that turned into user experience design, and praised an app for diabetics that closely monitors blood sugar levels.

Malcolm McCullough, professor of architecture at the

University of Michigan, gently mocked the "techno utopian future," but also pointed out that the world today is more prosperous and less violent than ever before, thanks in large part to technological advances.

And Julie Bateman, director of operations at Ypsilanti-based Vayu LLC, talked about her company's large unmanned aerial vehicle, designed to transport medical supplies to the world's one billion people who lack access to all-weather roads.

"We have this situation in the world now where there is abundance, but that abundance is not shared in a way that

eliminates poverty,"

Bateman said. "I think technology's role is to find the means to solve that. We have enough fresh water, we have enough food, we certainly have enough educated people to share knowledge with people who lack basic education ... I think the really interesting market to look for, and the way we start to spread this abundance more evenly, is developing tools for communities to better access clean water, housing, education." □MR



LTU prof, alumnus, student form Wards Auto panel

Based on *this* conference session, you could be forgiven for wondering whether the whole future of automotive user experience is at Lawrence Technological University.

The automotive industry news magazine and website Wards-Auto held a User Experience Conference in October at the Suburban Collection Showplace in Novi. The afternoon keynote panel, "The Future of UX Design," consisted of an LTU professor, an LTU alumnus, and an LTU student.

Keith Nagara, BSME'95, MAE'01, director of the transportation and industrial design programs at LTU, traced the history of automotive manufacturing, currency, and people's preferred lifestyles, and said the future of the automotive user experience will parallel them.

In manufacturing, transportation went from "coachbuilders" painstakingly constructing one-of-a-kind carriages, to mass-produced assembly lines using interchangeable parts that the typical person could afford, to automotive dealers adding other services, to today's Zipcar, Uber, and Lyft services, allowing people to use a car for a few hours or even just a few minutes.

In currency, Nagara traced the evolution from barter to precious-metal coins to paper currency to credit cards to digital currency. In terms of population, today, for the first time in human history, more than half the population lives in urbanized areas, a trend that's only accelerating, he said. All these things will drive the future automotive market.

Panelist Emilio Feliciano, BSTD'10, user experience designer at FCA US LLC, spoke of his work as an adjunct professor at LTU, where he has a class

of automotive design students who have been charged with "designing an experience that enhances a group's or individual's quality of life." The charge was left a bit vague intentionally, Feliciano said, to give the students maximum flexibility. The students are bringing social-media and immersive-reality technology experiences to the automotive world, he said, as well as applications that deal with caregiving in an aging population. Feliciano's work at FCA has included designing the 2017 Chrysler Portal vehicle concept.

Wrapping up the panel was Anushka Ghatia, a senior industrial design student at LTU. Now an intern at Honda, she described designing a new model for education – an app that allows people to pick indi-



Keith Nagara, Emilio Feliciano, and Anushka Ghatia.

vidual instructors in specific skills they'd like to learn, from playing a musical instrument to dancing. She said she was inspired by the "shared economy," in which the world's largest media company, Facebook, produces none of its own content, the world's largest lodging service, Airbnb, owns no real estate, and the world's largest taxi company, Uber, owns no vehicles.

Panelists predicted that the future of the auto industry will include more of those shared economy concepts – and more "wow factor" technology, such as the large touch screens increasingly common as part of, or even in lieu of, traditional instrument panels. □MR

Young Women's Leadership Conference a big success for College of Management

The College of Management held a Young Women's Leadership Conference in October, drawing a strong crowd of almost 170 to campus.

The event provided girls and young women at the middle school, high school, and undergraduate collegiate levels with wide-ranging exposure to business, technology, and the STEM fields.

"The goal was to help build a network of support to empower young women, to provide them with an opportunity to learn about business and technology careers and pathways to success," said Minakhi Jena, director of business programs in the College of Management. "It was an excellent opportunity for young women to interact

and learn from accomplished women who work in a variety of fields – business, information technology, and STEM."

Conference keynote speaker Andra Rush, CEO of the Rush Group of Companies, spoke on building businesses in male-dominated industries. Rush launched Rush Trucking Corp. in 1984 with a \$5,000 loan and \$3,000 in savings. Today, Rush Trucking transports goods for Fortune 50 com-



Andra Rush

panies across the United States and Canada. She also launched Dakota Integrated Systems in 2001, providing assembly and sequencing of automotive interiors to several automakers. In 2012, with joint venture partner Faurecia, she launched Detroit Manufacturing Systems, a company that now employs more than 1,000 people.

Rush provided anecdotes and examples of how hard work and determination paid off in building her businesses and urged the audience members to dream big.

The event also included a panel discussion on leadership and entrepreneurship, as well as a leadership development exercise. □MR

Technology in Motion Conference features LTU STEM leader

Sibrina Collins, executive director of LTU's Marburger STEM Center, spoke in a panel discussion focused on improving diversity in STEM occupations at the Technology in Motion (TIM) Detroit Conference, an event showcasing advances in autonomous and connected vehicles held in September at Cobo Center in Detroit.

The panel, entitled "Solving the STEM Talent Problem through Diversity," was moderated by Don Hutchinson, dean of engineering, manufacturing, and industrial technologies at Oakland Community College. Other panelists were Seun Phillips, vice president of education and engagement at the Michigan Science Center; Chris Ciuca, director of pre-professional education for SAE International; Shannon

Zuniga, director of the M-STEP Academies at the University of Michigan; and Angela Thompkins, head of diversity, inclusion, employee experience, and talent acquisition for Consumers Energy.

Each panelist provided an overview of the ongoing pro-

gramming efforts at their organizations to solve the STEM talent gap, specifically in Southeast Michigan. Collins' remarks focused on the Blue Devil Scholars Program, also known as the Blue Devil Promise, an innovative partnership with the Detroit Public Schools



Community District (DPSCD) to enhance STEAM (science, technology, engineering, architecture/art, and mathematics) education in DPSCD institutions.

Collins said one of the challenges that limits diversity in the STEM fields is effectively engaging colleagues to support diversity and inclusion efforts. "You have to work with your colleagues who 'get it' first and make an impact," Collins said. "Your other colleagues will eventually come on board and want to contribute and be a part of the effort."

LTU's new Autonomous Campus Transport/Taxi (ACT) vehicle was also on display in front of the Spirit of Detroit statue as part of the conference. □ SC

Sibrina Collins, executive director of LTU's Marburger STEM Center, at left, makes a point at the Technology in Motion conference.

Biomedical engineering design course looks at wearable tech

Wearable technology is an exciting area of the consumer electronics industry that has led to the creation of new products for fashion, sports, lifestyle, computing, and health, all of which include electronic or computer capabilities.

With products running the gamut from health trackers to virtual reality and augmented reality headsets, the industry attracted nearly \$1 billion of venture capital funding in 2015 alone.

These devices are coming not only from big electronics companies but also from the maker movement, which has opened the door for hobbyists,

inventors, and hackers to turn concepts into products by focusing on technology gaps and customer needs through rapid prototyping.

A new course in LTU's Department of Biomedical Engineering, Wearable Technology Studio, aims to unite maker-style skills and cross-disciplinary design project teams to develop wearable technology products.

The course recognizes the increasing popularity of wearable devices that include many sensors – from accelerometers to measure motion to heart rate, EKG, and EEG sensors to monitor body functions. The students are encouraged to learn design and

human-computer interaction concepts more frequently found in industrial design and interaction design courses.

The course's studio format includes a combination of interactive demonstration sessions, simple hands-on activities, and two guided four-week design projects. The students' midterm project is to 3D print and assemble a smart watch.

During the second half of the course, students form groups and complete self-determined wearable technology product development projects. Their projects must address user interaction, mobile app development, materials and manufacturability, funding, marketing, and differentiation from competing products.

"In the first week of the class the students used and then investigated the capabilities and

marketing strategies for different types of AR/VR products, including Microsoft HoloLens, Google Cardboard, Oculus Rift, and HTC Vive," said Eric G. Meyer, assistant professor of biomedical engineering.

Said Mansoor Nasir, assistant professor of biomedical engineering: "Students need to understand the capabilities of these products before they can think of various applications." He added that augmented reality and virtual reality products "can be used for clinical training, simulated surgery, and classroom learning – and the inclusion of haptic feedback can make these experience-based products even more realistic." □

LTU joins academic consortium for connected, autonomous vehicles

Lawrence Technological University was one of 15 colleges and universities across Michigan to sign an agreement in October creating the Academic Consortium of the American Center for Mobility (ACM).

The aim of the consortium is to train the next generation of high-tech talent at the center, located at the former Willow Run plant, in the latest connected and automated vehicle (CAV) technologies.

"Lawrence Tech is a natural part of this consortium, since we are and have been a leader in these technologies," President Virinder Moudgil said. As an example, Moudgil mentioned ACT – the Autonomous Campus Transportation taxi – now under development at LTU. The aim is to have an autonomous electric car acting as a taxi for students around campus by next fall.

In the agreement, ACM and the Academic Consortium will partner to create educational opportunities to train and prepare students to support automated vehicle testing and implementation. Consortium members will work together to identify workforce courses and training programs, as well as recruitment opportunities, internships, co-op, and work-study programs.

ACM is a nonprofit testing, education, and product development center designed to enable safe validation and certification of connected and automated vehicle technology. It is one of 10 automated vehicle proving grounds designated by the federal Department of Transportation. It is also part of PlanetM, a transportation collaborative of industry, government, and academia set up by the Michigan Economic

Development Corp.

Nabil Grace, dean of the College of Engineering, signed the agreement on behalf of LTU. Said John Maddox, president and CEO of ACM: "This first-of-its-kind collaboration will solidify Michigan's place as a global hub for CAV tech-

nologies and future mobility, as well as ACM as an incubator to address the specific needs of industry to drive the future of transportation."

The other members of the consortium are Eastern Michigan University, Grand Valley State University, Kettering University,

Macomb Community College, Michigan State University, Michigan Technological University, Oakland University, University of Detroit Mercy, University of Michigan, Ann Arbor and Dearborn, Washtenaw Community College, Wayne County Community College, Wayne State University, and Western Michigan University. □MR

LTU shines at biomedical engineering conference

Lawrence Technological University was well represented at the 2017 annual conference of the Biomedical Engineering Society (BMES), held in October in Phoenix, Ariz.

On the research end, two graduate students, Nicole Ravenscroft and Andrew Lyzen, and two undergraduates, Angelica Guardia and Kathm Alismail, presented research posters.

Ravenscroft presented four posters. She reported her research on developing a micro-fabricated device for studying

the toxicity of various agents to endothelial cells – the cells that line blood vessels. She also presented a poster about a micro-fluidic device to detect MRSA bacteria.

Lyzen presented his master's research project on designing a bioreactor to promote the differentiation of a certain type of stem cells, called mesenchymal stem cells, to regenerate cartilage.

Guardia and Alismail presented their undergraduate research on developing a scaffold made of collagen, the body's most

abundant protein, for ligament tissue engineering.

Mansoor Nasir, assistant professor of biomedical engineering, made two presentations in the education track. The first, which won the best poster prize, was a poster on the importance of design and prototyping for biomedical engineers, and it included classroom assignments developed by Nasir and Eric Meyer, assistant professor of biomedical engineering, to practice these skills. The second was a presentation on the unique collaboration between LTU and University of Detroit Mercy students to create prototype products to assist people with disabilities as their senior capstone projects. □MN

Manufacturing Day at Comau

Lawrence Technological University sponsored a visit by students of Oakland Schools Technical Campus Southeast to the Southfield Innovation Campus of the Italian industrial automation manufacturer, Comau. The visit was part of a statewide celebration of Manufacturing Day on Oct. 6, in which more than 1,200 high school students from around the state toured a wide variety of companies to learn about the future of modern, next-generation manufacturing. At Comau, students participated in hands-on activities that included robotics, industrial planning, and welding.



DIT alum, 'father of modern basketball,' named to Athletics Hall of Fame

Imagine a basketball game where the rules required a "jump ball" after every made basket. Sounds like a snoozefest, right? So much for those exciting fast breaks.

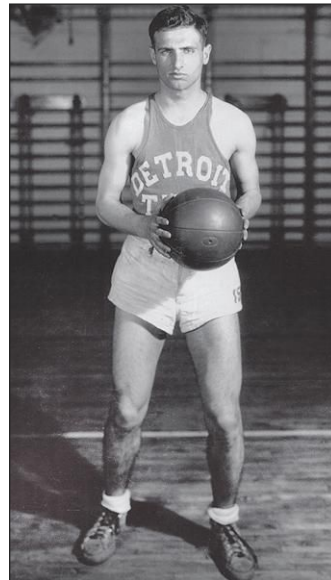
Well, you can thank a Detroit Institute of Technology alumnus – and the latest member of the LTU Athletics Hall of Fame – for ending that rule back in 1936.

Julius "Goldie" Goldman was born in 1910 in Mayesville, S.C., to Lithuanian immigrants who moved to Canada when he was 2 years old. Raised in Windsor, Ontario, Goldman was a four-sport star at what is now W.D. Lowe Secondary School in Windsor. He crossed the border to attend DIT, 1928–32. (DIT assets, including student transcripts and alumni programs, were transferred to LTU when DIT closed in 1981.)

Goldman was the nation's leading collegiate scorer in 1932. And in 1935–36, he was a member of the Windsor Ford V-8 company team that won the Canadian championship, qualifying them to represent Canada in the 1936 Olympics in Berlin, Germany. But as a U.S. citizen, Goldman couldn't play for Canada. He was even offered Canadian citizenship, according to his family – but declined, when he found out he couldn't switch back to U.S. citizenship after the Olympics. Instead, he became an assistant coach for Canada, and its representative on the Olympic Basketball Rules Committee.

While on that committee, Goldman pressed for the elimination of the jump ball after every basket, and prevailed. (The

only vote against? James Naismith, who invented the game.) Canada would go on to earn a silver medal in Berlin, losing the gold to the United States 19–8 in a game played outdoors in a driving rainstorm on a muddy clay court.



Julius "Goldie" Goldman

After his basketball career, Goldman was a math teacher, athletic director, and basketball coach at Detroit Tech from 1937 to 1950, leading his team to a 143–75 record. He also officiated basketball and football for 43 years for the Detroit Catholic Schools Association.

During World War II, Goldman worked at Smith, Hinchman & Grylls in Detroit as a principal designer of ammunition. In 1944, he designed and developed the 155 mm howitzer anti-tank shell that allowed Allied Forces to turn the tide against Germany's "invincible" Tiger tanks. He later worked as an executive with both Federal Engineering and Fisher Body in Detroit, retiring in 1965. He then resumed his teaching career at Oakland Community College in 1970, teaching math until he finally retired for good in 1995 at the age of 85. He died in 2001. □BJA

LTU grad Perelli the man at GM for steering, suspension

If you drive a General Motors product and marvel at its nimble handling, you now have a Blue Devil to thank.

Dean Perelli, BSME'85, has been named director of steering, suspension, and structure for GM worldwide. He was previously vehicle chief engineer responsible for midsize crossover vehicles in North America, where he supervised the rollout of the all-new 2018 Chevy Traverse and Buick Enclave.

Perelli was born in Detroit and grew up in Dearborn Heights, graduating from Crestwood High School in 1980. He started off pursuing education in accounting at Henry Ford Community College, but by chance



Dean Perelli

took a physics course. "That got me interested in engineering, and I talked to a friend of mine who had just graduated in engineering, and I decided this was

something I wanted to pursue," Perelli said.

After two summer jobs with GM, he was hired full-time in 1985 as an associate engineer in manufacturing. He moved to product engineering in 1990, where he acted as a design release engineer for various components. A series of promotions followed beginning in 1997. Included was a five-year stint in Brazil, where he was in charge of the rollout of a midsize truck, the S10 Colorado, and an SUV version, the Trailblazer, which is sold worldwide except in North America.

"Every assignment has had its own challenges," Perelli said of his 32-year career at GM. "When I was in Brazil, we were engineering a global midsize truck that was going to enter some markets that were very affluent,

and others that were emerging. We were building it at a plant in Brazil and a plant in Thailand, with engineering in Japan. It had to be a design that could handle all markets."

Of his LTU education, Perelli said, "It opened a lot of doors. I've met a lot of Lawrence Tech grads in the industry. Lawrence Tech is a great engineering school with a great reputation in the industry. It served me very well, and gave me the foundation for my career."

Perelli is married and the father of three – a son, who's also an engineer at GM, and two daughters, one a teacher in Novi and the other a fashion merchandising graduate who works in retail. His brother Alan, BSME'95, is an engineer in the auto industry too – but at Ford Motor Co. □MR

ALUMNI NOTES

Alumni Notes

Alumni Notes includes news gathered from alumni, their families and friends, and media reports. Submissions received after the deadline for this issue will be published in the summer/fall 2018 issue. Use the form in this section to share news about yourself and alumni you know!

Michael W. Fitzpatrick, BSME'73, received the 2017 Sam Cupp Impact Award by Winning Futures. A nonprofit, Winning Futures partners with metro Detroit high schools to provide weekly mentoring sessions. Michael has mentored more than 100 students in the last 20 years. He is vice president and former owner of Fitzpatrick Manufacturing in Sterling Heights and the first mentor in Winning Futures to reach 20 years of mentoring.

Robert Piatek, BSAr'73, BAR'77, AIA, LEED AP, received the Charles Blessing Award from AIA Detroit. Robert is associate principal and senior vice president at HKS.



Douglas W. Kuefner, BSAr'74, received the 2017 Robert F. Hastings Award from AIA Michigan. Douglas

is a partner at WTA Architects, and he also has an MArch from Washington University.

David Wynkoop, BSIM'74, was named a director of Bello Machre Inc. A nonprofit based in Glen Burnie, Md., Bello Machre (which means "home of my heart" in Gaelic) provides services to developmentally disabled persons. David has more than 30 years of administrative experience in health care, both in the U.S.

Navy and in the private sector. He also earned a MA in health care administration from George Washington University and resides in Annapolis, Md.

Constantine "Gus" George Pappas, BSAr'77, BAR'78, FAIA, earned the Gold Medal Award from AIA Detroit. Gus is the founding principal of Constantine George Pappas Architecture & Planning.



John Czarniecki, BAR'78, BAR'79, MAR'09, AIA, DBIA, LEED AP, has returned to Southfield-based Barton Malow Co. as

its newest senior director. John spent 21 years at Barton Malow from 1981 to 2002.

Kevin J. Blaser, AMET'82, BSIM'84, was promoted to plant manager at the Dearborn Tool and Die plant located within the Ford Motor Co. Rouge Complex. After 28 years in stamping engineering, Kevin is now responsible for delivering large panel stamping dies for new model vehicle programs.

Brian Fifelski, BSAr'86, BAR'93, MAR'09, RA, is the new national senior project manager and owner's representative for design and construction at the Detroit office of Concentra Medical Clinics, one of the nation's largest providers of urgent, occupational, and physical therapy care.

Victor Silvino, BSBA'87, was named Philippine country manager for VMware Inc., a subsidiary of Dell Technologies that provides cloud computing and platform virtualization software and services.



John Waldrop, BAR'87, was promoted to principal and now serves as director of operations at the Bloomfield Hills firm TMP Architecture. He worked for the firm from 1994-2001 and returned in 2015.

Pat Williams, BSBA'92, the township supervisor of Canton (Mich.) Township, was elected to serve on both the Regional Clearinghouse Review Committee (RC2) and Transportation Coordinating Council (TCC) for the Southeast Michigan Council of Governments (SEMCOG).



James C. Roach, MEMS'94, is a senior manager, purchasing-supplier relations, at FCA US LLC. He was recently appointed head of

innovation for FCA US Purchasing in addition to his responsibilities for warranty management.

Teresa Davis, MSAT'96, was named superintendent of the Mount Clemens Community Schools.

Michelle "Shelley" L. Johannes, BSAr'96, has published a children's chapter book, "Beatrice Zinker, Upside Down Thinker." This is Shelley's first published book.

Cary B. Wood, MSIO'96, was named president and CEO of Angelica Corp., a provider of health-care linen and medical laundry services in Alpharetta, Ga. He has formerly served as president and CEO of Sparton Corp., interim CEO, COO, and group vice president at Citation Corp., and held various leadership positions at Delphi, UT Automotive, ElKay Manufacturing, and Formica. He is a member of the University's Board of Trustees.

Deb Brazen, BSAr'99, MAR'02, RA, NCIDQ, LEED AP BD + C, has joined the architectural staff of Bloomfield Hills-based TMP Architecture Inc. She is working on projects for Michigan State University, Oakland Community College, and St. Clair County Community College. Deb was previously director of project planning and cost estimating, facilities planning and management at Wayne State University.

Salvatore "Sam" Moschelli, BSAr'00, MAR'06, AIA, LEED AP, has received a Young Architect Award from AIA Detroit. Sam is an architect with Integrated Design Solutions.

Hassane El-Khoury, BSEE'01, was elected to the board of the Washington, D.C.-based Semiconductor Industry Association. He is president and CEO of San Jose, Calif.-based Cypress Semiconductor Corp.

James R. Warren, MBA'04, was named president and CEO of the Forging Industry Association (FIA). The FIA includes 200 North American metal forging producers, suppliers, and service providers. James has 30 years of trade association experience working with manufacturers, and related organizations. As president and CEO, he is overseeing all FIA initiatives and is accountable for its overall financial and operational success.

Meredith McLellan, MAR'05, AIA, has earned a Young Architect Award from AIA Detroit. Meredith is an associate and project manager with Smith-GroupJJR's Workplace and Building Technology Studios.

Francis Wilmore, BSAr'06, has joined KKT Architects, Inc., in Tulsa, Okla., as a design director.



Lauren Christenson, BA'09, BIA'09, was promoted to associate by the Bloomfield Hills firm TMP Architecture.

She joined TMP in 2011.



Matt McCaffrey, MCEM'09, PE, LEED AP, was promoted to project executive in Houston, Texas by the construction

and development firm Skansa USA. He joined Skansa in 2003 as an intern and was most recently a senior project manager.



Nicole Gerou, BSAr'13, MAR'16, was accepted into the inaugural class of the Christopher Kelley Leadership Development Program by the AIA Detroit chapter. Nicole is an architectural designer at Hamilton Anderson Associates in Detroit.



Christopher Hess, MAR'13, AIA, LEED AP, was promoted to associate at the Bloomfield Hills firm TMP Architecture

Inc. He joined the firm after his graduation from LTU.

Scott Barnes, MAR'14, has joined A3C Collaborative Architecture as senior project architect. Scott will oversee A3C's Education Work Group and General Practice Studio.

James W. Thomson, MAR'15, AIA, NCARB, was named vice president and managing principal of the Midwest region Buildings + Places practice by the global infrastructure firm AECOM. James has 23 years of experience in design and leadership and expertise in healthcare.



Michael Rinkus, DBA'16, was appointed executive vice president and chief academic officer at Walsh College of Troy.

He had served as interim executive vice president and chief academic officer since April 2016. He has worked at the college for nearly 30 years, after executive positions at Comerica Bank. He also has an MA in management from Central Michigan University and a BSBA from Wayne State University.

News for Alumni Notes

Complete this form and tell us about yourself or your fellow Lawrence Tech or DIT alums. Mail to the Office of Alumni Relations, or email alumni@ltu.edu. Tell us about honors, promotions, marriages, appointments, and other activities.

New Address?

Name _____

Street _____

City State ZIP _____

Home Phone () _____

Email _____

Use the email address above or mail to:
Lawrence Technological University, Office of Alumni Relations
21000 West Ten Mile Road, Southfield, MI 48075-1058
Fax: 248.204.2207

F R I E N D S W E ' L L M I S S Friends We'll Miss

Information for this section is gathered from family and friends of the deceased and from newspaper and electronic media accounts. When providing an obituary, please furnish as much information as possible, including the date of death and any Lawrence Tech- or DIT-connected survivors and their graduation dates. If sending a newspaper clipping, please include the date and name of the paper.

Frederick R. Porter, BSChE'41, of St. Johns, Mich., Sept. 18, 2017. Mr. Porter was a World War II veteran who served in the Army Air Corps. He worked for Schmieg Industries for many years and retired from Ford Motor Co. as an environmental engineer with more than 17 years of service. He is survived by three children.

Donald L. Harshman, BSME'48, of Lathrup Village, Aug. 20, 2017. Mr. Harshman retired as an engineer at the GM Tech Center, then worked at Borg Warner. He is survived by four children.

John G. Valerio, BSME'48, of Dearborn, March 25, 2017. Mr. Valerio was an Air Force navigator during World War II, and an engineer with Ford Motor Co. His hobbies included assembling his first car as a teen from junked parts, to building a replica 1929 Mercedes-Benz Gazelle roadster in his retirement. He is survived by three children.

Roy Thomas Heady, BSAeE'49, of Lexington, Ky., Sept. 25, 2017. Born in North Bay, Ontario, he served in the Royal Canadian Air Force, 1942-45, and became a naturalized U.S. citizen in 1947. Mr. Heady was recording

secretary of the LTU Alumni Association Board, 1961-62; and treasurer, 1962-64. He is survived by five children.

Lewis C. Castagna, BSME'50, of Livonia, July 14, 2017. He is survived by two children.

Walter J. Moore, BSME'50, of Rochester Hills, July 31, 2017. Mr. Moore served in the Army Air Corps in the Pacific during World War II. He had a long career in engineering, retiring from Williams International in 1988. He is survived by four children.

Walter E. Moritz, BSArE'50, of West Bloomfield, June 3, 2017. Mr. Moritz served in the United States Army. Following his discharge, he was an architect for the City of Detroit until he retired. He is survived by his wife, Frances.

Maxwell O. Spilsbury, BSME'51, of Livonia, Sept. 14, 2017. He is survived by his wife, Jeanette.

Paul J. Stenberg, BSAeE'51, of Sun City Center, Fla., Aug. 10, 2017. He is survived by his wife, M. Lucille, and three children.

Leo V. Peterson, BSME'54, of Bloomfield Hills, June 23, 2017. Mr. Peterson earned his mechanical engineering degree through night school classes while helping his father run the family business, Peterson Machine Products Corp. During his career he also started two other businesses, Multi-Automatic Equipment & Service Co. and RMZ. He is survived by his wife, Helen, and five children.

William T. Sheppard, BSCvE'54, of Tallahassee, Fla., May 7, 2017. He is survived by three children.

Richard G. Mitchell, BSIE'55, of Gladwin, Aug. 2, 2017. He is survived by his wife, Nadra.

James D. Rea, ABCT'57, of Northville, Sept. 1, 2017. Mr. Rea served in the Army during the Korean War. In 1959, he bought his first bar, The Jade, in Detroit. Over the years, he owned and operated three other bars in Detroit and Northville before building The Starting Gate in 1984, which became a mainstay in Northville. He is survived by his wife, Mary Margaret, and two children.

Frederick E. Garrity, Jr., BSArE'58, of Danville, Calif., May 5, 2017. Mr. Garrity served in the Air Force during the Korean War. Throughout his career he worked in city planning, architectural drafting, building inspection, and started his own business, Fred Garrity Design and Construction. He is survived by his wife, Marlene, and two children.

Wilbur J. Butler, BSEE'59, of Venice, Fla., May 26, 2017. Mr. Butler worked 26 years for AMP Inc. in Harrisburg, Pa. He is survived by his wife, Margaret, and four children.

Carl H. Huebner, BSME'59, of Hattiesburg, Mo., Sept. 15, 2017. Mr. Huebner served in the Army during World War II and was a mechanical engineer at Vickers Aviation for 33 years. He is survived by his wife, Hope.

Frank P. Malinowski, Jr., BSME'60, BSIE'66, BSIM'66, of Meridian, Idaho, Feb. 2, 2017. He is survived by his wife, Beverly.

Jerry Werner, BSCvE'60, of Flowery Branch, Ga., April 7, 2017. During his career, Mr. Werner opened Timber Systems, Omega Engineering, and Construction Material Specialties, as well as Concrete Preservation Systems. He is survived by his wife, Carrol, and five children.

Joseph D. Doubleday, Jr., AEET'61, of Dade City, Fla., March 27, 2017.

John M. Wells, BSIM'61, of Battle Creek, July 11, 2017. Mr. Wells was an assistant vice president when he retired from Standard Federal Bank in Troy, Mich. He is survived by his wife, Elaine, and a daughter.

Gerald Norman Bohan, BSEE'62, of Pinehurst, N.C. Born in Earlington, Ky., Gerald was a veteran of the Korean War. He retired from GMC Truck and Coach where he was a master sales executive.

Harold B. Chavey, BSME'62, of Clarkston, June 27, 2017. Mr. Chavey served in the Air Force during World War II, then spent most of his engineering career working for Chrysler. He is survived by his wife, Jane, and two stepchildren.

Roger J. Martin, ARACT'62, of Marysville, July 15, 2017. Mr. Martin served in the Army during the Korean War and was awarded a Bronze Star. He retired from General Dynamics as director of facilities in 1993 after 25 years. He is survived by his wife, Elma, and four children.

Raymond W. Hodzen, AEET'63, of Brunswick, Ga., Sept. 16, 2017. Mr. Hodzen started working for Chrysler in 1951 as an electrical engineer. He was drafted into the Army in 1956 and honorably discharged in 1962. He retired from Chrysler in 1988. Mr. Hodzen is survived by two children.

Hans G. Austermann, ABCT'65, BSCE'77, of Lake Orion, Dec. 9, 2016. Mr. Austermann is an Army veteran and retired from the Oakland County Road Commission after 36 years as a civil engineer. He is survived by three children.

Ted S. McRoberts, BSArE'65, of Marietta, Ga., Sept. 11, 2017.

Dennis E. O'Malley, AMT'66, of Elkhart, Ind., Jan. 21, 2017. Mr. O'Malley served in the Army, 1966-69. He is survived by his wife, Edith.

Lanny D. Ross, BSCvE'66, of Kerrville, Texas, Aug. 11, 2017. Mr. Ross founded Alana Construction Co., Inc. He is survived by his wife, Patricia, and four children.

Ronald L. Abramovich, BSIM'67, of Ocala, Fla., July 6, 2017. Mr. Abramovich worked in accounting and finance at General Motors for 37 years. He is survived by his wife, Carolyn, and three children.

George Grudich, AEET'68, of Rochester, Mich., Oct. 19, 2017. He is survived by his wife, Norman, and three children.

George Agob Harants, BSEE'68, of Memphis, Tenn., Aug. 15, 2017. He is survived by his wife, Patricia.

Anthony M. Matelski, BSME'68, of Onaway, May 9, 2017. Mr. Matelski owned and operated a 400-acre farm in Northern Michigan. He was Waverly Township supervisor for 12 years, as well as serving on the Cheboygan County Planning and Zoning Board and the Board of Commissioners, where he was the most recent board chairman. Mr. Matelski is survived by his wife, Roberta.

Richard E. Morley, BSCvE'68, of Savannah, Ga., Oct. 18, 2017. Mr. Morley worked for Ajax Paving for more than 20 years, retiring as senior vice president. He is survived by two children.

Austin L. Crawford, Sr., ABCT'71, of Sault Ste. Marie, July 22, 2016. Mr. Crawford worked in outside sales for Wickes Lumber for 38 years, and served in the National Guard's Engineering Division. He is survived by his wife, Margaret, and two children.

Frederick L. Miller, BSME'71, of Grass Lake, Aug. 13, 2017. Mr. Miller worked 33 years as a mechanical engineer with Chrysler Corp. He is survived by his wife, Judy, and two children.

Norman Tople, BSIM'72, of Farmington Hills, Oct. 10, 2017.

Alfred L. Werner, AIST'72, of Ellijay, Ga., March 26, 2017. Mr. Werner was a quality engineer with the federal government, and a Navy veteran. He is survived by his wife, Lorraine, and three children.

Callum Morrison, BSEE'76, of Southfield, July 19, 2017. Mr. Morrison was born on Isle of Lewis, Scotland, where he learned his trade in the Glasgow shipyards and worked at the atomic energy plant. After immigrating to America, he worked many years at Ford Motor Co. He is survived by his wife, Peggy.

Adam M. Sizen, BSBA'76, of Fort Wayne, Ind., July 8, 2017. Mr. Sizen served in the Army before becoming a buyer with Edward C. Levy Co. for more than 30 years. He is survived by his wife, Theresa, and four children.

Donald A. Zurawski, BSBA'76, of Livonia, July 3, 2017. Mr. Zurawski served in the Navy and retired from a long career in the automotive industry. He is survived by his wife, Paula, and three children.

David L. Jackson, BSBA'77, of Rome, Ga., June 20, 2017. Mr. Jackson served in the Navy from 1967-69, aboard the USS Oriskany. He worked more than 30 years for Delta Airlines. He is survived by his wife, Sheila, and two children.

Karl W. Whitson, AEET'77, of Detroit, Jan. 22, 2017. Mr. Whitson was an evening physics lab manager and instructor at Lawrence Tech for 21 years, and retired from Chrysler in 1983. He is survived by two children.

Paul Bouza, BSBA'78, of Indianapolis, Ind., Nov. 24, 2017. During his career, Mr. Bouza worked for Microdot, Zanxx, Kendall & Davis, and AmerCan. He retired from BRC Rubber and Plastics as chief financial officer. Mr. Bouza is survived by two children.

Ronald J. Mrozek, BSAr'79, of Sterling Heights, May 19, 2017. Mr. Mrozek was president of Huntington Construction. He is survived by his wife, Paula, and two children.

John E. Martens, BSBA'83, of Royal Oak, June 16, 2017.

Joseph P. Gazda, BSEE'85, of Phoenix, Ariz., July 29, 2017. He is survived by his wife, Donna.

Keith M. Wirth, BSAr'85, BA'87, of Hope, Sept. 27, 2017. Mr. Wirth was an architect with Three Rivers Corp. for more than 17 years. He is survived by his wife, Mary Lou, and two children.

Jeff A. Matson, AEET'86, of Milford, June 27, 2017. Mr. Matson was vice president of Matson Enterprises. He is survived by two children.

Teresa M. Oldham, BSBA'87, of Livonia, July 24, 2017. Ms. Oldham was an insurance agent with Allstate before retiring. She is survived by her husband, Daniel, and two children.

Jeffrey T. Smeed, BSME'87, of Dearborn, Aug. 25, 2017. Mr. Smeed worked 33 years at Ford Motor Co. where he was named one of the first senior engineers in chassis. He worked on many iconic programs, including Mustang, Super Duty, and Taurus.

Deborah L. Beason, BSBA'89, of Novi, Jan. 14, 2017. She is survived by her husband, Gary.

Scott A. Larry, ACET'89, of Birmingham, Sept. 10, 2017. Mr. Larry had a long career in construction that started in 1977 when he joined the Taubman Co. In 1988, he became a construction manager at Lockwood Companies and eventually was named COO. Mr. Larry formed his own company, DePadua Construction, in 1995. He also served as president, and later chairman, of the Michigan Housing Council. He is survived by his wife, Elaine, and three children.

Sylvester Galczyk, BSEE'90, of Bloomfield, Mich., Oct. 4, 2017. Mr. Galczyk worked in the automotive industry, focusing on powertrain sensors and instrument clusters. He was most recently employed by Continental Corp.

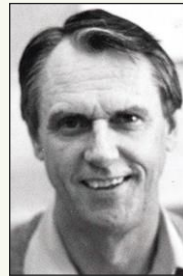
Charles Jennett, BSME'93, of Fort Wayne, Ind., Sept. 12, 2017. He is survived by his wife, Terri, and two children.

Hugh A. Harris, BSME'97, of Cardiff, Wales, Nov. 3, 2017. Mr. Harris grew up in Livonia and joined the Navy in 1985. He was accepted into the Nuclear Program where he oversaw nuclear submarine engine room operations, and was stationed on the USS Tennessee. During his professional career, he worked for Chrysler and also the EPA where he won a Gold Medal, the

highest award in the EPA, for his work on reducing greenhouse gas emissions for light duty vehicles. He is survived by two children.

Christopher J. Wharff, BSBA'15, of Royal Oak, Sept. 15, 2017. Mr. Wharff was a cargo claims specialist at Cherokee Insurance Co. He is survived by two children.

LAWRENCE TECH FAMILY



Robert Dean Hatch, of Willsboro, N.Y., Oct. 1, 2017, former department chair and professor emeritus of electrical engineering, from complications of Alzheimer's disease. A native of Syracuse, he was a veteran of the U.S. Air Force, where he spent several years working for Gen. Curtis LeMay at Andrews Air Force Base. He turned down an appointment to West Point and instead earned BSEE and MSEE degrees from Rensselaer Polytechnic Institute. He took doctoral classes at Michigan State University. After earning his bachelor's, he worked for North American Aviation, in charge of recording and photographic equipment on fighter jets. Prof. Hatch later returned to the Albany area to work for General Electric. He joined the LTU faculty in 1965, retiring in 1996. In retirement, Prof. Hatch continued teaching as an adjunct professor at Northern Arizona University and Coconino County Community College in Arizona. He also taught at Clinton Community College in New York. Family members said a memorial service will be held next summer in Willsboro, where Prof. Hatch had a summer home. Survivors include his wife, Barbara, and three children.

D I T I N M E M O R I A M

Harvey Hohlfeldt, BSME'47, BSEE'49, of St. Clair Shores, June 17, 2017. Mr. Hohlfeldt started Northern Industrial Manufacturing Corporation in 1978, and was a long-time member of the Engineering Society of Detroit and Society of Automotive Engineers. He is survived by his wife, Kaye, and two sons.

Andrew Kit, BSCE'53, of Marblehead, Mass., Oct. 18, 2017. Mr. Kit retired from Badger Engineers, Inc. in 1993. Prior to Badger, he was with Chas. T. Main, Inc., and Stone & Webster. He is survived by five children.

Robert S. Roth, BSME'50, of Detroit, Sept. 12, 2017. Mr. Roth was a decorated World War II U.S. Army veteran who served in Nuremberg, Germany, as a guard at the Nazi war criminal trials. He is survived by his wife, Katheryn (Kati), and two sons.

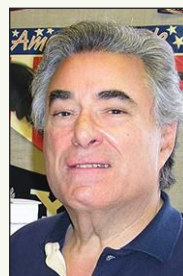
James A. McDonald, BSBA'65, of Stanley, N.C., Oct. 22, 2017. He retired from Colt (Garlock) Industries of Gastonia, N.C., then started Aquapura Pool Supplies, Inc. Mr. McDonald was a U.S. Army veteran. He is survived by his wife, Margaret, and three children.

Gustaaf August Van der Waerden, BSCE'52, of Grosse Pointe Park, June 14, 2017. Mr. Van der Waerden began his engineering career with the City of Detroit, then moved into federal service with the United States Department of Defense at the Army Tank Automotive and Armaments Command. He became the chief engineer responsible for the M1 Abrams, the U.S. military's main battle tank to this day. Van der Waerden remained in federal service for 36 years. He is survived by his children.

Charles M. Norman, BSBA'66, of Sandusky, Ohio, Oct. 21, 2017. Mr. Norman worked for the Macomb County School District as an accountant and transportation supervisor. He is survived by his wife, Karen, and three children.

Charles K. Hirschert, BSME'73, of Livonia, July 16, 2017. Mr. Hirschert began his career with General Motors in 1968 at the Milford Proving Ground, and retired from GM Pontiac Truck and Bus in 2002. He is survived by his wife, Mares, and two children.

John F. Peterson, of Harbor Springs, June 8, 2017. During World War II, Mr. Peterson left Wayne State University (WSU) to enlist in the 75th Army Battalion. He fought in the Battle of the Bulge and was awarded the Bronze Star. After graduation from WSU with a doctorate in education, Mr. Peterson worked as a teacher, counselor, and principal in the Detroit Public Schools, and as an adjunct professor at Lawrence Tech. He is survived by his wife, Esther, and four children.



Marvin Stern, May 25, 2017, associate professor of humanities. Dr. Stern joined LTU in 1994 and was an accomplished historian, educator, and author, specializing in 18th-century subjects. He earned degrees in history from Brandeis University (AB, AM, and PhD), Harvard University (AM), and Yale (AM). He was a visiting fellow in 2001-02 at Oxford and Cambridge Universities in the UK. Prior to LTU, Dr. Stern was on the faculty at Temple University. He was a U.S. Army veteran. Not only was Dr. Stern an enthusiastic instructor and student mentor, but he was also instrumental in developing LTU's Core Curriculum as well as planning and maintaining a University rose garden for many years. Survivors include a son, Clark.

REPORT TO INVESTORS

Report to Investors

FROM THE PRESIDENT AND CEO

Thanks to the accomplishments and hard work of our students, faculty, and staff, the wise counsel and helpful guidance of our Board of Trustees, and the generosity of our alumni and other donors, Lawrence Technological University has had another exceptional year.

The start of fall classes in August also marked the beginning of LTU's 85th year of service to Michigan, the nation, and the world. Although there have been many changes in our society and the professions that we have served over the past 85 years, the fundamental hallmark of Lawrence Tech – our experiential, theory and practice approach to higher education – remains as relevant as ever.

The legacy has been remarkable. Nearly 40,000 men and women have graduated from Lawrence Tech, tens of thousands more have attended classes here, and millions of people have earned their livelihoods working for alumni-led companies and organizations both in this country and abroad. We can share great pride in that record of success.

Moreover, all manner of outside organizations have recognized the quality of our educational programs and our graduates. Lawrence Technological University continues to be among the top schools in the Great Lakes region when it comes to the compensation of

President Virinder Moudgil walks with Hsiao-Ping Moore, dean of the College of Arts and Sciences, in the 33rd Annual Dr. Martin Luther King, Jr., Peace Walk Celebration in Southfield.



its graduates – and in rankings of the University overall.

The U.S. Department of Education reports that Lawrence Tech is fifth among the state's 93 colleges and universities for average annual earnings of its graduates.

PayScale, the Seattle-based compensation consultant, currently ranks LTU fourth among bachelor's degree-granting institutions in Michigan for the pay of its recent graduates and of its graduates with 10 years of career experience. That ranking puts LTU

in the nation's top 100 among all of the nation's colleges and universities!

The career guidance website, Zippia.com, ranks Lawrence Tech fourth in Michigan on its list for "best colleges for mechanical engineering majors." U.S. News & World Report has ranked LTU 38th among Regional Universities-Midwest, up from 40th in 2017 and 54th in 2016. U.S. News also ranked LTU 25th on its list of Best Colleges for Veterans, which identifies schools that fully participate in federal programs

LTU awarded an honorary doctorate to Robert S. Taubman, chairman, president, and CEO of Taubman Centers Inc., at Commencement 2017. With Taubman are (left) Douglas E. Ebert, chairman of LTU's Board of Trustees, Provost Maria Vaz, and (right) President Moudgil.

helping veterans and active service members pursue a college education.

Other top rankings include the Princeton Review's "Best in the Midwest" designation, conferred on only the top 25 percent of colleges and universities, and its listing of LTU as one of the nation's Green Colleges and Best Schools for Game Design.

We remain proud that the prestigious Brookings Institution in 2015 ranked Lawrence Tech fifth in the entire country for providing the most value-added in preparing its graduates for well-paying occupations.

Among other hallmarks of a great university is its ability to earn support from individuals





At last spring's dedication of a statue of Henry Ford, donated by the Henry Ford Trade School Alumni Association, are (from left) Douglas Ebert, chairman of the LTU Board of Trustees; George Banda, HFTSAA president; Edsel Ford II; and LTU President Virinder Moudgil.

and organizations that have concluded that what LTU is doing has value and importance, and that we have the potential to do even more. That is why the recent news of a \$1 million grant from the Howard Hughes Medical Institute (HHMI) is so significant.

HHMI is the largest private nonprofit supporter of higher education in the United States. Lawrence Tech was one of 24 nationally and the only school in Michigan to receive funding from among the 500 colleges and universities that sought support for a new program to boost minority participation in STEM studies and careers.

Dr. Lior Shamir and others in LTU's Department of Mathematics and Computer Science will be using the funds to develop new ways to help

students, particularly under represented minorities, enter and achieve in scientific careers. Finding ways to include all students, from all backgrounds, in STEM education is critical for sustaining America's leadership in the sciences. The benefit accrues to all of us in assuring a better quality of life and a stronger national economy.

The HHMI Award is the latest of a number of other large grant awards that LTU has earned in recent years, including several million dollar research awards to Dean of Engineering Nabil Grace that support our nationally acclaimed programs in civil engineering.

As we work to secure the future of Lawrence Tech and meet the needs of our students, we continuously review and adjust our programs. This fall we welcomed the charter class of 31 students in the new Bachelor of Science in Nursing program, developed in partnership with Southfield neighbor St. John Providence.

The program, offered through the College of Arts and Sciences, will be adding an additional cohort of 32 students each year.

Other new academic programs are being considered in fields where the demand for graduates is strong. It is important to look to diversifying our programs so LTU can remain strong even when the demand for certain programs may wane due to economic cycles.

You've observed that Lawrence Tech has also continued to transform itself from a largely commuter campus to more of a residential one. This year we attracted students from 33 states and 52 countries and were forced to turn away students who wanted to live here. Great progress is being made on the construction of LTU's fourth housing

facility, East Residence Hall, that will provide space for 308 students and housing staff. When it opens for the fall term in 2018, it will allow us to house over 1,000 students on campus.

More students living on campus also strengthens demand for more activities and a robust campus life. We attract students with strong scholastic aptitudes, many of whom also enjoy the competition, discipline, and camaraderie of intercollegiate athletics. Interestingly, the GPAs of LTU's

President Virinder Moudgil delivers remarks at the ceremony creating the Blue Devil Southfield Scholars program, which will annually offer 50 Southfield Public School students half-tuition scholarships to Lawrence Tech. The students will be selected by a committee of SPS teachers and administrators. (See story back cover.)



student athletes are actually higher than those of our general student population.

Next fall, a football team will be the newest of our 24 men's and women's athletic teams, returning after a 70-year hiatus. We have begun fundraising to upgrade and expand our facilities for athletics and look forward to growing support from alumni – both to help fund the new spaces and be active participants in cheering the Blue Devils to victory on the field and courts!

LTU programs in engineering, architecture, and design have enjoyed much success in achieving reaccreditation by the various bodies that perform this important measurement and affirmation of quality. Lawrence Tech's College of Management is completing a long process to achieve a new accreditation from a third organization that accredits business programs, the Association to Advance Collegiate Schools of Business. The process to achieve such accreditations or reaccreditations is very involved and complex. I appreciate the hard work of our faculty and staff who expended much time and energy to create the reports and verifications that this requires.

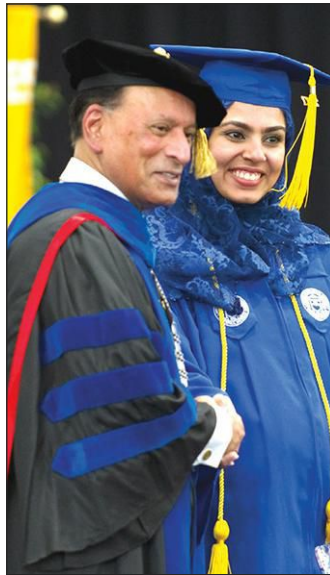
In July, Lawrence Tech's Enterprise Center on the north side of campus became the new Southfield home of Michigan Works!, the agency that helps support Michigan's workforce development

President to president, LTU President Moudgil speaks to University of Michigan-Ann Arbor President Mark Schlissel as Schlissel prepares to deliver LTU's 2017 Cislser Lecture. His topic was advances in genomic medicine.

system. We're told it is the only university-based location for this vital service in the state. Also on campus is the LTU Collaboratory, a business accelerator offering a wide variety of services to entrepreneurs and emerging businesses.

LTU's location in this dy-

President Moudgil shook hands with every graduate crossing the stage at Commencement 2017.



Dr. Moudgil chats with students at LTU's annual Ford Motor Co. Day.

amic city is among our greatest assets, and I'm delighted that Lawrence Tech has such a wonderful relationship with the newly re-elected mayor, Ken Siver, Southfield's city council, and the city administration. The area around campus is developing as a beautiful, pedestrian-friendly, mixed-use community with many more residential, dining,

and retail options for students and visitors. We're excited that Lawrence Tech is a part of it and we appreciate the tremendous support of the city's leadership. If you've not been to campus or the area in a while, prepare to be amazed. There is even more to come.

Your contributions and those of other alumni and friends continue to have a huge influence on the reputation of, and the services provided by, Lawrence Technological University.

Thank you for your interest and generous support!

Virinder K. Moudgil



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Virinder K. Moudgil
President and CEO
Lawrence Technological
University

EX OFFICIO

FROM THE VICE PRESIDENT FOR ACADEMIC AFFAIRS AND PROVOST

During the past year we have seen the positive culmination of several strategic initiatives and we have started new ones that continue to enhance academic offerings, campus life, and career opportunities for all Lawrence Tech students.

The most important accomplishments in academic affairs include:

- ABET re-accredited six engineering programs and granted first time accreditation of three programs: Bachelor of Science in Robotics Engineering, Bachelor of Science in Mechanical and Manufacturing Engineering Technology, and the integrated Bachelor and Master of Science in Architectural Engineering. We are particularly pleased that both the robotics engineering and mechanical and manufacturing engineering technology programs received a six-year accreditation, the maximum given by ABET in their first application. This does not happen very often. The accreditation of a total of nine programs was a herculean effort by the faculty and the administrators of the College of Engineering. We are very proud of their accomplishments.

- LTU launched a new Bachelor of Science in Nursing (BSN) program this fall. We're excited to begin serving the healthcare industry with the support of and strong partnership with St. John Providence. Dr. Hsiao-Ping Moore, dean of LTU's College of Arts and Sciences, led and worked on the project proposal and hired the

director, Dr. Therese Jamison. This fall we welcomed LTU's first class of 31 nursing students. Students are admitted directly into the BSN and start their nursing courses as freshmen. Their laboratories are on campus and nearby Providence Hospital. Their clinical training will take place in the six hospitals that are part of the St. John Providence health system. Our program emphasizes the skills required for nurses of the 21st century. In addition to traditional nursing functions, health management and use of technology are the hallmarks of LTU's program.

- One of the most notable achievements of 2016–17 was the \$1 million Howard Hughes Medical Institute grant to the College of Arts and Sciences to extend our course-based undergraduate research experiences (CRE) project across the entire college and to high schools and community colleges. We expect that this pedagogy, which is very inclusive, will help more students in under represented populations to choose STEM careers. This project further differentiates LTU's College of Arts and Sciences, already a model of 21st-century liberal arts education.

- LTU's College of Management continued to prepare to achieve initial accreditation by the Association to Advance Collegiate Schools of Business (AACSB). In 2016–17 all the preliminary work to prepare for the visit of the evaluation team that occurred in November 2017, was accomplished including submission of the



Provost Maria Vaz and President Emeritus Richard Marburger attend an LTU donor appreciation event.

final Self-Evaluation Report, the identification of visiting team members, meeting with the team chair, and responding and clarifying statements and questions from the team related to the Self-Evaluation Report. Dean of Management Dr. Bahman Mirshab and his faculty, staff, and students await the decision of the AACSB board.

- Lawrence Tech's College of Arts and Sciences also started an ESL Institute approved by the government. For the first time, Lawrence Tech can admit international students who come to campus to only study English.

- Dean Karl Daubmann completed his first year leading the College of Architecture and Design. He has spent this year listening to students, faculty, staff, alumni, and others and making improvements. He moved the transportation design and industrial design programs from a building at the edge of the campus to the main Architecture Building. The programs have much better facilities, bright and open. Dean Daubmann also connects with the strong alumni base of the college and the professional community. He is on the board of the American Institute of Architects, Michigan.

- Lawrence Tech is one of 13 schools in the nation accepted into the Integrated Path for Architectural Licensure (IPAL). This allows students, through internships and co-op programs in architectural firms, to fulfill the professional requirements to sit for their licensure exam. The process also allows students who finish their Master of Architecture requirements to sit for the exam at the time they graduate. To achieve this goal, Lawrence Tech works very closely with several architecture firms that are partners in the IPAL program and provides internship opportunities for LTU students.

- The Sophomore Entrepreneurial Engineering Design studio is completely implemented and is now part of the curriculum for most engineering majors. The uniqueness of the studio and the direct connection of students with their customers, this past year disabled employees of a small manufacturing company, have been highlighted in several conferences and magazines.

Each year, Lawrence Tech hosts a variety of special speakers, lectures, and schol-

arly symposia, often with the support of alumni, corporations, and other friends. Among these were Walker Cisler lecturer Mark Schlissel, president of the University of Michigan. Ford Executive Vice President and President of Mobility Marcy Klevorn was featured during the Convocation for new students. She's also an LTU trustee and received LTU's fourth annual Global Citizen Award. LTU's President's Symposium Series, hosted this year by the College of Architecture and Design, welcomed an informative panel about "Inclusive Technology: Seeking to Do Good." The College of Management's Young Women's Leadership Conference keynoter was Andra Rush, CEO of the Rush Group of Companies. Celebrating the gifted architect Albert Kahn, whose personal library is housed at LTU, was a group of events and presentations championed by the College of Architecture and Design and LTU's library. Speakers included Joel Stone, senior curator at the Detroit Historical Society, and Kahn CEO Alan Cobb, BSAr'76.

LTU's monthly Leaders & Innovators series, offered in partnership with WWJ Newsradio 950, brought in leaders like Denise Ilitch, president of Ilitch Enterprises, and Ric Devore, regional president of PNC Bank.

Lawrence Tech's undergraduate enrollment continues to increase. This fall our undergraduate students increased

Look, no hands, and we're moving! Provost Maria Vaz checks out the autonomous taxi, now being developed at LTU and scheduled to go into service on campus this fall.

by two percent relative to fall 2016. The freshman class increased by 11.8 percent. Freshmen have an average GPA of 3.5 and an average ACT score of 25. Students looking for careers in engineering and other STEAM disciplines continue to find that a Lawrence Tech education is an investment with enormous return, as identified by the Brookings Institution, PayScale, Wall Street Journal, and others. As did most universities in the U.S., we saw a decrease in graduate international students. We continue to work on new strategies to strengthen undergraduate programs because they are a pipeline to our graduate programs.

Lawrence Tech's athletics program, competing as part of the National Association of Intercollegiate Athletics (NAIA), continues to grow. An important addition this year was the first class of student athletes in football. Next year, with a second round of recruiting and a full roster, we will start competition with the goal of varsity NAIA conference play in fall 2019. Football and a new marching band surely will change Saturday afternoons on campus in the fall.

We are proud of all of our



Provost Vaz chats with a Detroit Public Schools student at the dedication of an outdoor classroom at the Sampson-Webber Leadership Academy in Detroit, part of the University's ongoing relationship with the Detroit Public Schools Community District.

teams. The 2016–17 women's lacrosse coach, Mary Ann Meltzer, was named the national NAIA Coach of the Year and senior Kadhija Kalo was named NAIA national Student of the Year. What great honors! These are in addition to our many student athletes recognized for their academic achievements as well as athletic performances.

Once again our campus housing is completely full, including 75 students we had to house in the nearby Arbor Lofts apartment building. Over 800 students now reside on campus, a 100 percent occupancy rate. The new East Residence Hall, now under construction, will provide 308 more beds in fall 2018. This will give LTU a capacity of over 1,000 beds on campus.

The increasingly residential flavor of the campus creates a dynamic student life organized by the Office of Student Affairs

and the students themselves – sports competitions and games, professional chapter meetings, professional seminars, service learning activities, plays, clubs, Greek life, and much more. This vibrant activity enhances students' leadership skills and sense of civic responsibility. During the 2016 presidential election about 50 students helped at the voting stations in Southfield, and many others participate in other projects and with charities supporting the community.

Lawrence Technological University's faculty and staff strive every day to provide an excellent education with outstanding value. The contributions of our alumni and friends are essential for that success. Thank you for your generous support!

Maria J. Vaz

Maria J. Vaz



FROM THE VICE PRESIDENT OF UNIVERSITY ADVANCEMENT

Several weeks ago, LTU hosted an event with a number of prominent individuals who weren't all that familiar with Lawrence Tech. President Moudgil began his introductory remarks with brief mentions of rankings and accolades, and then he turned to the focus of his talk: LTU alumni. He reiterated what is felt daily here on campus – the success of our institution should be measured solely by the success of our alumni and our ability to contribute to and support that success.

Dr. Moudgil shared story after story of innovation, dedication, and brilliance that he has witnessed in alumni of every generation. The publication you are reading right now is certainly a reflection of the tremendous work going on within our walls, but it is also a reflection of all of you – the difference you make every day at work, at home, and out in your community. We could not be prouder!

Kristen DeVries greets alumni at Homecoming 2017.



LTU students, faculty, and alumni dare to tackle issues facing our community. Blue Devils have superpowers in collaborating, taking bold actions, and building strong alliances to create positive and lasting community change.

Just as Henry and Edsel Ford and the Lawrence brothers dared to found Lawrence Tech in the midst of the Great Depression, applying engineering theory to practical solutions, to the revolution in mass manufacturing, Blue Devils today dare to tackle the seismic technical changes that are shaping our digitally-driven era.

Do you have a story of your own daring, or one of a fellow alum? Email alumni@ltu.edu so we can broadcast that story through our Facebook, LinkedIn, and Twitter feeds. (Don't be surprised if your story ends up on my personal Facebook or Twitter feed as well -

@krdevries – your stories are worthy of being applauded far and wide!)

Students enter Lawrence Tech with technology embedded in their daily lives, using it to communicate, to collaborate, to socialize, and to learn. This technical familiarity is harnessed and bolstered through classroom learning and career specific collaborations, where Blue Devils join businesses and community leaders to address real world problems with smart solutions. But it takes more than leading technology and exceptional faculty to turn students from learners to practitioners. The future of LTU depends on

assuring that Lawrence Tech can support a diverse and impactful student population. Essential financial support through scholarships assures that LTU can attract bright and capable LTU students regardless of their financial situation. Each year, a growing number of academically qualified, deserving students seek LTU scholarships. Current students indicate that financial support is the most important factor in their ability to remain in college.

We are grateful to all of the alumni and friends of Lawrence Tech who supported our students with scholarship gifts last year. The word “support” is used with great intention. While the financial boost is certainly appreciated, what our students appreciate most about scholarships is the morale boost. Every time a student walks into the Advancement Office and I say “Congratulations on receiving this scholarship!” the student's eyes light up. They stand a little taller and dedicate just a bit more effort to their studies, because they know that someone out there is rooting for their success. If you are interested in providing scholarship support, please do call me



Kristen DeVries, vice president of development, led ceremonies for the April 2017 dedication of a bust of Henry Ford at the Buell Management Building entrance. The statue was donated by the Henry Ford Trade School Alumni Association.

at 248.204.2305 to talk about available options.

Once those students graduate, they will continue to be grateful as they launch careers, build families, and elevate their communities.

The last thing we want is to lose touch. LTU was a “home” for thousands of students during their degree pursuits, and this year, Lawrence Tech has created a physical home on campus – the newly designated Alumni House. The house was originally designed by Dean of Architecture Earl Pellerin for then-president, George Lawrence. Wayne Buell followed in his footsteps, living in the home and welcoming students, faculty, and alumni. Its mid-century modern style continues to captivate and inspire.

Lawrence Tech’s goal for the space is to foster a robust, positive, and stimulating environment to benefit both those involved in the University and visitors from the broader community. We have great ideas on how the house will be used, but since, as an alum, it truly belongs to you, we’d like to know how you envision it being used. Ideas for events or new traditions? Email us at alumni@ltu.edu. (In thanks for your ideas, we’ll be happy to send along a Lawrence Tech mousepad or laptop sticker.)

We also welcome your talents in refurbishing the home. Can you landscape, paint or design? We’d love your input and your manual labor as we

President Moudgil thanks the leadership of the LTU Alumni Association for a \$20,000 gift toward renovation of the former LTU president’s residence, later used as a professional development center, into Alumni House.

The Henry Ford Trade School Alumni Association donated a bronze bust of Henry Ford that was unveiled on April 25, 2017, in a moving ceremony that included dozens of HFTSAA alumni and Edsel Ford II representing the Ford family. The new sculpture anchors the plaza leading to LTU’s executive offices in the Buell Management Building.

transform the house into a true home for alumni.

LTU continues to evolve as a well-regarded university that trains tomorrow’s leaders and engages in community transformations. Join us to assure that Lawrence Tech moves ahead on a daring path to create technology innovations that will reach across the globe and make a significant impact on the metro Detroit community. We can’t wait for you to write the next chapter as together we dare to transform our community.

Kristen R. DeVries
Kristen R. DeVries



Alumni House is being created as a headquarters for alumni activity on campus. The home earlier served as the residence of former LTU presidents George Lawrence and Wayne Buell.



FROM THE VICE PRESIDENT OF FINANCE AND ADMINISTRATION

Lawrence Technological University ended Fiscal Year 2016–17 with a modest surplus of \$338,432. Our strategic initiatives to increase residential undergraduate growth bore excellent results as we saw the largest new undergraduate class in many years. However, as was true of the nation’s entire academic community, there was a large reduction of both graduate and international students.

The athletic program continues to positively affect our enrollment numbers, retention rates, and the overall grade point average of our students. This was an area where we invested heavily this year, including in our fledgling football team.

Because of the growth in the number of residential undergrads, all of LTU’s housing units continued to be fully occupied, and we continued to lease beds from a third party. Because of this, the Board of Trustees approved bond financing for another 300-bed housing facility. Construction began in June 2017, and it will be ready for the fall 2018

semester. East Residence Hall, as we are calling it, will also house an exercise room and several collaboration spaces for students. This was another strategic initiative that we invested in for the benefit of the campus community and the University’s continued growth.

As there are many areas in which we are investing resources, it continues to be important that we look for opportunities to gain cost efficiencies wherever possible. As we worked with our banking partner on new bond financing, we were also able to refinance some older bonds to get better rates, providing some savings in interest paid.

As the number of full-time undergraduates increase, so does LTU’s student scholarship account. This year, scholarships increased again to \$18,415,591. All of these scholarships are funded through operations. In addition, approximately \$1,000,000 of funded scholarships is awarded annually through the generosity of our donors.

Human Resources and the Benefits Committee continued



Linda L. Height

to look for ways to enhance employee benefits while reducing overall costs. In working with our insurance providers, the Benefits Committee negotiated a competitive rate for employee medical benefits, and no cost increase for life, disability, vision, and dental insurance coverage. Our “Healthy Living” initiative continues to provide benefits to employees and their families through preventive health initiatives.

In order to assist employees with retirement readiness, an additional 0.5 percent match was added to the University match for employees’ 403b

plan, bringing the match to 3.5 percent of salary. Many educational programs are provided for everyone, both individually and in group settings, so employees can be well-informed on all their options. Our plan is reviewed twice a year by our investment advisor and changes are made when necessary.

With the addition of capital dollars, the Office of Campus Facilities has completed several major lifecycle improvements across campus. Significant time and resources have been spent to improve the



LTU administrators and other leaders wield shovels at ground-breaking for the University’s East Residence Hall, held in May. The new facility will house more than 300 students when it opens in August 2018. The bright colored waterproofing and insulation will be covered.

40-year-old South Residence Hall, including infrastructure and cosmetic improvements. For the third year in a row, LTU received the Green Star Award from the Professional Grounds Management Society for the beautification and sustainable design of our campus grounds. For the second year in a row, LTU won Southfield's Community Pride Award for the appearance of the campus.

In September 2016, the 36,700-square-foot A. Alfred Taubman Engineering, Architecture, and Life Sciences Complex was completed and put into use. This building, home of the Marburger STEM Center, was completely funded through donations and includes laboratories for the engineering and science programs.

With "technological" as our middle name, the University continues to invest in IT infrastructure, educational programs, and security software. This year, we began to replace our Learning Management Software System with a new, improved product. We also began to transition from our current Banner system to a web-based model that will impact everyone on campus. New webinars were created to refresh all employees' knowledge of cybersecurity and securing our data. This mandatory educational program will also be provided to every new employee when hired. Other significant IT improvements this year included upgrading our network capacity 10-fold and replacing our campus wireless.

The LTU Enterprise Center, formerly the Mark Plaza building, is now the home to the

Southfield Michigan Works! Office. This brings many more visitors to campus and strengthens our bond with the City of Southfield. The Enterprise Center received new exterior lighting and a new parking lot, along with improved landscaping. Plans are in the works for interior improvements as well. As a building that is expected to be a rental property for LTU, it continues to be approximately 75 percent occupied.

Campus safety remains a critical element for recruitment and retention of both students and employees. We have continued to add additional cameras both inside and outside our buildings, along with improved door access. We have also moved to a hybrid Campus Safety staff, with some of our safety officers having the qualifications to be armed on campus. This provides another layer of safety that was not available in the past. Our Office of Campus Safety continues to maintain strong relationships with the Southfield Police and Fire Departments.

Investments in the University endowment performed well in this fiscal year. Lawrence Tech outperformed similar institutions and the S&P 500 over a one-year period, and kept pace with them over three- and five-year intervals. These investments are monitored constantly, and the University's investment strategy is reviewed with the Finance/Investment Committee of the Board of Trustees. Some changes have been made to our portfolio due to the changing marketplace.

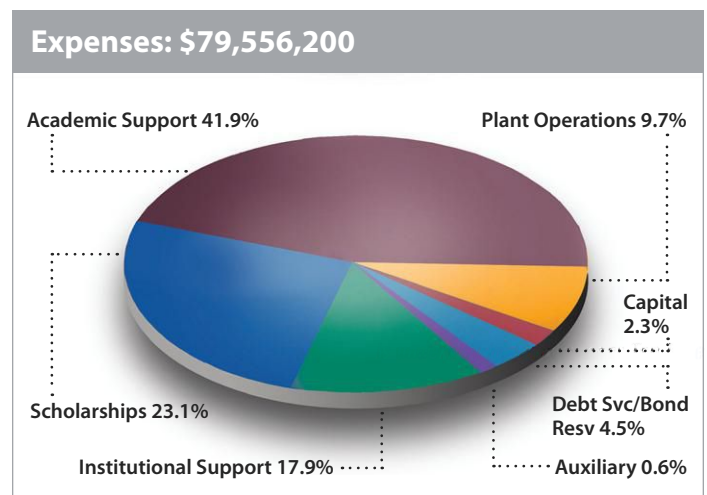
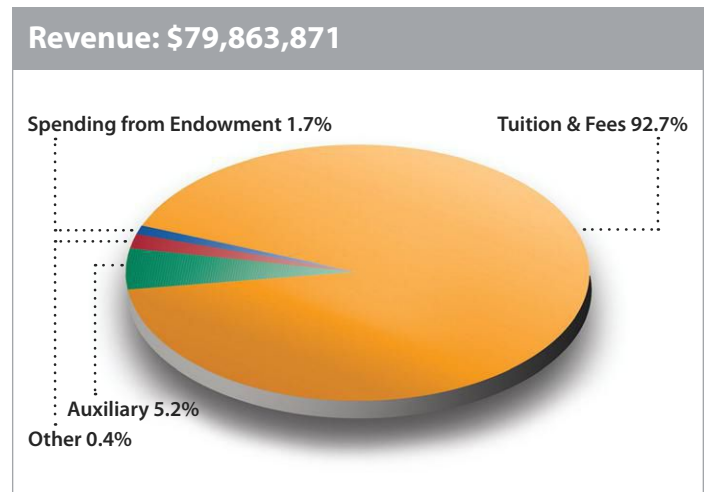
Overall, the University is

making progress in its goals to increase enrollment and retention. The addition of nursing, football, and more housing space is critical to our continued success, particularly since LTU's revenue comes primarily from student tuition. To assure Lawrence Tech's financial health, we must continue to focus on alternative revenue opportunities, cost efficiencies, debt reduction, and increasing

our endowment. Improvements in these four categories will help us improve the financial health of the University as well as its reputation.



Linda L. Height



Financial results for fiscal year ending June 30, 2017

MAKE

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Futures

POSSIBLE.

"COMING TO LAWRENCE TECH CHANGED MY LIFE. IT GAVE ME THE OPPORTUNITY TO LEAVE MY SMALL VILLAGE IN POLAND TO EARN A REPUTABLE ENGINEERING DEGREE AND CONTINUE PLAYING SOCCER AT THE COLLEGIATE LEVEL. I OWE EVERYTHING TO THOSE WHO BELIEVED IN AND SUPPORTED ME – MY COACHES AND THE SCHOLARSHIP DONORS WHO HELPED MAKE MY FUTURE POSSIBLE!"

MATT GIBIEC
COMPUTER ENGINEERING SENIOR
PRESIDENT, STUDENT
PHILANTHROPY COUNCIL
3.96 GPA

SEE MATT'S STORY AT
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Lawrence Technological University

T H E B A C K P A G E

LTU offers \$3.5 million in scholarships to 'Blue Devil Scholars' from Southfield Public Schools

Lawrence Technological University will set aside \$3.5 million to provide scholarships to students in Southfield Public Schools (SPS) under a new partnership, the Blue Devil Southfield Scholars program.

LTU President Virinder Moudgil and SPS Interim Superintendent Derrick L. Lopez signed the memorandum of understanding creating the Blue Devil Southfield Scholars program in a ceremony at the SPS' John W. English Administration Center.

Under the program, SPS will create a committee of teachers, principals, and other staff to select 50 Blue Devil Southfield Scholars to receive the scholarships – students who will pursue majors in the STEAM (science, technology architecture and design, and mathematics) fields. There will be 50 students selected for the scholarships each year.

The agreement will also have LTU designing middle school summer camps in the STEAM disciplines that will provide educational and career exploration for students in SPS' Levey Middle School. During the school year, LTU will also host Levey students in its "EXtreme Science Saturdays" program and establish a focused STEAM exploration day.

In addition, LTU will provide workshops for SPS educators in teaching techniques known as Active Collaborative Learning and Project Based Learning. The agreement also provides for LTU to use SPS athletic facilities for practice and training.

"This new partnership accomplishes several of our goals as a university," LTU's President Moudgil said. "We want to create more STEAM scholars to fill the huge talent gap in those disciplines, a gap that is especially severe in Southeast Michigan. We also want to strengthen the town-and-gown relationship between the city of Southfield and LTU. And we want to foster closer ties and coordination with K-12 school districts in Southfield, and all over the region."

"We are excited about our partnership agreement with Lawrence Technological University as an extension of our ongoing relationship," SPS Interim Superintendent Lopez said. "This agreement is the first of many within our Southfield Compact, an initiative that strengthens our partnership with residents and businesses in the Southfield and Lathrup Village communities. The LTU partnership will empower our students and families with new and different opportunities to grow and develop, and the collaboration will lead to better-prepared students for college."

Southfield Public Schools operate 13 schools, serving nearly 6,200 children and their families in the cities of Southfield and Lathrup Village. □MR

LTU President Virinder Moudgil and Southfield Public Schools Interim Superintendent Derrick Lopez sign the Blue Devil Southfield Scholars agreement as Southfield Mayor Ken Siver looks on.

