MOBILITY LEADERSHIP
Kettering graduate leading GM’s electric vehicle efforts

Kayla McDonell ’12 lands on Forbes’ 30 Under 30, aspires to be a leader in the industry

Kettering experience propels graduate to win prestigious Infiniti Engineering Academy

Graduate believes automotive DNA is about to change

KETTERING GRADUATES EXCEL IN ACADEMIA
Graduate becomes first African American to receive Ph.D. from Carnegie Mellon engineering program

Two graduates receive prestigious NSF fellowships

EXPANDING RESEARCH OPPORTUNITIES
NSF grants create unique research opportunities for students

Kettering University names two new deans

THE ENGINEERING OF HEALTHCARE
Kettering experience prepared graduate to be executive in the medical industry

CLASS NOTES
Two Faculty Members Recognized by SWE

Dr. Diane Peters and Dr. Rebecca Reck, assistant professors of Mechanical Engineering, received awards at the Society of Women Engineers (SWE) annual awards program that took place October 28, 2016 in Philadelphia. Reck was recognized as a SWE Distinguished New Engineer, which honors women engineers who have been actively engaged in engineering in the first 10 years of their careers. Peters was named a SWE Fellow, which recognizes SWE members for their continuous service to the advancement of women in the engineering profession.

Faculty Member Teaches Coding to Girl Scouts

Roughly 40 Girl Scouts – grades fourth through eighth – from Genesee County filled Kettering University classrooms to learn about Computer Science from faculty member Dr. Jim Huggins in December 2016. The event was part of “Hour of Code” as part of Code.org’s annual Computer Science Education Week (CSEdWeek).

Students Earn Five First Place Honors at DECA’s State Career Development Conference

A total of 32 Kettering University students competed at the 2017 Michigan Collegiate DECA Career Development Conference, which took place Feb. 3-5 in Grand Rapids, and 30 students placed and were eligible to continue on to the DECA International Career Development Conference in California in April. Kettering students earned five first place awards, three second place awards and 18 third place awards.

Faculty Member Receives Fellowship to Teach Overseas

For more than 30 years of teaching, Dr. Raghu Echempati, professor of Mechanical Engineering at Kettering University, has always used his non-teaching terms at Kettering to teach abroad mostly in Germany at HTWG-Konstanz, and at other schools. This ritual continued in 2016 when Echempati was one of the select few awarded to be an Erskine Visiting Fellow at the University of Canterbury (UC) in Christchurch, New Zealand, where he taught a class on finite element analysis, among other topics.

Model U.N. Team Awarded in Chicago

The Kettering University Model United Nations team received the “Outstanding Delegate Award” while representing Egypt at the Model United Nations International conference from November 19-22, 2016, in Chicago.

Biology Professor Launches Podcast

Dr. Jim Cohen, Professor of Applied Biology at Kettering University, is showcasing an often-overlooked aspect of Flint - its rich and diverse urban botanical wonders, through a locally produced podcast titled “Flint Flora.” Each episode focuses on one plant in the community and details the plant’s location, defining characteristics, and interesting features, such as unique pigments or human uses.

Dart Foundation Donation Adds Educational and Research Opportunities

The Dart Foundation has awarded Kettering University $177,000 to purchase plastics equipment to enhance educational and research opportunities for faculty and students on campus. The grant will spur the acquisition of a thermogravimetric analyzer (TGA), differential scanning calorimeter (DSC), dynamic mechanical analyzer (DMA), thermomechanical analyzer (TMA) and a rheometer system. This equipment will be used to develop new courses and student research experience that complement modern industry demands.

Keep Me Kettering Scholarship Fund Provides Profound Opportunities

Ashley Switalski ’19 and Aubrey West ’18 were drawn to Kettering University because of their passion for the sciences, but finances were a limiting factor for their education. A burden was lifted when they each received support from the Keep Me Kettering Scholarship Fund, which provides scholarships to students in time of need. “I’m financially independent. I’m paying for school 100 percent on my own,” West said. “I might not be able to come here if it wasn’t for the scholarship.”

Kettering, Ford Partner for Flint Schools Summer Camp

Kettering University is expanding its summer learning camps to target Flint students thanks to a grant from Ford Motor Company’s Corporate STEAM fund. The $32,000 grant will allow for the creation of the Flint Schools Summer Day Camp in July 2017, focusing on creating and learning about model electric vehicles with 20 Flint students. The funds will help with registration fees, supplies and transportation for the students.
Pamela Fletcher ‘89’s passion for the automobile industry stems from many childhood weekends spent on the racetrack with her father in Ohio.

“I had no connection to the auto industry but our family participated in motorsports on the weekend,” Fletcher said. “There was an adrenaline rush with that. I wanted to work in the auto industry so badly.”

Her attraction to cars led her to a magazine article that recognized Kettering University as one of the best places to study for students interested in working in the auto industry. She visited campus once and was “hooked” on the potential opportunities at Kettering.

“I enjoyed the responsibility and exposure at work assignments,” Fletcher said. “I needed both the academic and work experience. I needed the challenge and excitement of college and the co-op experience that opened the windows of the world for me at a very young age.”

Fletcher majored in Mechanical Engineering at Kettering and completed her co-op at McLaren Engineering. At McLaren, she worked on electric systems which served as a prelude to her desire to explore and expand new technologies throughout her career.

“I was enamored with new technology and that’s what I wanted to work on,” Fletcher said. “That’s where the intellectual property was and that’s where the development was going to happen.”

Now, 25 years later, Fletcher is one of the leading experts in automotive technologies as she leads vehicle electrification efforts at General Motors (GM).

“Nothing compares to the scale and scope of the things we work on in the auto industry, and that’s a driving and motivating force for me,” Fletcher said.

**Electrifying General Motors**

Fletcher joined GM in 1993 after graduating from Kettering. She has climbed the ranks at GM for the past 24 years and is currently the Executive Chief Engineer of Autonomous & Electrified Vehicles and New Technology. Fletcher leads the team
responsible for engineering GM’s electric vehicles and mobility solutions, including the award-winning Chevrolet Volt, the Autonomous Chevrolet Volt Campus Fleet, the Chevrolet Bolt EV, e-Bike, Cadillac ELR, Chevrolet Spark EV. Her teams include engineers located in the United States, Europe and Asia.

“As my career unfolded, I embraced the challenge of new technology,” Fletcher said. “I enjoy the challenge and I’m an optimist about the possibilities that you can unlock with technology.”

Fletcher is leading the way for the next generation of mobility with an arsenal of transportation services and options for consumers.

“What’s exciting is the transformation that is happening in the industry that is occurring much more rapidly than anyone could’ve predicted,” Fletcher said. “It brings the additional challenge of new technology and new technology on a very rapid timeline.”

Fletcher cites electrification of vehicles, autonomous technologies and altering user behaviors toward multimodal ride-sharing opportunities as trends that are driving the development of new technologies. She believes that these new technologies have the ability to solve global problems of congestion, pollution and access to adequate transportation.

“While conventional vehicles will be sold all around the globe for many years to come, we are going to start offering opportunities for people that are much safer — that have a cost of use that they can afford,” Fletcher said. “We can provide mobility to people who don’t have it today.”

A Legacy at Kettering University
In October 2016, Fletcher was recognized with the “Engineering Achievement” award at the Kettering University Alumni Awards Banquet. She was “humbled and honored” by the recognition from her alma mater.

“I want to use this as an inspiration to young people,” Fletcher said. “No matter where you are or where you grew up, you can chase your dreams and anything is possible.”

Fletcher recalls her experience at Kettering fondly, as it allowed her to delve directly into industry to establish her professional passions.

“At Kettering, you learn the real kinds of things that you want to work on if you pursue a particular degree field or a particular industry,” Fletcher said. “You get brought in early or if it’s not for you, you have the opportunity to pivot.”

Fletcher believes that Kettering allows students to graduate with experience and maturity that only the co-op model is able to provide. Additionally, the intensity of the curriculum and co-op terms helps students create a potential lifelong network of colleagues and friends in their respective industries.

“We are in a rapid pace of change in the industry. Coming out of Kettering, I have some very close personal friendships that I maintain to this day. My college roommate and I were both listed as 100 Leading Women in Automotive News. We never thought we would be on the stage together. It’s invaluable to get a great education that is accompanied by lifelong friendships.”
Kayla McDonell ‘12 prides herself on working hard and learning the most she can from every job and opportunity. And her bosses at General Motors (GM) took notice.

*Forbes* magazine also saw McDonell’s potential when she was recently included in *Forbes’* 30 Under 30 Class of 2017.

“The recognition was very unexpected. I was at work when I opened the email saying I was chosen. My boss said he could hear me squeal with excitement. I was so excited and shocked. I couldn’t believe that someone saw so much potential in me,” said McDonell, Exterior Lighting Design Release Engineer at General Motors.

“I’ve always wanted to make a difference in the industry and contribute to the company I work for but I never in a million years thought GM would nominate me for something like this. Honored is a major understatement. For *Forbes* to also see my potential is unbelievable.”

McDonell, a Mechanical Engineering major at Kettering, was recognized for her work on the Chevrolet Cruze. She worked with designers, suppliers and factories worldwide on 46 separate lighting parts to meet quality, function and safety regulations in multiple countries.

“When I was working on the Cruze, every day I was on the phone with individuals all over the world to make things work,” McDonell said. “It’s exciting. I’m not always at my desk, I’m walking plant floors, visiting the Milford Proving Grounds or working with individuals. You learn so much from it.”

McDonell has been with GM since the fall of 2014. It’s a move McDonell said she is so happy she took a risk on.

While at Kettering McDonell had a co-op at an architectural firm and a product design company, but when graduation approached she had six job offers to consider. She first took a job with Calsonic Kansei, a Japanese company where she worked on cockpit modules for Nissan. After a year she moved to a different position at Mubea, where she worked on suspension components for foreign and domestic OEMs.

But she knew she wanted more of a challenge.

“I knew I didn’t want to be one of those employees that just gets by. I knew I wanted to be engaged with my company and make a difference,” McDonell said.

She was contacted about a contract exterior lighting design release engineering position at GM, but she was nervous about taking a contract position. The interview, however, energized McDonell and made her excited to work for the company and in that position. After a little thought, she decided to take a risk and accept the position.

Two weeks later she was offered a permanent position at GM.

“I decided to take a risk on myself and prove myself to GM quickly;” McDonell said, adding that it was a decision she never regrets.

McDonell doesn’t have plans of slowing down anytime soon. She wants to continue learning all she can and contributing where she can.

“I always say I want to be the next Mary Barra. I don’t say that as I want to be the next CEO of General Motors. I want to be an inspiring leader that makes a difference in the industry,” she said. “For now, I love my position. But my ultimate goal is to be a people leader while still using my technical knowledge. I want to lead and inspire others but I still want to use my engineering background because that’s where my passion is.”

Kayla McDonell ‘12 Lands on *Forbes’* 30 Under 30, Aspires to be a Leader in the Industry
When Caitlin Bunt ‘14 was growing up, she didn’t realize how big of an impact spending her days at the racetrack with her dad would make on her career.

But when she realized motorsports was where she wanted to be, she wouldn’t let anything get in her way. One step at a time she did some racing herself, found herself at Kettering and, most recently, landed a job of a lifetime to finally break into the motorsport industry.

Bunt beat out nine other American finalists to become the U.S. winner of the Infiniti Engineering Academy, which awarded her the career opportunity she had been hoping for in Formula 1. The opportunity meant she would spend six months working at the Renault Sport F1 team’s headquarters in Enstone, U.K., and six months working at Infiniti’s European Technical Center in Cranfield, U.K. She will play a key role in the ongoing transfer of technical knowledge and expertise between Renault Sport and Infiniti.

“It’s pretty incredible to drop everything and go after this job. I’ve been around motorsports my whole life,” Bunt said. “I probably feel relief more than anything because I worked really hard for this. I earned this. Finally, I made it.”

This was no small feat. There were 4,000 applicants globally. After an extensive interview process, Bunt was chosen as one of 10 U.S. finalists.

Bunt was the first-ever female winner of the Academy. However, that’s not something she focuses on.

“I don’t like to dwell on the fact that I’m a female. I think the best engineers should win regardless of gender,” Bunt said. “It’s good for being a role model to other women in that sense, but it’s not something I think about. They want the best and brightest regardless of the gender.”

For Bunt, winning the competition was the first step to bringing her dream alive.

She grew up with her dad racing a Datsun 240z with the SCCA (Sports Car Club of America). She did most of the engineering and preparatory work on his car before...
each race in addition to the setup and race strategy at the racetrack. Bunt was also a driver in SCCA, racing a Datsun 510 and a Formula Continental.

She knew she wanted to work in the motorsport industry, but it didn’t happen right away.

Bunt decided to go to Kettering University to get the education and work experience she would need to gain experience. She came to the University with a FIRST Robotics scholarship and was a Mechanical Engineering major with an automotive specialty.

“I came to Kettering because of the co-op program, hands down. Without that experience I wouldn’t be in the place that I am now. I wouldn’t have been able to go straight into these jobs, these roles right away. I wouldn’t have landed such a great job after graduation,” Bunt said.

Her time at Kettering in the classroom taught her some valuable lessons, as well.

“Being put into team projects and designing something and making it work is something Kettering pushed into your learning,” she said. “You take away communication skills and teamwork skills. Working with others in an effective way is something you can take forward wherever you go.”

After Kettering, Bunt worked for two-and-a-half years at Fiat Chrysler Automobiles as a Transmission Calibration Engineer. Then one day she decided to leave her great job and drop everything to follow her passion in motorsports.

She recently completed her dissertation for Oxford Brookes University in the U.K., at which point she received her master’s degree in Motorsport Engineering.

“Especially in the motorsport industry, if this is what you want to do, you have to keep at it. A lot of it is about having the right application to the right company at the right time,” Bunt said. “Keep going at it. Follow your dreams.”

Bunt’s dissertation was completed in September 2016. Then in November she started her first six-month placement at either Renault Sport F1 team’s headquarters in Enstone, U.K., or at Infiniti’s European Technical Center in Cranfield.

“I will be pushing really hard to secure a full-time position with Renault Sport,” Bunt said. “I love the challenge of motorsport. It’s exciting. You have to think very creatively to come up with a solution, something another team doesn’t have. You have to do that in a very short period of time. You have to work as a team and with collaboration to make it work. You have to be at the top of your game in so many areas.”
For the first time in a century, there is an opportunity to completely change the design DNA of the automobile, and Larry Burns ‘75 has a vision for the future of mobility.

“I’M AN ENGINEER FROM THE TOP OF MY HEAD TO THE TIPS OF MY TOES AND KETTERING TAUGHT ME A WAY OF THINKING THAT SERVED ME EXTREMELY WELL.”

- Larry Burns ‘75

“A digital revolution, new materials and energy innovation are coming all at once. It’s no longer a question of whether, but one of when our 130-year-old mobility system transforms,” Burns said. “Connected vehicles are already prevalent, and driverless car technology could be proven in a few years. We’ve entered into a once-in-a-century opportunity to transform our mobility and it’s happening quicker than people thought it would.”

The technology for autonomous vehicles could be ready by 2018, he said.

Burns, a consultant to several firms including Waymo, Google’s self-driving car initiative, sees four futures based on whether the vehicle requires a driver or drives itself, and whether people personally own cars or share them.
“Personally owned driverless vehicles will lead to a new age of automobile with compelling new vehicle designs and fashion-centered brands. Shared driverless vehicles will lead to a new age of mobility with magical experiences at very low cost to consumers and society,” Burns said.

Burns, former General Motors Vice President of Research & Development and Planning/Strategic Planning, said GM’s announcement in 2016 to join forces with Lyft was a great move and a good example of what’s to come for the future of vehicles.

GM announced in January 2016 that it will invest $500 million in Lyft, a ride-sharing company, and take a seat on the startup’s board of directors. GM will also become a preferred provider of cars for short-term use to Lyft drivers.

“I’m excited for GM. What they’ve done with Lyft, the Chevrolet Bolt and connected cars through OnStar and 4G LTE are important initiatives,” Burns said.

“The days of everyone owning and driving their own car could be in the past. With road congestion, the hassles of parking and buying gasoline, the high out-of-pocket cost for driving and the time spent driving, it just makes sense that people are looking for better solutions.”

Burns started at Kettering University (then General Motors Institute) in 1969 in Mechanical Engineering.

He did his co-op through GM Research and Development and then joined GM full-time after getting his master’s degree from University of Michigan and Ph.D. from University of California, Berkeley.

From 1998 to 2009, Burns was General Motors Corporate Vice President of Research & Development and Planning/Strategic Planning. He is now a consultant to companies, such as Google and Allstate, and organizations like Securing America’s Future Energy (SAFE). He was also a professor of Engineering Practice at University of Michigan from 2010 to 2015 and led the Program on Sustainable Mobility at Columbia University from 2010 to 2014.

“I’m an engineer from the top of my head to the tips of my toes and Kettering taught me a way of thinking that served me extremely well,” Burns said. “In addition, my co-op experience highlighted that in the real world, questions are not always well defined, data is messy, engineering methods do not apply perfectly and there is typically more than one right answer.”

It was at the 2002 North American International Auto Show that Burns discovered an interest in autonomous vehicles and what the future could be like for transportation.

During the media event, he revealed GM’s autonomy concept, an innovative approach to vehicle design based on a skateboard-like chassis, drive-by-wire controls and an electric propulsion system with four wheel motors.

“That was a lot of fun. And then my boss, GM CEO Rick Wagoner asked me what’s next. I said cars that don’t crash. This is when I began to believe that we could eliminate car crashes and that autonomous cars were inevitable,” Burns said.

In 2007 he was part of the DArPA Urban Challenge in California where teams were challenged to build an autonomous vehicle capable of driving in traffic, performing complex maneuvers and negotiating intersections.

“If we could get the driver out of the loop that would really, really change the industry. By that time it was in my blood. I committed myself to helping realize the enormous societal benefits of connected, driverless, shared and electrically driven vehicles as soon as possible,” Burns said. “I’ve come to the realization that the solution to energy and environment challenges of today’s cars and trucks is through autonomous vehicles. We can now tailor design vehicles for 90 percent of the trips that are with one and two people, making them significantly lighter and more conducive to electric drive.”

The future for mobility is an exciting one. There are always new ways to create the automobile.

“For the first time in 130 years the world has an opportunity to truly transform how people and goods move around and interact,” Burns said. “And that is exciting for students and alumni motivated to be part of this future.”

“I think it speaks to the environment that we live in as far as the education system in America,” Warren said. “I think there could be more preparation at the high school level to get students more interested to pursue careers in science.”

Warren believes that kids genuinely like math and science in elementary and middle schools but there’s a cultural shift away from the fields of study at the high school level. Based on her own educational experiences, Warren hopes to dedicate her life’s work to altering this narrative and inspiring students to pursue careers in science and engineering.

Journey to Kettering University and Carnegie Mellon
Warren was attending the Mississippi School for Mathematics and Science (MSMS), a residential high school located on the campus of the Mississippi University for Women in Columbus, Mississippi when she was awarded the prestigious Gates Millennium Scholarship (GMS) from the Bill and Melinda Gates Foundation.

The GMS covers all educational expenses for a student to pursue an undergraduate, master’s and Ph.D. But it’s also more than a full-ride scholarship; it’s an entry to a lifelong academic fraternity that provides academic empowerment services to encourage academic excellence; mentoring services for academic and personal development; and an online resource center that provides internship, fellowship and scholarship information.

After earning the scholarship, Warren received a pamphlet in the mail from Kettering. The mailing catalyzed her visit to campus where she met with Dr. Pat Atkinson about concentrating on Biomedical Engineering. She then made the trek from Mississippi to
Michigan and majored in Mechanical Engineering with a concentration in Bioengineering and a minor in Business.

“I had a lot of great interactions with people on campus during my visit,” Warren said. “I liked the idea of the co-op. It was the only school I talked to with a co-op program.”

Warren completed her first three co-op terms at General Motors in Milford, Michigan, where she worked on noise and vibrations, human-vehicle interactions and corrosion. She then transferred her co-op position to Eli Lilly and Company in Indianapolis where she worked on delivery device assembly operations for the pharmaceutical company.

On campus, she became involved with the Black Unity Congress (BUC), National Society of Black Engineers (NSBE), student government, Pi Tau Sigma and represented her 2011 graduating class as the student commencement speaker.

As a Gates Millennium Scholar, Warren’s education was funded through her Ph.D. so she opted for graduate school after Kettering as opposed to working in industry. She joined the Mechanical Engineering labs of Dr. Philip R. LeDuc and Dr. C. Fred Higgs III at Carnegie Mellon.

“The original research idea was a little different than what I ultimately worked on,” Warren said. “My project focused on efficiently using microalgae for biofuels. It was a combination of things that I was interested in including environmental protection and biology.”

Focusing on the Education of Others
After completing her Ph.D. at Carnegie Mellon, Warren became a policy fellow for the California Council on Science and Technology in Sacramento in November 2016. She will spend the next year advising policymakers on a variety of issues that reach the state-level House and Senate floors in the state of California.

“They are looking for fellows who think critically and can analyze the science behind the bills,” Warren said.

Warren is one of nine fellows selected to the program. Each of the fellows will advise the legislature on various topics including utilities, natural resources, health, cyber security and environmental justice.

Warren’s drive toward public service stems from her experiences as mentor to students in Pittsburgh while she attended graduate school. Mentoring youth in the community further exposed her to the inequalities in the education system. After completing the fellowship, Warren hopes to remain in public service and specifically focus on K-12 public education. She wishes to use her own educational journey as an example to inspire others.

“Being more involved in the community really helped me see what I was called to do and that’s advocating for education for the upliftment and advancement of the marginalized in America,” Warren said.

“I HAD A LOT OF GREAT INTERACTIONS WITH PEOPLE ON CAMPUS DURING MY VISIT. I LIKED THE IDEA OF THE CO-OP. IT WAS THE ONLY SCHOOL I TALKED TO WITH A CO-OP PROGRAM.” - Kristin Warren ’11
Two Kettering University alumni recently received prestigious National Science Foundation (NSF) fellowships to support STEM research for the next three years.

Lixi Liu ’15 and Nate Dwarshuis ’15 both received awards through the National Science Foundation Graduate Research Fellowship Program (NSF GRFP). The program recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master’s and Ph.D.s at accredited United States institutions.

“The NSF graduate fellowship is a very prestigious award for first-year graduate students. It’s only awarded to a small percentage of applicants. It’s quite an impressive accomplishment,” said Dr. Susan Farhat, associate professor of Chemical Engineering at Kettering.

For the 2016 awards, NSF received close to 17,000 applications and made only 2,000 award offers, according to the NSF GRFP website.

Both Liu and Dwarshuis were surprised and humbled to be chosen for the fellowship, which will allow them to have more freedom in their research.

Dwarshuis, who studied Chemical Engineering at Kettering, is now studying Biomedical Engineering at Georgia Tech.

His research at Georgia Tech aims to manufacture T cells for immunotherapy.

“T cell immunotherapies have shown promise in treating a variety of cancers, but we barely have the capability of producing enough T cells for one dose. This limits the possibility of multiple dosing, safety testing, and long term storage,” Dwarshuis said.

“Current T cell manufacturing protocols do not recapitulate many of the factors that are present in the human body such as the lymph nodes. Therefore, our goal is to improve T cell expansion by creating a process/environment that will mimic the human body, thus optimizing T cell expansion and manufacturing throughput,” he said. “The ultimate goal is to manufacture T cells analogously to the way we produce complex, inanimate products such as cars.”

Farhat was not surprised when she heard Dwarshuis received the fellowship.

“I’ve known Nate to be a truly exceptional student whether in one of my classes or in the lab working on research projects. He has always impressed me with his strong work ethic and commitment, as well as his innovative thinking and problem solving,” she said. “It’s an exciting time for him, and I have no doubt he’ll continue to succeed and exceed expectations throughout his time in graduate school.”

Liu studied Mechanical Engineering at Kettering. She’s now studying sustainable energy systems in the Mechanical Engineering department at the University of Michigan.

“I am currently doing life cycle optimization for solid-state lighting. As solid-state technologies, particularly Light Emitting Diodes (LEDs), are becoming the next energy-efficient and long-lasting light source, I am using life cycle assessment and design optimization techniques to optimize the adoption and replacement schedule for LED lamps and luminaires in order to reduce the cost, energy consumption, and environmental impacts owing to lighting,” Liu said. “These results can help inform manufacturers on better lighting design as well as policymakers on the design of incentives and regulations for lighting.”

Liu is looking into what to pursue next after this project but she is considering studying carbon capture and sequestration technologies, which aim to mitigate climate change by capturing carbons from the air or at the points of emission.

Receiving the NSF fellowship was a big step for Liu.

“I just woke up that morning and went and checked my email as usual. I saw the acceptance letter and I started bawling. I was hopeful but I was preparing myself for the worst,” she said. “It means that I get more freedom to pursue the ideas that I want and work with the faculty I want. It’s validation that I’ve been doing something right.”

Dr. Craig Hoff, Dean of the College of Engineering at Kettering, said Liu’s work ethic and love of learning impressed faculty at University of Michigan and the reviewers at NSF.

“Lixi was one of my favorite undergraduate students ever. I first got to know her when she took my hybrid vehicle course a couple of years ago. Despite having little background in automotive engineering or MATLAB/Simulink software she took quickly to both subjects,” Hoff said. “She was not content just to get the right answers on the projects, she really wanted to understand what the numbers meant. She applied this inquisitive nature and love of learning to all of her courses.”
Since 2012, Kettering University faculty have received nine Major Research Instrumentation (MRI) grants from the National Science Foundation – more than any university in Michigan during that period. These grants, which support the acquisition of rare and high-tech lab equipment, have improved the University’s research capabilities and provided more opportunities for students to use unique equipment as undergraduates.

“Kettering is definitely a leader in terms of putting advanced technological tools into the hands of undergraduates,” said Dr. James Zhang, Provost and Senior Vice President for Academic Affairs. “Our students have opportunities they wouldn’t typically receive until the graduate level at many other institutions.”

Here is a summary of what faculty have done with those grants.

**Nanotechnology Expansion**

Dr. Ronald J. Tackett, faculty member in the Kettering University department of Physics, along with collaborators from multiple disciplines across campus have been awarded a National Science Foundation - Major Research Instrumentation (NSF-MRI) grant for $452,000. The grant allowed Tackett to acquire a high-resolution transmission electron microscope (TEM) with energy dispersive spectroscopy capabilities to support ongoing investigations and potentially advance materials science and nanotechnology research and teaching at Kettering.

The TEM was installed on campus in October 2016 and has already been incorporated into Kettering’s academic curriculum and for industry and community outreach.

“It’s certainly opened up the avenue for more possible collaboration with industry and also outreach,” Tackett said.
Tackett has used the TEM for the junior-level material science and nanotechnology class at Kettering. Its capabilities have also been demonstrated to visiting high school groups and prospective students during Kettering’s open house events.

“I’d like to put together a type of program that’s aimed at increasing awareness of STEM fields at the elementary, middle and high school levels,” Tackett said.

Tackett, Dr. Uma Ramabadran, Physics; Dr. Xuan Zhou, Electrical Engineering; and Dr. Gianfranco DiGiuseep, Mechanical Engineering; are all currently using the TEM on campus for their research.

**Plastics Research Gets Boost**

Kettering faculty and students involved in nine different projects from the Chemical Engineering, Engineering Physics, Biochemistry and Applied Biology departments will benefit from the $552,650 award that led to the acquisition of an X-ray Photoelectron Spectroscopy (XPS) instrument. The XPS is the industry standard measurement tool for the chemical composition of surface materials.

Since being installed on campus in March 2015, the data collected from the XPS has been used to support over 15 research projects involving 10 faculty members from multiple disciplines.

Data and findings using the XPS are included in one published peer-reviewed article, one article under review, two manuscripts in preparation, four conference presentations, one patent application, three successful research proposals, and two proposals under review. The instrument has also been integrated into three undergraduate courses at Kettering.

**Researching Molecular Interactions**

Dr. Veronica Moorman and a team of faculty researchers from multiple disciplines across campus were awarded a National Science Foundation Major Research Instrumentation (NSF-MRI) grant for $91,600 that permitted the acquisition of an isothermal titration...
calorimeter (ITC). The ITC has allowed Moorman and her colleagues to obtain quantitative thermodynamic information about molecular interactions.

Since being installed on campus, the ITC has been used in labs associated with Biochemistry classes. Additionally, Moorman, Dr. Montserrat Rabago Smith and Dr. Lihua Wang, have trained students working on four different research projects to operate the instrument independently.

This grant has allowed Kettering to expose numerous undergraduate students to a sophisticated piece of instrumentation that they normally would not be exposed to until graduate school.

Finding New Cancer Treatments
Dr. Prem Vaishnava, a professor of Physics at Kettering University, is propelling Materials Engineering to new heights at Kettering University with the acquisition of an X-Ray Diffractometer. The acquisition was made possible by a $77,808 National Science Foundation - Major Research Instrumentation (NSF-MRI) grant.

The diffractometer has been used on campus for materials characterization across multiple disciplines including Physics, Chemistry, Chemical Engineering, Mechanical Engineering and Industrial Engineering; as a tool for teaching materials science related classes; and outreach opportunities for area middle and high
school students through pre-college programs, such as Academically Interested Minds (AIM) and Lives Improve Through Engineering (LITE) programs.

A 3D Digital Image Correlation System
Dr. Javad Baqersad, faculty member in the Kettering University department of Mechanical Engineering, along with collaborators from multiple disciplines across campus were awarded a National Science Foundation - Major Research Instrumentation (NSF-MRI) grant for $183,835.

The grant allowed Baqersad to acquire a 3D Digital Image Correlation (DIC) System to enhance research and teaching at Kettering.

The digital image correlation system enables high fidelity, full-field, and non-contact measurements of geometry, displacement and strain. The 3D DIC system will be used as a shared teaching, training and research tool to support interdisciplinary, collaborative research and education in the broad areas of structural dynamics, biomechanics, non-destructive inspection, crash safety, vehicle dynamics, and material science at Kettering and other local higher education institutes.

Determining Chemical Composition of Complex Materials
A carbon, hydrogen, nitrogen, sulfur, and oxygen (CHNSO) elemental determinator, granted in 2012, was the first of nine MRI that Kettering University has received.

The grant totaled $70,698.

The elemental determinator is used to determine the carbon, hydrogen, nitrogen, and sulfur content of combustible materials which is useful for characterizing coal, biomass, and other materials. This aids in determining the chemical composition of complex materials, said Dr. Jonathan Wenzel, principal investigator.

The CHNSO is used at Kettering University to determine the elemental composition of biomass and has been used in chemistry labs. In addition, the elemental determinator has been contracted for use by an investigation team at the University of Kentucky. It is useful in determining before and after effects of plant extraction and treatment of biomass. The instrument is primarily used by Chemistry, Biochemistry, Chemical Engineering, and Applied Biology.

The Future of Ergonomics
Collaboration led to innovation at Kettering University as five faculty members combined their research efforts to bring an $114,039 grant from the National Science Foundation (NSF) to the University in 2013.

Justin Young (principal investigator), Terri Lynch-Caris, Mehrdad Zadeh, Girma Tewolde and Giuseppe Turini co-sponsored a program entitled “MRI: Acquisition of a Motion Capture System to Facilitate Multidisciplinary Research Efforts and Enhance Undergraduate Research Training.” Kettering’s acquisition of a high-accuracy, three-dimensional motion capture system has enabled several collaborative research projects in the overlapping areas of ergonomics and human factors, haptics, robotics and computer science. The acquisition has been vital to several different research efforts thus far.

The researchers are incorporating the instrument into a new laboratory space that was recently renovated on
the first floor of the Academic Building. The “Human Interfaces Lab” is dedicated to designing and evaluating human-machine and human-computer interfaces and interactions with existing and emerging technology (including gesture, virtual reality, augmented reality, and driving interfaces). This research has involved students from Industrial and Manufacturing Engineering, Computer Science, Electrical and Computer Engineering, and Automotive Systems Engineering students.

Approximately 15 undergraduate and master’s students have produced 12 conference proceedings related to this work, and the instrument was integrated into seven university courses. Also, outreach program learning modules for high school students have allowed more than 60 female students to have hands-on exposure to the equipment.

“By having this state-of-the-art instrumentation available for young minds to touch and experience, we hope to show that engineering and technology research is accessible and encourage more female students to pursue STEM degrees,” Young said.
Researching Cures for Neurological Diseases
Dr. Jaerock Kwon, Kettering University assistant professor of Computer Engineering, received a $341,563 National Science Foundation research grant in 2013 for a program entitled, “MRI: Development of High-Throughput and High-Resolution Three-Dimensional Tissue Scanner with Internet-Connected 3D Virtual Microscope for Large-Scale Automated Histology.”

The program focused on the development of a three-dimensional brain tissue scanner, which expands on Kwon’s dissertation topic at Texas A&M University. During his graduate studies, Kwon worked the prototype of the scanner, focusing on automating the scanning process and improving the software and hardware of the device.

The 3D tissue scanner is still being developed. So far with the grant funds, two graduate students were trained, one new elective course, Biomedical Image Processing and Visualization, was developed based on the technology, two conference papers were published and three posters were presented for the last three years in Society for Neuroscience annual meetings.

Upon the completion of the project, the 3D tissue scanner will be able to digitize biological tissue blocks into 3D models in high speed and high resolution.

“This enables researchers to conduct comparative research with multiple tissue samples in a short period, which is essential to test hypotheses in animal studies for neurological and neuro-vascular diseases,” Kwon said. “This will eventually shed a light to find cures for humans’ neurological diseases.”

Creating a Wireless Research Network
In 2014, Kettering University received a $143,920 Major Research Instrumentation (MRI) grant from the National Science Foundation (NSF) to give Kettering something no other university in the country has – its own 4G long-term evolution (LTE) wireless system.

Since receiving the grant, five 4G-LTE base stations were installed in three different locations across Kettering’s campus. Several servers were installed to control and manage the 4G-LTE system as well as to connect with GENI rack, which let other institutions use the 4G-LTE resource for research and education, said Dr. Yunsheng Wang, assistant professor of Computer Science at Kettering University and principal investigator of the NSF grant.

Wang also established a new course, CS491 Advanced Mobile and Wireless Networks, for undergraduate and graduate students for the summer and fall terms 2015.

Kettering’s 4G LTE wireless system will provide fully 4G-LTE cellular network coverage for the GM Mobility Research Center to support vehicular networking communication.
Students, Faculty Member Working to Improve Fuel Efficiency

Kettering University faculty and students are partnering with a company with technology operations in Michigan to improve vehicle fuel efficiency through waste heat recovery.

Dr. Bassem Ramadan, Mechanical Engineering department head at Kettering, began a partnership with Eaton, which has an advanced technology campus located in Southfield, Michigan, in 2013. With the help of grants from the Department of Energy, Ramadan, Kettering graduate research assistants and Eaton engineers, have been researching how to design an efficient expander that can extract mechanical energy from various inlet boundary conditions.

Research is being done on the design for an expander and the rotors inside it. The expander can use either exhaust gases or an organic fluid to spin the rotors and generate power.

Since 2013, and from grants totaling $750,000, Ramadan has had the help of 10 Kettering University graduate research assistants. Currently, two are helping with the research – Pragya Mishra and Jayneel Gajjar.

Ramadan and the students use Computational Fluid Dynamics (CFD) software to analyze and change the shape and design of the expander porting and its rotors. The software allows them to do flow simulations and calculate the efficiency of different designs before the part is built by Eaton, reducing development time and cost. The ultimate goal is to figure out how they can maximize the efficiency of the device.

Eaton approached Ramadan about four years ago when they realized they needed to increase their analytical capabilities in CFD for advanced research and development projects.

“We knew we needed to increase our capacity and continue to improve capability for exploration of new technologies and adding Kettering’s expertise to Eaton’s projects made sense,” said Matthew Fortini, engineering specialist at Eaton.

The partnership has allowed Eaton to do studies for five different projects to date. The projects look at how the software at Kettering can show them how to optimize their design for efficiency and power generation.

For Kettering students, having the opportunity to work on this research adds experience and knowledge they wouldn’t necessarily get in the classroom, Ramadan said. The CFD technique is tough to learn in a single course. Graduate assistants work with Ramadan for about a year to get a better sense of how it can be effective.

Students are able to relate theory and the actual application of it. Both Mishra and Gajjar have been using CFD for this research for more than a year. The best part of the research for them is seeing the results as they happen and seeing their work be used in practical applications throughout the industry, they said.

“We rely on fluid mechanics principles to analyze the flow. The fact that it has real world applications really makes us very excited to work on this,” Ramadan said.
Kettering University has named Dr. Michael Smith as the Dean of the School of Management. As the Dean, Smith also holds an appointment as F. James McDonald Chair of Supply Chain Management.

In this new role at Kettering, Smith will oversee the School of Management. The School of Management offers an undergraduate degree in Business Administration and a variety of master’s programs including Master of Science in Operations Management, Master of Science in Engineering Management, Master of Science in Supply Chain Management and Master of Business Administration (MBA).

“I am delighted to join the faculty, staff and students at Kettering to craft and implement a vision of management education that is distinctive and leverages the particular strengths that exist at Kettering University,” Smith said. “I believe that Kettering is uniquely positioned to foster future business leaders that are technologically savvy, and engineers and other disciplinary leaders who are management savvy. I am pleased to join the members of the Kettering community in shaping leaders who are well-prepared to participate in solving the problems that our society will face in the future.”

Kettering has also named Dr. Laura Vosejpka as the Dean of the College of Sciences and Liberal Arts and Professor of the Practice in the Department of Chemistry. Dr. Vosejpka serves as the founding dean of the newly established college. In her new role at Kettering, Vosejpka will oversee the Departments of Biology, Chemistry and Biochemistry, Computer Science, Liberal Studies, Mathematics and Physics.

“During my campus visit, I was so impressed by the extraordinary work being done by Kettering’s world-class faculty,” Vosejpka said. “Their enthusiasm and commitment, and that of their students and staff colleagues, was contagious. I look forward to joining such a vibrant group and doing what I can to help them accomplish their goals of growing this world-class STEM university.”

Undergraduate Research Opportunities Let Students Grow Outside Major

Jason Chapman ‘17 will walk out of Kettering University with skills he didn’t know he would get as an undergraduate student.

Even though Chapman was a Mechanical Engineering major, he learned how to properly conduct X-Ray Diffraction, design research methods, handle chemicals safely and more Chemistry and Physics principles than he thought he would.

It was all thanks to his involvement in an undergraduate research opportunity with Dr. Uma Ramabadran in the Physics department.

“For me it’s been incredibly valuable to have a broad range of experiences while I can. It was good to explore,” Chapman said. “I think it should be something people should consider. You’re here to learn.”
From his time at Kettering University and his co-op experiences, Dave Anderson ’93 let his array of opportunities lead him to a job where he feels he’s making a difference in the world.

Starting as an engineer, Anderson slowly moved into management roles and discovered his true passion.

Anderson, Vice President of M&A Integration for Abbott, didn’t always know he would land in the medical industry in management roles, but now that he’s here, it’s where he wants to stay.

Anderson has been with Abbott (formerly St. Jude Medical) for 23 years. Recently, he was elected to the California Life Sciences Association Board of Directors.

“Personally, how I’m wired my main focus is I want to make a difference and I want to do something impactful for people,” Anderson said. “The diseases we treat at (Abbott) are all life-threatening diseases. The innovation you bring will have a significantly improved outcome. It will improve life, relieve or reduce pain or suffering.”

When Anderson was considering where to go to college he knew he was going to have to pay for college himself, and he knew he wanted a strong internship program.

Kettering’s co-op opportunities made Kettering his top contender. With a strong interest in math and science, Kettering made sense.

“Engineering was always an interest. As I looked at companies for co-op, the medical industry was the most interesting,” Anderson said. “I wanted to be able to make my own way. Kettering was something I knew I could start on.”

Learning the importance of a good co-op experience is knowledge Anderson has carried with him throughout his career as he mentors and trains others at Abbott.
“The co-op was huge in terms of getting a sense of what I wanted to do and what I was most effective at. Each opportunity was a different department with a different focus,” Anderson said. “With each co-op/internship experience being different I quickly learned to come up to speed with each new opportunity. It gave me a lot of confidence in just doing that in my career – learning jobs quickly. I can take on any new opportunity and learn it and didn’t have to stay on one path.”

As a Manufacturing Systems Engineering major at Kettering, Anderson started as an engineer in the medical industry with positions in process and quality engineering. After four years, he advanced into management roles.

Throughout his career at Abbott, he’s held positions such as Operations Director, Technology Vice President and Research and Development Vice President.

He led the integration of an acquisition of Thoratec into St. Jude Medical. And now as Vice President of M&A Integration he partnered with Abbott leadership in leading the integration of St. Jude Medical into Abbott.

“You have a multiplier effect in management roles. You’re managing a very large research and development team, managing multiple diseases and therapies,” Anderson said. “Another thing I love about my job is being able to impact the employee’s lives themselves. I can help create an environment that enables them to thrive and be successful.”

Throughout his career, Anderson has learned some valuable lessons.

And he’s able to share that advice.

“For students the first thing I would recommend is to really have a high expectation for yourself and your internships. Don’t just check the box,” Anderson said. “I looked at each assignment as I have this unique opportunity to look back and say, ‘Wow. I contributed something.’”

When someone has that attitude it will not only benefit the company but the student will also be exponentially benefited, he added.

“For graduates I have two pieces of advice. Take the fact that through having a lot of co-op experiences, you’ve experienced a lot of diversity and gone through a lot of change. Continue that in your career. Do different things. Try new things. That’s helped me with growing and seeing where I am most effective.

“You also need to go to graduate school for engineering. When I look for engineers I’m looking at the top 5-10 percent of people. It will get you further.”

Kettering helped Anderson hit the ground running in any new role he stepped into.

The co-op on top of the education prepared him for his future career.

“The labs at Kettering had major processing equipment like big injection molders and sheet metal forming equipment. It was a great asset to students. I wasn’t intimidated as a young engineer just running the equipment,” Anderson said.

“For graduates I have two pieces of advice. Take the fact that through having a lot of co-op experiences, you’ve experienced a lot of diversity and gone through a lot of change. Continue that in your career. Do different things. Try new things. That’s helped me with growing and seeing where I am most effective.”

- Dave Anderson ’93

FOR GRADUATES I HAVE TWO PIECES OF ADVICE. TAKE THE FACT THAT THROUGH HAVING A LOT OF CO-OP EXPERIENCES, YOU’VE EXPERIENCED A LOT OF DIVERSITY AND GONE THROUGH A LOT OF CHANGE. CONTINUE THAT IN YOUR CAREER. DO DIFFERENT THINGS. TRY NEW THINGS. THAT’S HELPED ME WITH GROWING AND SEEING WHERE I AM MOST EFFECTIVE. - Dave Anderson ’93
1969  
Andrew Hatloy retired from Jefferson State Community College in Birmingham, Alabama, as the Director of Manufacturing and Technology Center in 2011. He now oversees their rentals and works on his projects — old Jaguars, Chris-Craft cruiser and the farm. In this new life, he and his wife, Margaret, enjoy life and its new challenge.

1972  
John Hawkins recently retired from teaching Mechanical Engineering at Bob Jones University in Greenville, South Carolina.

1973  
David Reecck retired from General Motors China in 2014 and from GM USA in 2010. He is still actively consulting on electric vehicles, the China auto market and powertrain. Reecck started a small business to sell electric assist bicycles, with the brand name “Out & Ebout”. The implication of the brand name, for his fellow retirees is to get off the sofa and get out of your car, get outside and ride with electric power assistance, for some exercise, excitement and fun.

1975  
Stephen Bird semi-retired from Dana Holding (Off-Highway Division) in 2015 after almost 39 years (over 47 years in the auto industry, including his co-op at Buick) as a Senior Project Engineer. Bird is now working part time on projects and mentoring for Dana Off-Highway. His wife, Julia, retired from teaching 10 years ago and they have four granddaughters. Bird is slowly working on his “bucket list” with two things completed so far. His wife gave him a Richard Petty ride at Charlotte Motor Speedway (Lowes) and he was able to fly and ride in a P-51 Mustang with the Collings Foundation. They also attended the Superbowl this year (as they did in 2003) for the Panthers. They have been season ticket holders with the Panthers from the beginning. Bird currently owns his 10th Corvette, a 60th anniversary 427 convertible.

1976  
Dennis Schrader now serves as Secretary of Appointments in Maryland Governor Larry Hogan’s cabinet. He was promoted after serving a year as Deputy Secretary of Transportation in 2015.

1977  
Thomas Plotkowski, Occupational Health and Safety Supervisor for GM Propulsion Systems, retired from GM after 44 years of service effective October 1, 2016. He is planning on enjoying time with his wife, Patty, and grandchildren.

1979  
Richard Rosen received the degree of Doctor of Education from Johns Hopkins University in August, 2016. He was selected as part of the inaugural cohort of a new education doctorate at JHU’s School of Education in 2013. Rosen’s research studied partnerships between business and education and what makes some endure. He plans to teach a graduate level course in this area in the spring of 2017.

1981  
Chad Zeilenga moved his family to Charlotte, NC while moving to a new role as Global Test & Reliability Manager at Cofax Fluid Handling.

1983  
Andrew Novajovsky retired from General Motors Company October 1 after 39 years and moved to Ponte Vedra, FL.

1988  
Barbara Early is working on a new mystery novel Series. The first book in her new Vintage Toystop Mystery series debuted in October, 2016. This is her fourth novel. She previously wrote the nationally bestselling Bridal Bouquet Shop Mysteries under the pen name of Beverly Allen.

1993  
Scott Hogan co-authored a patent law-related article entitled The great divide—sorting out method claims and multiple actors, published in the IAM Yearbook: Building IP value in the 21st century 2017, a supplemental to IAM (Intellectual Asset Management) by Globe Business Media Group. Hogan is a shareholder at the IP law firm Reising Ethington P.C. in Troy, MI.

1994  
Donna Mosher is now the Technical Service Manager for Transportation Lubricants for BASF Corporation. She is also very active in SAE as the current chair of the SAE Technical Committee for Driveline Lubricants and chair of the Western Michigan SAE section. After 25 years, she and Jeff Dobrowolski ‘92 are still together and reside in the greater Grand Rapids, MI area.

1998  
Edward Boll has a full-time position with AMSEC in Newport News, Virginia.

2000  
Benjamin Lorenz finished the IRONMAN Vichy in France, on Sunday, August 28, 2016. His wife, Conny, and two sons, Timmy (7) and Noah (5), who also ran in the IRONKIDS event, were all there to see him finish. Lorenz has lived in Schweinfurt, Germany, since January, 2014. Feel free to contact him if life brings you to central Germany.

2002  
Cory Beaubien co-authored an article, “At the Intersection of U.S. Patent Laws and Autonomous Vehicles: A Look at Patent Eligibility and Claim Indefiniteness,” published as a General Chapter in seventh edition of the International Comparative Legal Guide to: Patents (Global Legal Group Ltd., London). Beaubien is a shareholder at the IP law firm Reising Ethington P.C. Beaubien has also been elected by fellow shareholders to serve on the Management Committee of Reising Ethington P.C., an intellectual property law firm established in 1865 in Detroit and located today in Troy, MI. Beaubien started with Reising in 2002 after graduating from GMI/Kettering.

Trisha (Manjari Roy) Roy was a quiet graduate student expecting her first baby when she walked in commencement in 2002. After receiving her degree, she was stay-home mom for a full 11 years, but since 2014 she has entered the workplace. As a single mother and with the mindset of an entrepreneur that was inculcated in the evening hours of graduate study, Roy found real estate to be a worthy passion. In
2016 she founded her own brokerage, the only international brokerage in Gainesville, Florida.

2003
Ryan Garn, his wife, Courtney, along with their children Grace, George, Lucy and Henry, welcomed Daisy Anne Garn on June 24, 2016. Additionally, Garn recently started Garn Consulting, a management consulting firm focused on helping manufacturing companies.

2004
Jason Snyder started a new job as a trauma and general surgeon in the division of Acute and Critical Care Surgery at Washington University in St. Louis.

Nina Robinson recently founded a children's bookstore called My Book Buddy in an effort to help children become better readers. The mission is to help foster an engaging reading environment for children and provide books to children of the Metro Detroit area in need. Unlike most bookstores, when a book is sold another book is given to a child in need. Additional services (most at no charge) are offered to educators, public libraries, and local non-profit organizations. Books can be purchased at www.mybookbudgdetroit.com.

2005
Essence (James) Wilson was awarded the Claire M. White award from the Flint & Genesee Chamber of Commerce for her service to others, community development efforts through Communities First, Inc. and leadership in Curiosity Academy, an after school girls STEM program.

2006
Abhishek Banerjee is currently in a Lead Electrical Engineer position at Hewlett Packard Enterprise (Houston, TX) responsible for Power Supply, System and Electronics Solutions for IT space. Banerjee is also pursuing the MBA for Professionals program at the University of Michigan.

Ursula (Dyer) Lepporoli moved back to Sydney, Australia, to help lead the Data and Delivery Excellence tax team at KPMG. She is loving the challenge of working and being a mom.

Christopher Morgan recently became engaged to the love of his life, Chelsea Butera, RN, on May 28, 2016 at the Detroit Zoo Polk Penguin Conservation Center. They will be married on Saturday, June 10, 2017 with a Metro Detroit wedding at a historic venue.

2007
Rebecca Junell recently left the NASA Stennis Space Center in southwest Mississippi and took a new job at Plum Brook Station (an outpost of NASA Glenn Research Center in Sandusky, OH, starting August, 2016). Instead of sea-level rocket engine testing, she is now working with space environment simulation, including upper stage rocket engine testing at simulated altitude. This is achieved using a large vacuum chamber with walls lined with liquid nitrogen piping (to simulate high atmospheric and space pressures and temperatures) and movable ceramic heaters to simulate radiation from the sun. Junell works at the B-2 control facility, home of the third largest vacuum chamber in the world (the largest, the Space Power Facility, is also located at Plum Brook Station), performing thermal analysis and facility test data review.

2009
Jacob Obradovich was promoted last fall to the position of Team Leader for leading a team of test engineers in the conduct of testing on various military vehicles at the U.S. Army’s Yuma Proving Ground in Yuma, AZ. He also recently completed his MS in Systems Engineering from the University of Arizona (Tucson), graduating in May 2016. He, his wife (Nidal), and their son Jacek are enjoying the hot summer sun in the desert and looking forward to new adventures now that the MS program has been completed.

2012
Melissa (Partlo) Middleton married fellow Kettering graduate, Andrew Middleton, in July, 2016 on Mackinac Island.

2014
Roberto (Berto) Diaz was in a fatal motorcycle accident in Romulus, Michigan on April 15, 2016. He graduated from Kettering University in December of 2014, was on the Baja team and co-oped for GM from April 15, 2016. Instead of sea-level rocket engine testing, she is now working with space environment simulation, including upper stage rocket engine testing at simulated altitude. This is achieved using a large vacuum chamber with walls lined with liquid nitrogen piping (to simulate high atmospheric and space pressures and temperatures) and movable ceramic heaters to simulate radiation from the sun. Junell works at the B-2 control facility, home of the third largest vacuum chamber in the world (the largest, the Space Power Facility, is also located at Plum Brook Station), performing thermal analysis and facility test data review.
UPCOMING EVENTS:

**MAY 19-21** – HOMECOMING

**JUNE 10** – MAJOR SOBEY MEMORIAL GOLF OUTING

**JUNE 17** – COMMENCEMENT

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