Growing Applied Research Impact
Kettering University faculty have received more Major Research Instrumentation grants from the National Science Foundation than any university in Michigan since 2012. Those grants, along with other federal support, are creating new research and collaboration opportunities that support the University’s mission.

Fixing Flint’s Water System
Dr. Laura Sullivan, Kettering University Mechanical Engineering faculty member, has been selected by the state of Michigan and the city to rebuild community trust after the water emergency.

Science and Engineering of Health and Wellness
Cross-disciplinary collaborations at Kettering University have helped faculty in many academic departments conduct research aimed at impacting health and wellness — including developing new cancer treatments, joint replacement materials and preventative measures.

The Future of Vehicles
Kettering University faculty and alumni are developing and influencing the future of vehicles and transportation. Learn more about their work.
Dr. Daniel Ludwigsen, Physics faculty member, visited Hyatt Elementary School in Linden, Michigan. Students learned about vibrating structures that create sound, experienced sound waves in PVC pipes and other demonstrations.

Dr. Jim Huggins, Computer Science faculty member, visited elementary schools in Fenton and Swartz Creek to help students with Hour of Code activities for Computer Science Education Week.

Dr. Pete Gheresus, Industrial Engineering faculty member, continues to support the Eritrean Institute of Technology (EIT) by volunteering his time and by donating thousands of books to the library. Gheresus completed his fifth visit to EIT in December 2015 where he spent three weeks delivering lectures to students, faculty and administrators. He also delivered educational talks and demonstrations to students in several villages and public libraries. Since 2002, Gheresus has donated over 8,000 books to EIT.

Dr. Susan Farhat, Chemical Engineering faculty member, visited a fifth Grade classroom at St. Gerard Elementary School in Lansing, Michigan, to teach the properties of matter. Students participated in different demonstrations to investigate how density changes for different solids and liquids. They also made mini “lava lamps” (small density columns) that they were able to take home.

Dr. Patrick Atkinson, Mechanical Engineering faculty, visited Gretchko Elementary in West Bloomfield and Holy Family Catholic School in Grand Blanc to help students participate in an “Egg Drop Challenge.” The objective was to give tomorrow’s engineers a chance to design and build something now. Research has shown that reaching students earlier helps them see STEM paths as viable career opportunities.

Pamela Fletcher ’89, executive chief engineer, electrified vehicles, for General Motors, gave media a demo of the Chevy Bolt during the 2016 North American International Auto Show.

A contingent of automotive journalists from China visited Kettering University’s campus in January of 2016. They heard a presentation from President Robert K. McMahan and Provost James Zhang and toured several labs with faculty members.

A ribbon cutting ceremony was hosted for Kettering University Online, a new online option for earning a master’s degree from Kettering University, on February 3. Visit online.kettering.edu for more information.

Dr. Terri Lynch-Caris (Industrial Engineering) and Dr. Homayoun Navaz (Mechanical Engineering) were the latest inductees on Kettering University’s Faculty Wall of Honor in 2016.

Two Kettering University student teams set themselves apart as the next generation of sustainability leaders after a statewide innovation competition named them first place winners. The eight students from Kettering’s Energy and Environment Systems Design capstone design class took top places at the Michigan State University Energy Innovation Award and Student Solar Design Competition December 10, 2015.
Speeding Up the Biodiesel-Making Process

With support from the Michigan Soybean Promotion Committee, Dr. Jonathan Wenzel, assistant professor of Chemical Engineering at Kettering University, is attempting to speed up the process of making biodiesel - a renewable fuel that is made using predominantly soybean oil in the United States, but can be made from animal fats and other vegetable oils.

Wenzel’s scientific mission: to transform the process of making biodiesel by increasing the speed at which soybean oil reacts with methanol to produce biodiesel.

Read more: my.kettering.edu/news/kettering-university-faculty-member-attempting-speed-process-making-biodiesel

Faculty Research UV- and Scratch-Resistant Surfaces

A partnership between Kettering University and Shin-Etsu Chemical Co. was renewed for another year, bringing the total funds for the four year project to over $500,000.

Shin Etsu, a major global chemical and silicones supplier based in Japan, is sponsoring research at Kettering to develop atmospheric plasma technology to advance silicone materials. The company is collaborating with Dr. Mary Gilliam and Dr. Susan Farhat in the Chemical Engineering Department to develop scratch resistant and UV blocking coatings to grow the applications for its silicone materials.

Read more: my.kettering.edu/news/kettering-university-faculty-researching-uv-and-scratch-resistant-surfaces

Advising Michigan on STEM

Kettering University student Harrison Ford ’16 was one of 11 individuals appointed to Michigan Gov. Rick Snyder’s MiSTEM Advisory Council on December 23, 2015.

The council was created to provide the governor, legislature, the Department of Talent and Economic Development and the Department of Education with recommendations designed to improve and promote innovation and collaboration in STEM education and prepare students for careers in science, technology, engineering and mathematics. The council is tasked with recommending a statewide strategy for delivering STEM education-related opportunities to pupils and objective criteria for determining preferred STEM programs by March 1, 2016.

Read more: my.kettering.edu/news/kettering-university-student-harrison-ford-appointed-governor-rick-snyder’s-mistem-advisory
Dr. Brian McCartin, Professor Emeritus of Applied Mathematics, passed away Friday, January 29, 2016. McCartin retired in 2015 after a distinguished career at Kettering that began in 1993. During his career, McCartin had 163 publications, 135 academic presentations, eight book chapters, four books and countless international teaching and research awards. He was a decorated mathematician who won teaching (2001 and 2006) and outstanding research (2000 and 2010) awards at Kettering and was recognized nationally with the Chauvenet Prize in 2010 (Pullitzer Prize for Math) from the Mathematical Association of America.

“I’m going to miss teaching itself,” McCartin said upon his retirement in 2015. “I’m going to miss the classroom experience. I still to this day, enjoy the classes.”

Since 1993, 19 of his 105 Kettering publications were co-authored with eight different students. His papers have been translated into Russian, Chinese, Japanese and Norwegian. In 2001, McCartin also solved a 100-year-old problem involving the geometry of linear regression and the resulting Galton-Pearson-McCartin Theorem bears his name. Despite the quantity and quality of his research accomplishments, McCartin noted during his retirement speech that he always saw himself as a teacher first.

Read more about his amazing career: my.kettering.edu/news/brian-mccartin-retires-after-22-years-kettering

Creating Energy From Waste

From food and animal waste and sewage to chicken excrement, you never know what you will find in the laboratory refrigerators in the Applied Biology and Chemical Engineering labs where a team of Kettering University researchers are trying to make the process of creating energy from waste more efficient with the addition of glycerol, a byproduct of soybean crop processing.

Dr. Steve Narkter, assistant professor of Chemical Engineering, and Dr. Michelle Ammerman, assistant professor of Applied Biology, discovered that the addition of glycerol can increase the production of biogas, which could be useful for local communities. Municipal Wastewater Treatment Plants accumulate sewage, water and anything else that is flushed or travels down the drains. That material can be digested using anaerobic bacteria to create biogas, which could then be run through an engine attached to a generator and result in the production of electricity.

Read more: my.kettering.edu/news/chemical-engineering-biology-faculty-collaborating-research-efficiently-create-energy-waste

Improving Only Safety

For a group of engineering students at Kettering University, their senior capstone project ended up being much more than just a project for a grade. The project taught teamwork, multidisciplinary collaboration and professional skills not only for the University or their professor but also for an entrepreneur who is seeking help for a project he hopes to launch. It took the students from the creative stage, through the design process to a finished product in an environment just like they would find in an engineering career.

“They’ve managed a complete program from beginning to end. That’s huge. This is incredible,” said Dr. Mark Thompson, Electrical Engineering faculty member, who led the capstone class. “They’re learning everything they need to know to become productive engineers and move on in their careers.”

Read more: my.kettering.edu/news/kettering-university-students-help-design-device-aimed-preventing-rear-impact-crashes
Researchers Working on Next Generation EV Charger

Researchers in Kettering University’s Advanced Power Electronics Lab (APEL) have become a go-to resource for global companies seeking innovations in electric vehicle (EV) charging technology.

The latest collaboration is with HELLA, a globally positioned company that develops and manufactures lighting technology and electronic products for the automotive industry. One such product is the Level-2 EV charger. Presently, level-2 EV chargers on the market have three-stage design – converting AC grid voltage to 400 VDC, inverting this DC to high frequency AC to feed the transformer, and then rectifying AC to DC again to charge the battery. Assuming that each stage of that process leads to about a 2 percent loss of overall power, the overall wall-to-battery efficiency is 94 percent.

A research team led by Dr. Kevin Bai, associate professor of Electrical Engineering at Kettering University, is working with HELLA to develop a next-generation charger that has a 2-stage design rather than 3-stage design, which would offer 97 percent efficiency, an improvement of 3 percent.

Read more: my.kettering.edu/news/kettering-university-researchers-working-next-generation-charger-hella

Bringing High Speed Networking to Flint

Kettering University and the city of Flint are at the forefront of the next technological revolution in American cities through the national U.S. Ignite initiative. Kettering President Dr. Robert K. McMahan, in association with city officials, is coordinating local initiatives to upgrade and expand high-speed networking capabilities in Flint, which will in turn connect with other communities with similar infrastructure. Flint is one of 60 cities nationwide initially chosen to participate in U.S. Ignite. The installation of the technology will have a multitude of applications ranging from public safety to providing efficient health care consultation.

“Without Kettering here, this wouldn’t have happened,” said Dr. John Geske, department head and professor of Computer Science at Kettering University. “This is Kettering University taking the lead to help economic development in Flint.”

Read more: my.kettering.edu/news/kettering-university-helping-lead-efforts-bring-high-speed-networking-flint

“Without Kettering here, this wouldn’t have happened. This is Kettering University taking the lead to help economic development in Flint.”

--Dr. John Geske, Computer Science

Green Practices = PROFITS

A team of researchers led by Kettering University’s Dr. Thomas Ngriedema from the Department of Business has presented empirical evidence regarding the importance of corporate environmental consciousness to a company’s financial performance.

Ngriedema and his research team, consisting of Dr. Suhong Li at Bryant University and Dr. Abdou Illia at Eastern Illinois University, used data from Newsweek’s environmental reports on the top 500 publicly traded companies in the United States. They compared the financial performance of organizations in the manufacturing and service sectors with their respective environmental metrics over the course of two years to look for profitable correlations.

“This study will motivate other companies to adopt green practices because as we found, it pays to be green,” Ngriedema said.

Read more: my.kettering.edu/news/greener-better-kettering-university-faculty-member-finds-environmentally-friendly-practices
The cajón is known for producing a wide range of sounds and timbres from a simple wood box, with guitar strings tucked inside that rattle when the box is struck by the player’s hand. A student-led research thesis in Kettering University’s Acoustic Lab is examining how properties of the cajón can be studied to optimize this Latin percussion instrument.

“The goal is to understand the properties,” said John Pehmoeller, a senior majoring in Mechanical Engineering. “I’m hopeful the research can be used to improve the instrument. If we understand the properties, we could change it structurally to get better sound or make it easier to play.”

Read more: my.kettering.edu/news/kettering-university-acoustic-lab-allows-students-combine-technical-and-creative-interests

Dr. Lisandro Hernandez de la Peña, assistant professor of Chemistry at Kettering University, was invited to speak at the Energy Materials Nanotechnology (EMN) Meeting on Quantum Technology in April. The conference, hosted by the Chinese Academy of Science Institute of Semiconductors, was held in Beijing, China.

“It was an honor to represent Kettering University at a conference that featured faculty from universities around the world,” Hernandez de la Peña said. “It gave me the opportunity to highlight some of the great things about Kettering to a worldwide audience.”

Read more: my.kettering.edu/news/kettering-university-represented-international-nanotechnology-conference-china

Experience, persistence and knowledge of the subject matter paid off for Loi Huynh when he, as an undergraduate senior, presented a paper at a national haptics conference in the fall of 2014.

Huynh, a Kettering Computer Science major at the time, is the lead author of a conference paper titled, “Effects of Haptic Data Compression on User Performance in Collaborative Haptic Virtual Environment.” He believes it’s his research and related conference presentation that is propelling him to graduate school.

“It’s a great school. It’s really unique,” Huynh said. “The co-op program helps students increase their potential. I don’t think I’d be as experienced as I am in research and professional work if I didn’t go to Kettering.”

Read more: my.kettering.edu/news/undergraduate-research-and-co-op-experiences-have-student-prepared-graduate-school-and-beyond
The ‘Science of Sitting’

The consumption of digital media on mobile phones, tablets and laptops is at an all-time high and technology is rapidly evolving to accommodate touch and motion interfaces as a replacement for the traditional mouse and keyboard. As technology expands, so does the pursuit of safe and ergonomically sound uses of digital devices in Dr. Justin Young’s lab at Kettering University.

“What did the introduction of laptops do to change how people do work? What about tablets? Ergonomists are constantly playing catch-up to technology and the idea hopefully is that we can be proactive to solve design issues before they arise,” Young said.

Young’s research focuses on touchless gestural controls for devices – the ability to control elements occurring on a screen without making physical contact with an interface.

“‘What did the introduction of laptops do to change how people do work? What about tablets? Ergonomists are constantly playing catch-up to technology and the idea hopefully is that we can be proactive to solve design issues before they arise.’”

–Dr. Justin Young, Industrial Engineering

Making Operational Systems Energy Efficient

Dr. Farnaz Ghazi-Nezami, Industrial Engineering faculty, has expanded her doctoral research on energy-aware manufacturing operations. Traditionally, energy cost is considered fixed during the manufacturing process which leads to it being ignored. However, Ghazi-Nezami is attempting to alter that mindset.

“We want to integrate the concept of energy efficiency into operational systems,” Ghazi-Nezami said. “If you consider an energy-intensive process, we want to determine the best sequence of tasks to minimize the total time the product is flowing in the system and also minimize total energy consumption.”

Read more: my.kettering.edu/news/industrial-engineering-faculty-member-researching-how-make-operational-systems-energy-efficient

IME 452: Designing Value in the Supply Chain

- Course Description:
  - Design value in the global supply chain from concept to customer
  - Quantitative methods to aid the decision-making process
  - Concepts: strategy, forecasting, demand planning, inventory control and value stream mapping
When Dr. Laura Miller-Purrenhage was 12, *The Hobbit* by J.R.R. Tolkien inspired her to become an avid reader, something she describes as a mini miracle. Before that she never read. But that all changed.

Tolkien’s stories have since guided her life as Miller-Purrenhage has partnered with fellow Kettering University Department of Liberal Studies faculty member, months before the start of their senior capstone course. They had an idea to work together on a project that could potentially enhance the efficiency of wind turbines.

A typical wind turbine has three blades that form a propeller that spins with the influence of wind and, in turn, generates power. The research team experimented with three different modifications - wind lens, wind turbine and wind deflection ramp - to determine how the traditional propeller design can be improved to maximize electrical efficiency and power generation. After testing the results in the lab, the team concluded that there’s a “significant difference” in efficiency and power created based on one of the proposed modifications.

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**Tolkien Provides Corporate Leadership Lesson**

When Dr. Laura Miller-Purrenhage was 12, *The Hobbit* by J.R.R. Tolkien inspired her to become an avid reader, something she describes as a mini miracle.

Before that she never read. But that all changed.

Tolkien’s stories have since guided her life as Miller-Purrenhage has partnered with fellow Kettering University Department of Liberal Studies faculty member Dr. Denise Stodola to make her lifelong passion for Tolkien into a professional pursuit as they have joined together to offer LIT 374: Seminar on J.R.R. Tolkien as a Liberal Studies course for Kettering students.

They use examples from the literary works to teach leadership.

“We look at leadership. What makes an effective leader?” Miller-Purrenhage said. “Aragorn, Gandalf, Theoden and Denethor - what are the differences in the way they lead?”

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**Survival Strategies of Flint Retail Workers**

Dr. Laura Mebert has a strong connection to Flint. Not only is she from Flint, she also conducted her dissertation research there. In 2014 she returned to Flint as a Liberal Studies professor at Kettering University.

“I love Flint. I love being here,” Mebert said. “I’m really happy to be working at a small school with small class sizes that puts a lot of emphasis on teaching.”

For her dissertation, Mebert conducted an ethnographic study at a superstore chain in Flint. She worked at this store as a general merchandising worker for three months to experience the lives of retail employees from a material and economic standpoint. During this time Mebert was stocking shelves, answering customer calls and working at the return desk. She then conducted detailed interviews and surveys with her co-workers.

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“I love Flint. I love being here, I’m really happy to be working at a small school with small class sizes that puts a lot of emphasis on teaching.”

–Dr. Laura Mebert, Liberal Studies
**Faculty Infusing Entrepreneurial Thinking Into the Classroom**

Kettering University faculty have collaborated to expand classroom engagement and incorporate entrepreneurial thinking and mindsets into multiple engineering and science courses. Distinguished faculty members in multiple departments at Kettering University have received about $40,000 each, for a total of $240,000 over the past two years, from the Kern Entrepreneurial Engineering Network (KEEN) to embed and incorporate an innovation and entrepreneurship mindset into their individual engineering and science courses. Additionally, Kettering granted six internal topical grants valued at $7,500 each to faculty who creatively infuse entrepreneurial elements into their classrooms.

Below are the results from the collaboration between KEEN and Kettering.

**Dr. Mehrdad Zadeh**, assistant professor of Electrical and Computer Engineering, challenged his engineering students to develop products more economically, learn quickly from mistakes and understand market needs in CE-490: Senior CE Design Project.

**Dr. Jonathan Wenzel**, assistant professor of Chemical Engineering, is pushing his senior Chemical Engineering students in the Reaction Engineering class to think beyond the reactions taking place in the reactor. He wants them to think about the design, equipment and materials that make the engineering possible.

**Dr. Daniel Ludwigsen**, associate professor of Physics, revamped the Physics 1 lab curriculum so students acted like new hires in a consulting firm called ‘Mechanics, Inc.’ Students were trained with skills needed to provide consulting services to companies. Then, they were assigned two multi-week challenges from a client.

**Dr. Ruben Hayrapetyan**, Kettering University professor of Mathematics, noticed a gap in the Mathematics curriculum. Students are taught principles of differential equations and a few basic applications, but it is rarely tied to any challenging applications of the knowledge. So he set out to change this paradigm by posing a question to his differential equations class: can you plan a trip to Mars? Yes, the planet Mars located 140,000,000 miles from Earth. Solving open-ended problems is now part of Hayrapetyan’s differential equations class.

Chemical Engineering and molecular biology students combined their skillsets to solve an open-ended water filtration problem presented jointly by **Dr. Michelle Ammerman** (Applied Biology) and **Dr. Steve Nartker** (Chemical Engineering) in each of their respective classes.

Students learning about supply chain management are being challenged to think differently from their peers due to innovative modules designed by **Dr. Farnaz Ghazi-Nizami** in the Industrial and Manufacturing Engineering department.

**Gianfranco DiGiuseppe** would like to invite you to “KEEN City; an entrepreneurially minded and energy conscious community.” The city that uses 100 percent sustainable energy sources to fulfill its power needs and at the moment, is fictional. However, with the help of inspiring entrepreneurial engineers in MECH 422 (Energy Systems...
Laboratory), the possibility of a city that is fully sustainable and pollution-free may be more realistic than one thinks.

**Dr. Theresa Atkinson** doesn’t want her students to only reflect on their time in the classroom. She wants them to take their thinking and communication skills to a whole new level. Atkinson, professor of Mechanical Engineering, wants her students to believe in their ideas, products and projects and to be able to sell to any person in the professional world using their words.

**Dr. Nozar Tabrizi** challenged his digital systems students to think like producers and customers. In groups, students first took on the role of a customer. Each of the groups had either a defective or improvable product, such as a digital clock, assigned to them. Each product came with a user guide that the students evaluated for discrepancies between design and function.

**Dr. Girma Tewolde** has revamped the Electrical and Computer Engineering Component of the IME 100 curriculum to ensure students are gaining a sound overview of different engineering skills and disciplines while also learning how they can apply what they’re learning to situations they will encounter as engineers outside the classroom.

**Dr. Patrick Atkinson**, professor of Mechanical Engineering, has been able to transform his Introduction Bioengineering Applications (MECH-350) course into what he calls “intensively experiential.” The course is a mix of short lectures along with hands-on activities and projects. For example, in one project, students constructed replicas of a human leg, including bones, tendons, muscle and skin. They then had to ‘break’ the leg and perform surgery on it to put it back together.

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**Students Putting Entrepreneurial Thinking Into Practice**

Kettering University students are striving to continue to improve the entrepreneurial curriculum and training on campus by participating in the University Innovation Fellows program at Epi Center: National Center for Engineering Pathways to Innovation at Stanford University.

Other students have used what they’ve learned for creative projects or even business ventures.

**Brennen Gleason, Chelsea Carter** and **Ahmed Saad** set out to improve the alarm clock during the Kettering Entrepreneur Society challenge. The challenge: connect a current household product with the Internet of Things to improve its efficiency and utility.

**Jace Stokes ’19** was awarded a $2,500 seed grant from the Kettering Entrepreneur Society (KES) to further develop his start-up Rod, Gun and Bow LLC, a venture that attempts to allow prospective recreationalists to lease private property for as little as one day to participate in outdoor activities like hunting.

Are you a fan of Guardians of the Galaxy? Maybe you’re fascinated by the characters or drawn to the power of the Star Lord Infinity Orb? **Andre Ray ’16** wants to bring you closer to the characters and stories through his start-up Grandeur Studios.
2016 Camaro Nets $500,000 for Kettering at Barrett-Jackson

The sale of a VIN #001 2016 Camaro SS fetched $500,000 in support of Kettering University at the Barrett-Jackson annual collector car and charity auction on January 30.

The vehicle, donated by General Motors with Kettering designated as the charity to receive the auction proceeds, was purchased by Rick Hendrick, owner of Hendrick Motorsports and founder of the Hendrick Automotive Group.

“We are grateful for the support of Kettering University students from General Motors and Rick Hendrick,” said Kettering University President Dr. Robert K. McMahan. “It’s fitting that this particular vehicle – which has components designed and built by Kettering University alumni – will now help provide resources for the education of future generations of scientists, engineers and innovators.”

Scholarship Support Providing Transformational Opportunities

William McKenzie ’19 enrolled at Kettering as a freshman this past fall. His involvement with his high school FIRST Robotics team fueled his interest in STEM education, inspiring him to pursue a degree in Mechanical Engineering with a minor in Computer Engineering. After participating in FIRST Robotics competitions at Kettering, McKenzie began to realize the combination of STEM programs and co-op experience were the perfect fit for him. Thanks to additional support from an endowed scholarship fund, his first-choice school became a reality.

“This scholarship will help me not only pay for college, but allow me to attend one of the best engineering schools in the country,” McKenzie said.

Austin Plave ’19 is also experiencing his first year at Kettering. Growing up in a rural area of South Lyon, Michigan, Plave was required to help with chores and outdoor duties. This lifestyle taught him the value of hard work and ultimately led him to appreciate the experiential learning opportunities a Kettering education offers.

Like McKenzie, Plave also needed additional scholarship support to cover the cost of attending Kettering and was a recipient of a student scholarship.

“I am thankful for the dual learning experience offered at Kettering: classroom instruction combined with hands-on working experience,” said Plave, a Mechanical Engineering major. “I greatly value the ability to attend such a prestigious institution, and this gift helps make this possible.”

McKenzie and Plave are recipients of the Cerri Family Scholarship, established by a gift from Steve Cerri ’57 and his wife Margaret. The Cerri Family Scholarship provides scholarship support to Kettering University students with financial need. As an endowed scholarship, the Cerri Family Scholarship will continue to provide significant, annual support to Kettering students for many years to come.

Kettering provides substantial renewable merit-based scholarships to all eligible students, but most students still face a considerable gap to cover the entire cost of their education. In 2015, nearly 400 Kettering students received more than $1.5 million through annual and endowed scholarships. In addition to the Cerri family, many alumni, friends, corporations and foundations continue to support Kettering students by investing in scholarships, allowing students the opportunity to experience all of the advantages a Kettering education affords.

Those interested in supporting Kettering students through an endowed or annual scholarship can contact the Kettering University Office of University Advancement at (810) 762-9883.

“I am thankful for the dual learning experience offered at Kettering: classroom instruction combined with hands-on working experience.” –Austin Plave ’19
The Adamczyk Clean Energy Scholarship Fund

Inspired by his passion for the environment, Mark Adamczyk ’85 has created the Adamczyk Clean Energy Scholarship Fund. The fund supports student research in the Department of Electrical and Computer Engineering with a focus on clean energy and energy efficiency.

Douglas Blaisdell ’16, Electrical Engineering major, is the first recipient of the Adamczyk Clean Energy Scholarship.

Blaisdell’s current research project is focused on developing nanomaterials for use in batteries and nanogenerators, with the ultimate goal of creating batteries capable of keeping pace with society’s current energy storage needs.

“Current batteries lack the capacity and energy density needed to power modern personal electronics for much more than a day, let alone give electric cars sufficient driving range,” Blaisdell said. “However, batteries are nonetheless still needed in these applications as well as in the electrical grid in order to store wind and solar energy.”

Blaisdell has always been passionate about energy research, hoping a degree in Electrical Engineering would allow him to help solve the energy crisis. The Adamczyk Clean Energy Scholarship Fund provides Blaisdell and future students the opportunity to help the progression of sustainable technology research.

Remembering Charles ‘Bud’ Sargent ’59

Charles ‘Bud’ Sargent ’59, an alumnus, longtime supporter of the University and former member of the Kettering University Board of Trustees, passed away on December 28, 2015. Sargent was an engineer, inventor and product designer who enjoyed a long career as a successful businessman and entrepreneur. His strong business sense helped him become a world leader for the recreation vehicle industry and his philanthropic spirit made his name synonymous with service to Kettering, his community and his industry.

Sargent was born March 22, 1937, in Flint. While at Kettering, he was active in the Tech Club and served as a co-op employee with General Motors at AC Spark Plug in Flint. He earned his bachelor’s degree in Mechanical Engineering in 1959 and then earned an MBA from Harvard Business School in 1962.

He began his career with the AC Spark Plug Division in 1962 as a reliability engineer. Within a year, he left General Motors to join his brother Ronald, who graduated from Kettering in 1958, and his father, Frank, in establishing the Thetford Corp. The company became a leading manufacturer of sanitation and plumbing system products for recreational vehicles. He served as chairman and CEO for the Thetford Corp. from 1974 until his retirement in 1995, when the business was sold. Sargent holds numerous patents for products in the automotive, recreational vehicle and marine industries. He later served as president of Quality Boat Lifts Inc. of Fort Myers, Florida.

Sargent was an active supporter of Kettering in many ways, including serving on Kettering’s Board of Trustees from 1989 until his retirement from the board in 2004. He is also a past chairman of the Board of Trustees.

He is a long-time member of Kettering’s President’s Council and with his father Frank Sargent funded the development of the “Sargent Lounge” in Kettering’s Connie and Jim John Recreation Center, an important meeting area and conference site on campus.

He has been on the board of directors for First of America Bank. He has also been a director for Stirling Power Systems and Thermasan Corp. His civic service includes being elected to the board of education for Lincoln Schools in Ypsilanti. He is a former director for the Recreational Vehicle Industry Association and was a member of the National Sanitation Foundation Corporate Industry Forum.

He won several awards for career achievement, including the Harvard Business School Club of Detroit Entrepreneur of the Year Award in 1981, the Kettering/GMI Alumni Association Entrepreneurial Achievement Award in 1987 and the Kettering/GMI Alumni Association Engineering Achievement Award in 1999.

He is survived by his loving wife of 53 years Nancy (Cook) and three daughters, eight grandchildren, brother Ronald Sargent ’58 and sister Linda (Sargent) Sturvist as well as many other extended family members and friends.
"Promoting and advocating research not only aligns with and supports our mission, but is also intimately connected to our four pillars of success."

—Dr. James Zhang, Provost and Senior Vice President for Academic Affairs at Kettering University
Long recognized for excellence in applied research, Kettering University has gained momentum over the past three years, successfully securing more Major Research Instrumentation grants from the National Science Foundation (NSF-MRI) than any other university in Michigan – quite a coup when you consider that the competition includes three major “R-1” designated public universities. Additional federal awards from the Department of Justice, Department of Energy and U.S. Ignite, as well as significant industry and private grants, create a clear picture of Kettering as an emerging research powerhouse.

“Research really is imperative to Kettering University’s growth and success,” said Dr. James Zhang, Provost and Senior Vice President for Academic Affairs at Kettering University. “Promoting and advocating research not only aligns with and supports our mission, but is also intimately connected to our four pillars of success.”

The number of research proposals being submitted and their success rate are at an all-time high. Zhang credits the outstanding results to a focused effort on the part of an enthusiastic and engaged faculty, cross-disciplinary collaboration and quality control by people like Jill Williams in the Office of Sponsored Research, who manages the vast number of grant proposals on topics as diverse as vehicle crash safety to the anti-cancer effectiveness of modified nanoparticles.

GLOBAL LEADERSHIP IN STEM EDUCATION
In addition to excellent academic programs and faculty, being a leader in STEM education requires access to state-of-the-art equipment. NSF-MRI grants have enabled Kettering to acquire an array of leading edge technology including an X-Ray Diffractometer, a high-resolution transmission electron microscope (TEM) and 4G LTE and WiMax wireless system. This equipment provides Kettering students with unique opportunities to participate in faculty research at the highest levels.

“Kettering is definitely a leader in terms of putting advanced technological tools into the hands of undergraduates,” said Tom Creech, Director of Sponsored Research. “Our students have opportunities they wouldn’t typically receive until the graduate level at many other institutions.”

Other efforts by Kettering faculty ensure that a broader group of students has access to this technology. One NSF grant provides scholarships to academically talented but financially disadvantaged students who participated in robotics programs at the pre-college level. Another grant supports Dr. Diane Peters, Mechanical Engineering faculty, in her research on the best way to teach non-traditional students returning to academia from the engineering workforce.

COMMUNITY VITALITY
When you think of Kettering and research, visions of x-ray spectrometers or 3D virtual microscopes may come to mind, but there is also a wide range of social and public safety research initiatives happening that directly impacts the Kettering community, Flint and potentially, cities across the country. The $1 million Byrne Criminal Justice Innovation grant, a Department of Justice program, is a good example.

“We received the Byrne grant on our first application based on the fact that Kettering had already been doing so much in Flint, particularly along the University Avenue corridor,” said Jack Stock, Director of
“We received the Byrne grant on our first application based on the fact that Kettering had already been doing so much in Flint, particularly along the University Avenue corridor.”

– Jack Stock
External Relations Director

External Relations. “But another driving factor was the comprehensive and collaborative research component of our proposal.”

In addition to the goal of reducing crime along the University Avenue corridor by 20 percent over three years, the initiative will study the Crime Prevention Through Environmental Design (CPTED) approach. Researchers will implement CPTED recommendations, then perform data analysis and statistical modeling to find out which measures are most effective. Learning and best practices will then be applied in other parts of Flint and across the U.S.

Kettering is working closely with officials from the city of Flint as well as colleagues from the University of Michigan-Ann Arbor, UM-Flint and Michigan State University on the project. The multi-university, cross-discipline research team includes computer science, criminal justice and liberal studies students and faculty, among others.

**ENGAGED STAKEHOLDERS**

Kettering prides itself on active and productive relationships with students, educators, alumni and community leaders, but the robust research program is especially critical to engaging another key group of stakeholders – Kettering’s 600+ active employers and industry partners. Lab-based industry sponsored projects help companies solve problems and prove out products quickly before investing on a larger scale. Relationships with industry partners help students by creating co-op learning opportunities while they attend Kettering and job placement opportunities when they graduate.

• Dr. Ronald J. Tackett (Physics) along with collaborators from multiple academic departments, received a grant 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. Tackett’s work, in collaboration with Dr. Ronald Kumon and Dr. Prem Vaishnava in the Physics department, focuses on using magnetic nanoparticles as a non-invasive treatment for cancer. Tackett measures the anti-cancer effectiveness of nanoparticles after modifying their size, properties and/or composition. Researching nanoparticles without the TEM is equivalent to being “blindfolded,” according to Tackett as he was unable to determine the exact composition and atomic structure of materials.

• Dr. Veronica Moorman (Biochemistry) and a team of faculty researchers received a grant that will lead to the acquisition of an isothermal titration calorimeter (ITC). The ITC will allow Moorman and her colleagues to obtain quantitative thermodynamic information about molecular interactions, which will help understand the thermodynamic underpinnings of what happens when two molecules bind together. From a thermodynamics perspective, the energetics of molecular interactions consist of entropic (disorder) and enthalpic (heat released or absorbed) components which can be deconvoluted using an ITC. Moorman’s specific focus is the role of entropy in protein interactions. She hopes to connect changes in enzymatic activity over the course of evolution to entropic or enthalpic origins, a task that ITC will assist her in accomplishing with precision and accuracy.

Since 2012, Kettering University faculty have received eight Major Research Instrumentation grants from the National Science Foundation – more than any university in Michigan and among the top five universities in the country over that stretch. The NSF-MRI program increases access to shared scientific and engineering instruments for research and research training in U.S. universities, not-for-profit museums, science centers and scientific/engineering research organizations. The program provides organizations with opportunities to acquire major instrumentation that supports the research and research training goals of the organization and that may be used by other researchers regionally or nationally.

Here are what Kettering’s NSF-MRI grants support:

• Most NSF-MRI grants in Michigan
A great example of these mutual benefits is the partnership between Kettering and Shin-Etsu Chemical Company, a major global chemical and silicones supplier based in Japan. Headed by Dr. Mary Gilliam and Dr. Susan Farhat, Chemical Engineering faculty, Shin-Etsu’s four-year, $500,000 sponsorship has engaged 33 undergraduate students in research projects including the development of scratch resistant and UV-blocking coatings to help grow the applications for the company’s silicone materials.

**OPTIMIZED GROWTH IN ENROLLMENT AND PROGRAMS**

Kettering’s continued presence in prestigious college rankings from sources like *The Economist, U.S. News and World Report* and the U.S. Department of Education’s College Scorecard, among others — combined with enviable statistics for job placement and starting salaries — show that Kettering’s unique combination of experiential learning and applied research is resonating with students and industry.

Kettering University’s 2016 entering class included more than 500 freshmen, the most for the University in more than 10 years.

“Research is integral to Kettering’s growth strategy, a pivotal part of attracting world-class faculty and students,” Zhang said. “Research informs teaching and allows faculty members to bring cutting edge equipment and knowledge into the classroom.”

- A grant received by Dr. Yunsheng Wang (Computer Science) gives Kettering something no other university in the country has — its own 4G long term evolution (LTE) wireless system. The system will have a wide range of research, academic and even community uses — including assisting law enforcement. “An example of what we might be able to do with this equipment is develop a real-time wireless video surveillance network for our campus safety or eventually even Flint police,” Wang said.
- Dr. Mary Gilliam (Chemical Engineering) was the lead on a grant that brought an X-Ray Photoelectron Spectroscopy (XPS) instrument to campus. The XPS is the industry standard measurement tool for the chemical composition of surface materials. The XPS instrument will allow Gilliam and her colleagues to examine the chemical composition of the plasma surfaces that they create so they can accurately correlate the structure of the polymers with their unique properties. Other examples of research will include biocompatibility testing for materials used in the human body or potentially creating and determining the chemical composition of scratch resistance surfaces. Prior to this award, Kettering faculty were sending individual samples for testing off-site.
- Dr. Prem Vaishnava (Physics) was the lead faculty member on a grant that led to the acquisition of an X-Ray Diffractometer. Vaishnava outlines four uses for the equipment on Kettering’s campus: 1) for research in materials characterization across multiple disciplines including Physics, Chemistry, Chemical Engineering, Mechanical Engineering and Industrial Engineering materials research by faculty and students; 2) a tool for teaching materials science related classes; 3) recruiting students and helping regional businesses in need of material analyses; and 4) 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).
- Five faculty members — Dr. Justin Young (principal investigator), Dr. Terri Lynch-Caris, Dr. Mehrdad Zadeh, Dr. Girma Tewolde and Dr. Giuseppe Turini — combined their research efforts to garner a grant for a motion capture system. The grant will allow for the acquisition of a three position sensor 3D Investigator Motion Capture System by Northern Digital Inc. This instrument acquisition serves faculty researchers from the Industrial and Manufacturing Engineering (IME), Computer Science (CS), and Electrical & Computer Engineering (ECE) departments. Their overlapping research specialties include ergonomics, human factors, human-computer interaction (HCI), haptic interfaces, virtual reality and simulation environments, medical robotics, and autonomous vehicle navigation.
- Dr. Jaerock Kwon (Electrical and Computer Engineering) was the lead on a grant that led to 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.
- Dr. Jonathan Wenzel (Chemical Engineering) was the principal investigator on a grant that brought a carbon, hydrogen, nitrogen, sulfur and oxygen (CHNSO) elemental determinator to augment the chemistry analytical instrument suite presently in use for research and instruction at Kettering. The CHNSO elemental determinator has been used by a multidisciplinary group of faculty in the Biochemistry, Chemistry and Chemical Engineering programs engaged in applied and fundamental research in a wide variety of areas including alternative energy, organic synthesis, pharmaceuticals and materials research.
Leading Flint’s RECOVERY

Kettering faculty member among the leading experts advising state, city on solving Flint’s water emergency

By Pardeep Toor

Dr. Laura Sullivan, professor of Mechanical Engineering at Kettering University, has been appointed to the Flint Water Inter-Agency Coordinating Committee by the State of Michigan.

Sullivan’s interdisciplinary role is to continue to build trust between local and state governments, stakeholders in Flint and citizens in the community. The task force is made up physicians, scientists, citizens and expert advisors and serves to advise the city of Flint on how to remedy the current water challenges in Flint.

“My role is to make sure the people of Flint understand that this time things are going to be different,” Sullivan said. “This time, there’s a voice for individuals in this community. I will help lead collaboration between all levels of government and the scientific community in order to achieve an optimal solution for Flint’s water issues.”

On January 6, 2016, the State of Michigan officially declared a State of Emergency due to elevated levels of lead found in sections of the Flint water supply.

Sullivan received her doctorate in Materials Engineering from the University of Texas - Arlington. She has served as a professor at Kettering since 1992. Sullivan is also the faculty advisor for Kettering’s chapter of Engineers Without Borders. In this role, she has helped develop and install filters to remove bacterial contamination in water supplies in the developing world.

The Water on Kettering University’s Campus is Safe.
Kettering University is hosting the Environmental Protection Agency (EPA) Region 5 Emergency Response team in the Innovation Center as they manage and respond to the current water crisis in Flint. The numbers of EPA staff in Flint will vary.

“We are honored to host some of the top environmental engineers and scientists in the country on our campus as they attempt to address current challenges in Flint,” said Kettering University President Dr. Robert K. McMahan. “We are committed to our community and to working with federal, state and local officials to help create long-term solutions to these problems. We are focused on supporting Flint and on using our faculty expertise and the energy and ingenuity of our students, faculty, and staff to assist the city in any way we can.”

Among other activities, the EPA will be conducting water sampling and testing, evaluating the water treatment plant, performing community outreach and coordination and ensuring Flint’s water meets federal drinking standards. The organization will also partner with other local, state and federal efforts contributing to the overall emergency response.

Kettering Housing EPA Researchers on Campus

Kettering University is hosting the Environmental Protection Agency (EPA) Region 5 Emergency Response team in the Innovation Center as they manage and respond to the current water crisis in Flint. The EPA plans on remaining at the Innovation Center for the next several months to address current water quality and infrastructure challenges in Flint. The numbers of EPA staff in Flint will vary.

“We are honored to host some of the top environmental engineers and scientists in the country on our campus as they attempt to address current challenges in Flint,” said Kettering University President Dr. Robert K. McMahan. “We are committed to our community and to working with federal, state and local officials to help create long-term solutions to these problems. We are focused on supporting Flint and on using our faculty expertise and the energy and ingenuity of our students, faculty, and staff to assist the city in any way we can.”

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For information, visit kettering.edu/water.
In hospitals, labs, healthcare settings and research environments, engineering and scientific research fuels medical innovation. The expertise of scientists and engineers partnering with medical professionals creates powerful outcomes for healthcare consumers. At Kettering University, the advantage offered by the many collaboration opportunities across disciplines and in partnership with the healthcare community supports significant advancements in medical research.

“At Kettering, collaboration is encouraged and we’ve created an environment that is conducive to multiple disciplines working together,” said Dr. Stacy Seeley, department head for Chemistry/Biochemistry, Chemical Engineering and Applied Biology. “As a small institution, we have to be more strategic in the projects that we choose in order to combine our research and intellectual power to attack challenges collectively. This maximizes our expertise and resources while providing a very rewarding inter-disciplinary research experience for our undergraduate students.”

From cancer research to warming blankets that prevent infant mortality to injury prevention, Kettering University faculty and students are putting themselves in the position to make a difference in the medical field with their research.

“At Kettering, collaboration is encouraged and we’ve created an environment that is conducive to multiple disciplines working together,” said Dr. Stacy Seeley, department head for Chemistry/Biochemistry, Chemical Engineering and Applied Biology. “As a small institution, we have to be more strategic in the projects that we choose in order to combine our research and intellectual power to attack challenges collectively. This maximizes our expertise and resources while providing a very rewarding inter-disciplinary research experience for our undergraduate students.”

Dr. Theresa Atkinson, Mechanical Engineering faculty member, has worked with hospitals and medical residents in Flint hospitals on multiple projects. As an engineer, being able to look at the complicated human body is much more fulfilling than working with machines, she said.

In her most recent research, she partnered with orthopedic surgery residents at McLaren Hospital in Flint to look at ankle injuries, what causes them and what can be done to prevent them or treat them more effectively.

“I apply physics to help people not get hurt. If they do get hurt, I hope my work helps show them what they can do better next time,” Atkinson said. “It’s very stimulating because I have the opportunity to look at an X-ray and use physics to understand what happened, but I don’t have the ability to look at it to see what the person’s quality of life will be down the road. The medical residents and surgeons bring that deeper context with them.”

Atkinson, along with her team, researched ankle fractures at Flint hospitals and their work led to recommendations on how to better respond to them from medical and automotive safety perspectives. They examined when surgeons should be on staff at the hospitals, how crash dummies should be mandated to be studied from the knee down and how ankle fractures can affect a person’s quality of life.

“This work (along with other national tests) may change how auto companies design the car,” Atkinson said. “It’s starting to get more attention.”

In the end, the study helped medical residents, hospital staff and researchers understand more about how and why ankle fractures occur, in hopes of preventing them or treating them better in the future.

When it comes to medical research merging with engineering, Atkinson’s study is just the start of it.

Over the course of the last year, there have been multiple projects supporting medical advancements from Kettering University faculty and students.

Dr. Uma Ramabadran and Dr. Gillian Ryan in the Department of Physics are partnering with Warmilu, an Ann Arbor startup that is...
making vehicle occupants safer

Dr. Janet Brelin-Fornari, Mechanical Engineering faculty member, and the Kettering University team in the Crash Safety Center have conducted research that has significantly contributed to reducing the risk of injury to children in crashes, including working with the U.S. National Highway Traffic Safety Administration (NHTSA) to develop a side impact test procedure for child restraint systems. That research helped inform new testing standards that were proposed by NHTSA. Kettering worked with NHTSA for more than two years and the Notice of Proposed Rule Making (NPRM) became public in 2014. The NPRM can be viewed online in the Federal Register.

The Crash Safety Center’s role in this standard was the reproducibility and repeatability of the test procedure using a deceleration sled. This was achieved through testing of various manufacturers’ products. All of Kettering’s individual test reports as well as summary reports with analysis are part of an NHTSA database. Kettering researchers also put together the test protocol for the deceleration sled. At that time, there is usually an 18-36 month lead-in for manufacturers to meet the standards set in the new rule.

“The research we’re doing at Kettering is affecting the national standards in crash safety for children in child seats,” Brelin-Fornari said. “Being able to work on a new federal standard is very unique, because they don’t change that frequently.”

Other research conducted in the Crash Safety Center includes work with Dorel Juvenile Group to develop a side impact test procedure to evaluate child seats in near-side impacts. The majority of fatalities in side impact collisions is to occupants on the near-side, or struck side, of the collision, according to NHTSA. Kettering also partnered with Hyundai-Kia America Technical Center to conduct rear seat, small occupant side impact research.

“The type of testing we do is looking at the entire occupant protection system,” Fornari said. “We look at everything that’s happening within the vehicle during a crash — including seatbelts and airbags — the whole vehicle environment as one system.”
The Future of Vehicles

By Pardeep Toor

Kettering University Graduate’s Company Examining the Future of Electric Vehicles
The next generation of electric vehicles is hitting the market in a fury with uncertain results but Dave Stenson ’86 thinks the electric revolution won’t occur first with cars at all. Instead, Stenson, the Founder and CEO of Inventev, believes that the renaissance will start elsewhere, mainly in multi-function fleet vehicles.

“The electrification of transportation is a very difficult value proposition for the average customer given the cost of the technology,” Stenson said. “Based on the expertise of our team, it appears as though the retail customer isn’t going to be the first place where transportation electrification is going to take place in high volume.”

Stenson is looking at hybridizing medium duty classes 2B to 5 trucks. This would include smaller delivery trucks, electric utility and telecom service “aerial bucket” trucks and other trucks that you might see plumbers or electricians use.

Stenson has discovered and evaluated the potential of this market after spending 29 years working for General Motors before venturing off on this entrepreneurial pursuit.

The Next Generation of Electric

Stenson graduated from Kettering in 1986 after completing his co-op at GM’s Warren Tech Center. He continued working for GM in a variety of capacities ranging from being the Pontiac Solstice Vehicle Line Director, the Chief Engineer running GM’s Toluca, Mexico, engineering center in the mid-1990s to Chief Technical Officer for the HUMMER spin-off deal team in 2009/10. In his final year at GM, Stenson started investigating the hybridization and electrification of vehicles in an effort to make HUMMER a stand-alone product line.

“When I left General Motors, I kept thinking where electrification technology can be best applied,” Stenson said. “I started looking at the commercial fleet space as a market specifically because I did not want to overlap with the core markets of the larger automakers and at the same time offer work truck benefits that can payback over the typically 10-year life in a fleet.”

After identifying fleet vehicles as a potential niche market, Stenson founded Inventev to design an innovative plug-in hybrid electric vehicle (PHEV) commercial truck which provides mobility and mobile power generation capacity.

Pacific Gas and Electric Company (PG&E) in California is one of the largest combination natural gas and electric utilities in the United States and are early collaborators in Inventev’s technology. PG&E believes that by incorporating Inventev’s innovative fleet vehicle technology they will be able to better manage costs and provide more efficient grid maintenance by responding to power outages and emergencies faster.

Stenson’s technology, which integrates electric motors into the transmission to best optimize the use of stored grid power, will help PG&E accomplish these goals.
“It’s the intersect between vehicles and the energy space,” Stenson said. “We thought that adding value propositions in addition to mobility was a near term solution to provide customers with viable payback.”

The vehicles are called “Energy SWAT Trucks” and they can generate utility-grade power for a neighborhood (such as for storm resiliency) using the same core components that move the vehicle electrically.

Stenson participated in an event sponsored by The Hill titled, “The Next Generation of Electric Transportation: Innovation in Technology & Power,” in November 2014 in Washington D.C. During the event, Stenson nationally declared his belief that the electrification of vehicles will accelerate in niche markets such as fleet vehicles rather than en masse with large automakers in retail passenger vehicles.

“I think in the last five years, there’s been a lot of experimentation particularly with regard to electrification,” said Stenson, during the event. “Keep in mind, the bread and butter of the auto industry is high volume, it’s not niche plays. At this point they view electrification as a niche play.”

Stenson and his team members have also done some collaborative work with Kettering’s Advanced Power Electronics Laboratory (APEL) under Dr. Kevin Bai, Electrical and Computer Engineering faculty member, and won the Transportation Sector $25,000 top prize at the Accelerate Michigan Innovation Competition in fall 2014.

In January 2016, Inventev was awarded a $500,000 grant from the U.S. Department of Energy’s Advanced Research Projects Agency-Energy (ARPA-E) to continue developing concepts and innovations alongside Bai.

“We’re hoping to be able to have a working demonstration soon,” Stenson said. “We are optimistic that it will result from a combination of public and private funding.”
Raj Nair ’87 Helping Ford Plan the Future of the Auto Industry

Raj Nair ’87, Executive VP, Product Development, and Chief Technical Officer for Ford, notes that the automotive industry is rapidly changing as there are more lines of code in a Ford Fusion than a Boeing 777. Automotive companies are also becoming software companies and Nair believes that the, “breadth that Kettering has expanded into complements the needs at Ford.”

With the development of autonomous vehicles, a growing conscience about the environmental impact of transportation, evolving ownership models and a car’s ability to generate hundreds of gigabytes of data, Nair believes that the automobile industry is at an inflection point and will evolve rapidly over the next 5-to-10 years. As new technologies emerge, Nair believes that Ford will differentiate themselves from their competitors by focusing on the driving experience in addition to the technology.

“We’ve had an industry built up feature by feature but now we’ve overwhelmed our drivers with technology,” Nair said. “We need to take a step back and view the holistic experience of personal mobility and use technology to improve that experience.”

Read more: http://www.kettering.edu/news/kettering-university-graduate-raj-nair-helping-ford-plan-future-automobile-industry

Graduate Helped Launch the Toyota Mirai in 2015

Passion. Obsession. A drive to make the next generation of automobiles better than before. Those are all appropriate ways to sum up Jackie Birdsall ’07 and her career as an engineer.

“There’s a passion that is associated with driving and freedom of personal mobility. There’s a very strong connection between people and their cars,” Birdsall said. “When I first started telling my family this is what I wanted to do, I didn’t even know what engineering was.”

She’s come a long way since then.

Birdsall is an engineer at Toyota Technical Center on the fuel cell vehicle team and in October helped launch the Toyota Mirai, the company’s first mass-produced fuel cell vehicle.

“It’s exciting but it’s moreso surreal. It was a dream of mine,” Birdsall said. “I went to Kettering in part because of the co-op program. My first co-op was Mercedes, where I worked on a fuel cell vehicle prototype. It became immediately clear to me that was going to be my career.”


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You’ll now receive updates from the University about events and gatherings around the country. Contact the Alumni Engagement office: alumni@kettering.edu or (810) 762-9507.
1957
THOMAS MCMILLAN started a new career in the retrofit lighting industry after 35 years in real estate development by setting up American Lighting Efficiency Corp., a full service energy management firm. Having been in the lighting business since 1992, they established AMLECO in 2011 and are doing LED retrofits nationwide with customers such as Cube-Smart and Inland Real Estate Corp.

ARMAND WOJCIK and his wife Dorothy celebrated their 60th wedding anniversary on May 7, 2015. They have five sons and eight grandchildren. Armand retired from Saginaw Grey Iron Casting Plant in September 1987.

1960
THOMAS GABEL and wife Lori sold their cattle ranch in New Mexico and are moving back to Wisconsin to be with family.

1964
CHARLES POSTLEWATE was shopping in October of 2015 at the Costco store in south Fort Worth, Texas, when a fellow shopper, an off-duty emergency room doctor in his scrubs, approached him and asked, “Does that cap you’re wearing stand for General Motors Institute in Flint, Michigan?” Dr. Jerry Chase, Jr. told him, “My father, Jerry Chase Sr. and my godfather, Steve Bussa, both graduated from GMI in 1960.” Postlewate notes that he received the hat from the Alumni Engagement office during a visit to Kettering in 2006. He notes that about once every year or two someone asks about the hat. “So far I have met other GMI grads or relatives on a ranch in Cleburne, Texas (2007), in Harris Hospital in Fort Worth (2010), at Brookgreen Sculpture Gardens near Charleston, South Carolina (2012), in LAX International Airport in Los Angeles (2013), and at the Usher’s Syndrome International Conference in Boston (2014).”

1977
STEVEN OBERHOLTZER managing shareholder of the Chicago-based Brinks Gilson & Lione, was selected by his peers for inclusion in The best Lawyers in America 2016 in the area of patent law. He was also named to The Best Lawyers in America 2016, ‘Ann Arbor patent law ‘Lawyer of the Year,’ an honor he also received in 2013. Oberholtzer is the principal author of a primer on intellectual property entitled, The Basic Principles of Intellectual Property Law.’

1978
MICHAEL SLIWA officially retired on June 1, 2015, after more than 40 years with Electro-Motive Division.

1979
STEVEN LUBONIECKI retired from General Motors after 34 years, ending his career as a senior project manager at the Spring Hill, Tennessee, facility. He earned his “Lean Six Sigma Blackbelt” and earned his teaching license. Luboniecki teaches AP and regular Chemistry and Math. He has also accumulated master’s level credits in Aerospace Technology and this past fall he performed in his 235th opera as a chorus bass with the Nashville Opera.

1981
TONY LAROCHE and wife Cheryl (Oaks) moved to Gilbert, Arizona in 2014. LaRoche retired in 2013 after nearly 35 years with General Motors at Detroit Diesel and GM Powertrain. He notes that they enjoy the warm Arizona winters and plan to continue their travels during the hotter Arizona summer months. Friends hoping to reconnect can contact tilaroche@aol.com.

1983
CHARLOTTE HUBBARD recently published a humorous romp about her forced-entry into beekeeping entitled “Dronings: from a Queen Bee.” The 100-page full-color book is available at Barnes&Noble.com, through Amazon and through her website www.hubbardhive.com. All profits go to her late husband Tom Sunday ‘82’s charities.

ROBERT PLATT BELL notes that the education he received at Kettering was invaluable. “I quickly landed a job with Aeroquip. This led to a job with Carrier Corp. who was kind enough to pay for my Electrical Engineering Degree at Syracuse University (as a night student and co-op). After graduation, I went to work for the United States Patent & Trademark Office, who offered to pay my tuition at the George Washington University, where I received my Juris Doctor in 1992. Since then he has written patents from his offices in Alexandria, Virginia, before partially retiring 10 years ago. He now lives on Jekyll Island, off the coast of Georgia. (Kettering) was such a life-changing experience for me, although at the time perhaps I did not appreciate it as much as I should have.”

RICHARD MARSOLAI recently accepted a Director of Marketing position at the law firm of Jaffe Raitt Heuer & Weiss after more than 10 years at Honigman Miller Schwartz and Cohn.

1984
PAUL ROSSLER, a GableGotwals attorney, was named to the 2016 edition of ‘Best Lawyers,’ the oldest and most-respected peer-review publication in the legal profession. Rossler was recognized for his work in the categories of Patent Law, Technology Law and Trademark Law.

1991
JEFF SNELL continues his passion for entrepreneurship with his latest venture, Sneller Creative Promotions, which provides custom marketing material and custom promotional packaging. More information can be found at www.snellercreative.com.

1992
TODD BRENEISER was appointed vice president of NAFTA Product Planning with the responsibility of planning and marketing research of all vehicles in the North American market. He was also named to the FCA U.S. Leadership Team with this appointment.

1994
CHRISTINE BIGHOLT got married in October to Kenny Jackson of Linwood, North Carolina. In addition to being a wife, she is now a stepmom to three kids, Sean, Jacob, and Emma.

1995
BRYAN BATEMAN was promoted to Senior Project Manager and Team Lead at ImageSoft, Inc. in Southfield, Michigan. He leads a team of seven project managers while managing a portfolio of more than 100 projects in Electronic Document Management for city, county and state government agencies and courts. Bateman is directly leading efforts with California and Washington state courts, as well as the Texas Department of Criminal Justice.

ALFONZO CUTAIA was elected to the partnership of Hodgson Russ, one of the country’s leading law firms providing business-focused legal counsel to market-leading and emerging enterprises, governmental entities, nonprofit institutions, and individuals across the United States, Canada, and the world, effective January 1, 2016.

1996
MATTHEW MOWERS has been named a principal at Quinn Law Group, PLLC., an intellectual property firm in Novi, Michigan.

1997
GARRETT FRANCIS was promoted to Vice President Operations of Vallourec Star. In this new role, Francis oversees the steel making, pipe rolling and finishing operations along with planning and logistics for the company’s facilities in Youngstown, Ohio, Muskoee, Oklahoma, and Houston, Texas.

Submit Class Notes online at www.kettering.edu/alumni.
2000
JOHN LINGL, a shareholder at Brinks Gilson & Leone, was named a Michigan Rising Star in intellectual property for the third consecutive year. Lingl focuses his practice of intellectual property law on patent, copyright and trademark litigation. He is a member of the State Bar of Michigan Intellectual Property Law Section, the Michigan Intellectual Property Law Association and the Washtenaw County Bar Association.

2001
NICOLE BROWN is married with a 2-year-old son.

2002
JOHN BERTHOLD IV has been working for EMG as a technical management assistant in Owings Mills, Md., since February 2013.

2003
MITCHELL CLELLAND is an engineering manager at Continental Automotive.

2005
AMANDA GODWARD’s company, Ecologically Civil, was recognized by Michigan Governor Rick Snyder with a “Best Residential Project of 2015” at the first Annual Governor’s Energy Excellence Awards.

2007
DORIAN LYON is working as a controls engineer for EDA, Inc., a small engineering firm in Terre Haute, Indiana. She was married in 2011 and had a son Nolan, in 2013.

2008
BEAU JEWELL completed his MBA at Harvard Business School. During his time at Harvard he consulted for an international sports marketing company in Beijing China, co-founded a consumer products startup and interned in finance and strategy for one of the world’s largest companies.

ERIC GUTIERREZ proposed to Jennifer Wale on June 11, 2015 with a wedding date set for July 3, 2016 in Richmond, Virginia.

2009
CLAUDE URECHT traveled overseas in 2012 to complete a two-year master’s degree program. The first academic year was in Scotland with the summer of 2013 spent in southeast Asia and the final year was spent in Germany. Last year, she graduated with a MS in Innovation Management. Utrecht now works as a project engineer at a manufacturing division of SCA, a Swedish consumer goods company with her plant located in the Northern Netherlands.

2010
JENAE MOORE AND JAMES GLOVER were married on September 12, 2015 in Detroit, Michigan.

2013
KATHERINE VAN DELLEN was honored with a Distinguished New Engineer award by the Society of Women Engineers. Van Dellen is currently starting her own company based on a company she wrote the business plan for as part of her master’s program.

2014
HOOMAN Ebrahim found a new job in application development and is currently working with Deloitte Consulting in Atlanta, Georgia, as a java developer.
Are You #KetteringBuilt?

**Upcoming Alumni Events**

April 12: SAE at Detroit Athletic Club  
May 20-22: Homecoming Weekend  
June 11: Sobey Golf Outing  
June 18: Commencement

*For information, visit kettering.edu/alumni*