FALL2023

THE UNIVERSITY OF AKRON MAGAZINE

AKRON'S ACADEMIC EXCAVATION:

Conducting Research to Discover and Learn

FROM THE PRESIDENT

University research conducted by faculty and staff, often in conjunction with graduate and undergraduate students, is one of the most important engines of discovery and innovation. The vast majority of advancements in science and medicine, new knowledge about human social and political dynamics, discoveries about the way the Earth and the universe work, and the advancement of new technologies, are based on university research.

The research programs at The University of Akron (UA) are among the best in the world. They are also extremely important to the regional economy. A recent study of the economic impact of the University showed that UA added $3 billion — which is equal to approximately 1.5% of the total gross regional product — to the 2021–2022 fiscal year economy in our six-county service area.

The report also provides details about how the University's research and innovation efforts contributed to the region's economy during the study period, as UA's research spending generated $17.3 million in income. For more information about how research figures into our economy, I encourage you to read the report at www.uakron.edu/impact.

> *"Our student, faculty and staff researchers are making a difference in our community, our region and around the world."*

The results of this report are an indication that our student, faculty and staff researchers are making a difference in our community, our region and around the world.

In this issue of the magazine, we examine some of the unique and groundbreaking research happening in the University's laboratories, libraries, classrooms and in the field.

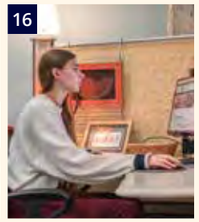
The University's researchers are examining earthquakes and the Earth's crust using UA's earthquake machine device — one of just 15 such machines in the world and the only high-pressure rock deformation lab in Ohio. We are studying the impact of technology on marketing, analyzing the chemistry of athletes' sweat in order to design personalized hydration plans and looking at how patent law can apply to visionary science fiction authors.

Of course, the researchers in our globally top-ranked polymer science and plastics engineering program are leading their fields with innovative research into the sustainability of recycled materials, the impact of 3D and 4D printing on controlling the shape of polymers, and a game-changing adhesive for use in art restoration.

These research initiatives and others in this issue of the magazine and throughout the University, will, when fully investigated and shared, make an impact far beyond our campus.

It is a great honor to be part of a university with a deep commitment to research and to applying the discoveries made. I think you will agree, The University of Akron is a great public urban research university.

Gary L. Miller
President



THE UNIVERSITY OF AKRON MAGAZINE

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CAMPUS NEWS

THE NEW CROUSE HALL

Keeping historical character while making something new

BY BREE SABIN

The face of Buchtel Common has changed over the years as buildings age and student needs evolve. The newest changes are reflected in Ayer and Crouse Halls.

As two of the oldest buildings on campus that had not yet undergone significant renovation, both Ayer and Crouse Halls had surpassed their useful life expectancy.

Funded by capital appropriation dollars from the State of Ohio, Ayer Hall, a four-story building constructed in 1947, was demolished in 2021. The 48,000-square-foot Crouse Hall, originally built in 1948, underwent renovation, including a 17,000-square-foot expansion to provide more updated teaching and learning spaces. Ayer Hall had most recently served as the location for the Department of Physics, Akron Early College High School, as well as the Office for Academic Achievement Programs. Crouse Hall was originally only home to the Department of Geosciences, but now with the expansion, the Department of Physics will also be housed there. Additionally, the building's expansion features two general-purpose auditoriums and multiple general-purpose classrooms that can be used by a variety of disciplines, as well as ADA-compliant bathrooms, gender-neutral single-stall restrooms and lactation spaces.

Through the consolidation of the buildings into a unified structure, the University successfully discovered efficiencies that were previously absent. These newfound advantages include reduced maintenance demands and enhanced energy efficiency.

The updated Crouse Hall also showcases technologically enhanced classrooms and energy-efficient windows, among other notable enhancements. Presently, the former site of Ayer Hall boasts lush greenery, trees and a new art sculpture.

Andrew Hostetler, director of architecture and design, remarked, "The changes help to better connect our pedestrian pathways on campus, making the center of campus more accessible to all."

For state-funded projects, it is required that 1% of the total appropriation is allocated for the acquisition, commissioning and installation of artwork. For this project, Michael Marras, a sculpture artist formerly based in Akron, constructed a 25-foot metal sculpture that has been placed on the land where Ayer once stood. This sculpture pays tribute to physics and geosciences and their connection with fundamental principles of the Earth. ■

Photo credit: Tim Fitzwater

Top left: A cave bear skeleton donated from Mr. John Gifford of Transylvania, Romania, is located in main entrance of Crouse Hall.

Newly renovated classrooms and study areas are found within the new Crouse Hall.

Middle right: Artist Michael Marras and Liam Kidd, sculpture student at Myers School of Art, working on the art sculpture as shown.

Bottom: Front entrance of 17,000-square-foot expansion.

UA GENERATES *$3 billion* IN ECONOMIC IMPACT FOR *community and students*

The University of Akron (UA) creates immense value for its students, alumni, the City of Akron and the six-county Northeast Ohio service area it directly impacts, consisting of Cuyahoga, Portage, Medina, Stark, Summit and Wayne counties. UA recently completed an economic impact study which showed the University added an impressive $3 billion in income to the region's economy in FY 2021-2022, a value approximately equal to 1.5% of the total gross regional product. The $3 billion impact supported 36,324 regional jobs, with one out of every 48 jobs in the UA service area supported by the activities of the University and its students.

According to the study results, a UA degree offers students a gain of $6.70 in lifetime earnings for every $1 invested, which means that in return for their educational investment, students receive a value of $1.7 billion in increased earnings over their careers.

The study also highlighted the ways that UA promotes economic growth in its service area through its direct expenditures and the resulting expenditures of visitors, students and regional businesses. The net impact of UA alumni who remain in the regional workforce was $2.7 billion, and the expenditures of relocated and retained students added $53.7 million to the service area. ■

NICHOLAS CAMPANA APPOINTED AS STUDENT TRUSTEE

Ohio Gov. Mike DeWine appointed Nicholas Campana of Dayton, Ohio, as a Student Trustee at The University of Akron effective July 28, 2023. His term will expire July 1, 2025. He fills the vacancy of Brooke Campbell, whose term ended July 1.

Campana, a sophomore majoring in political science, is an active member of the Tau Kappa Epsilon fraternity, where he has held essential roles, such as chief financial officer and vice president of philanthropy. ■

New ways TO HELP STUDENTS COMPLETE A LAW DEGREE *in less time*

Highly qualified and motivated undergraduates in select programs at The University of Akron can earn both a bachelor's degree and a law degree in six years instead of the usual seven.

The School of Law's new 3+3 pathway degree program is available to UA students pursuing a bachelor's degree in history, political science, philosophy, economics or business law.

The program saves students a full year of undergraduate study, tuition and living expenses. Students admitted under the program fulfill the fourth year of their bachelor's degree through the successful completion of their first-year law school courses. They graduate law school and get out into the world a year earlier than students who follow the traditional path, increasing their long-term earning potential and giving them a head start on making a difference in their chosen field. ■

TWO APPOINTED TO PRESIDENT'S CABINET

Jill Bautista has been named vice president for operations, leading several operational teams, including Information Technology Services; University of Akron Police Department; Environmental and Occupational Health and Safety; Capital Planning and Facilities Management; Compliance and Risk Management and the E.J. Thomas Performing Arts Hall. She previously served as the University's chief compliance and risk officer.

Bautista earned a Bachelor of Science in Biology and Environmental Science from Westminster College and a Juris Doctor from Pace University.

As vice president, chief human resources officer, Sarah J. Kelly is responsible for leading all aspects of Human Resources including organizational development, compensation, talent acquisition, employee relations, labor relations, equal employment opportunities/affirmative action, HR records and benefits.

Kelly joined The University of Akron in 2000 and has served in multiple roles during her tenure. She assumed her current role in 2022.

She earned both a Bachelor of Science in Management and a Master of Public Administration from UA. ■

PRESIDENT MILLER SPREADS *'Good News' through podcast*

When good news happens, sometimes it's hard to keep it to yourself. That's how President Gary L. Miller feels about the accomplishments and achievements of those in the UA community. Since December 2021, Miller has hosted a podcast called "Good News with Gary" where he shares updates about the great things happening on campus — and sometimes off campus, too. Miller also interviews UA students, faculty, staff and alumni. New episodes are shared via social media and UA's internal communications.

Eager to catch up on all the good UA news? Check out the "Good News with Gary" playlist on the University's YouTube channel. ■

President Miller interviewing Tyrone Johnson '23

DANIEL FRIESNER NAMED DEAN OF *College of Health and Human Sciences*

Daniel Friesner, Ph.D., joined UA as dean of the College of Health and Human Sciences on June 30.

As a health economist and applied economic statistician, Friesner's research interest lies in topics at the intersection between the provision of health care and economic development.

"I am honored to be selected as dean of the College of Health and Human Sciences," said Friesner. "The College is optimally positioned to meet the evolving workforce needs of health care employers in the region. Its growing portfolio of research and service activities has made the College a leader in improving the health and well-being of residents in Summit County, and across the state of Ohio." ■

AN OUT OF THIS WORLD INTERNSHIP

BY **CRISTINE BOYD**

Kyle Vernyi grew up in an average household in an average Northeast Ohio town. But now he is seeking a career in aerospace engineering, a not-so-average field.

Growing up in Green, about 12 miles from the University of Akron (UA) campus, Vernyi remembers his dad, an electrical engineer, bringing home classic Styrofoam remote control planes to play with and his dental hygienist mom purchasing the occasional science kit … but he didn't realize he would later be conducting research that had the potential to impact the world.

> **"KYLE HAS BEEN FANTASTIC AS AN INTERN AND I ATTRIBUTE A LOT OF THAT TO HIM TAKING ADVANTAGE OF THE CO-OP PROGRAM AT AKRON."**
>
> Dr. Daniel Raible
> UA faculty member and
> aerospace engineer at NASA

After completing aptitude tests for careers that matched his interest, he began to explore engineering schools and decided UA was the best fit.

Later, he got involved with the student design team, the Akronauts, and completed an internship with LTA Research, which develops airships. He thought immediate employment with LTA was in his future, until he reached out to Dr. Daniel Raible looking for help on his senior design project. Raible, a part-time engineering faculty member at UA and a full-time aerospace engineer at the NASA Glenn Research Center in Cleveland, invited Vernyi to come see what his team was working on and offered him an internship.

Vernyi immediately began to work with the Space Communications and Navigation Internship Project supporting the High-Rate Delay Tolerant Networking (HDTN) team. The project's goal is to create a network of satellites that will help to increase the speed of delivery of information from the surface of the Moon back to Earth.

"NASA's largest mission right now is Artemis, which is our return to the Moon," said Raible. "When we went up with Apollo, it extended outreach to everyone, not just to Americans, and that was broadcast live, but it was grainy footage. When we return to the Moon, it is paramount that we share the experience like we did with Apollo, but with much better fidelity. We need to stream 4K video from the Moon and beyond so people can live vicariously through our astronauts."

"The work Kyle is doing [to develop the network] will be launched in December to the International Space Station to try it out on their systems. He is in the critical path of the project and contributing heavily. We couldn't do it without him," Raible added.

When asked about working at NASA, Vernyi remarked, "It's an amazing feeling for sure. Going in and putting your badge at the gate every day and driving past the signs. There is a good mission — trying to educate and bring science to future generations."

"Kyle has been fantastic as an intern and I attribute a lot of that to him taking advantage of the co-op program at Akron," said Raible. "Akron is a wonderful destination for those who have an interest in aerospace. Kyle got a lot from his internships, transcending the classroom and the textbook and learning how to work with teams."

And while his work is making a real impact on the future of space communication, Vernyi is still undecided about his future.

"The internship put space networking on my potential career path. But my approach is to be open, work hard, learn as much as I can, make connections and see where it takes me. That has been my approach at The University of Akron, and it has worked out well." ■

Vernyi graduated from UA in May and is currently pursuing a Ph.D. in aerospace controls at Embry-Riddle Aeronautical University.

STARSHIP TECHNOLOGIES LAUNCHES ROBOT FOOD DELIVERY SERVICE TO UA CAMPUS

There are many food delivery options these days — Grubhub, Uber Eats and DoorDash, to name a few. This fall, The University of Akron (UA) welcomed a new delivery service to campus — this one featuring delivery robots.

The robots are compliments of a partnership between Starship Technologies, creator of the robots, and Aramark, the University's dining services provider.

The fleet of autonomous, on-demand robots deliver food to locations around campus from several campus eateries including: Starbucks, Qdoba, Panda Express, Auntie Anne's and Freshens. The service works in conjunction with the student meal plan, or individuals can pay by credit card on the app.

To get started, users open the Starship Deliveries app, choose from a range of their favorite food or drink items, then drop a pin where they want their delivery to be sent. They can then watch as the robot makes its journey to them, via an interactive map. Once the robot arrives, they receive an alert, and can then meet and unlock it through the app. The delivery usually takes just a matter of minutes, depending on the menu items ordered and the distance the robot must travel.

Each robot can carry the equivalent of about three shopping bags of goods.

Starship is already providing services to campuses across the country and their zero-emission robots have made more than five million autonomous deliveries, traveled millions of miles and make more than 150,000 road crossings every day. The robots use a combination of sophisticated machine learning, artificial intelligence and sensors to travel on sidewalks and navigate around obstacles. The computer vision-based navigation helps the robots to map their environment to the nearest inch. The robots can cross streets, climb curbs, travel at night and operate in both rain and snow. A team of humans can also monitor their progress remotely and can take control at a moment's notice.

BUCHTEL COLLEGE OF ARTS AND SCIENCES

EXPLORING AKRON'S EARTHQUAKE LABORATORY

BY **BREE SABIN**

Although Ohio is not known as the earthquake capital of the country, some serious earthquake analysis happens right here at The University of Akron (UA).

Dr. Caleb Holyoke, associate professor of geology, has developed a state-of-the-art rock deformation lab on campus where students develop and test hypotheses about how rock properties affect rock strength and earthquakes using a variety of equipment. His focus is not only on the loud bang that accompanies earthquakes, but also on the quieter, deeper aspects of the earthquake cycle in between the loud bangs in the Earth's crust.

Students regularly occupy the geology labs, using the equipment for laboratory exercises in their courses and individual research projects. Upper-level undergraduates use the Forney FX-300, a repurposed concrete strength testing machine, to perform experiments on rocks or rock analogs to test how different properties, such as grain size or grain alignment, affect the strength of rocks. The strength of the rock is related to the magnitude of the earthquake; strong rocks make large earthquakes! The students get to deform rocks collected from various worldwide locations, including Scotland, the Italian Alps, South Dakota's Black Hills, Eastern Wyoming and Berea sandstone from a nearby quarry in Ohio.

Dr. Holyoke in his new lab in Crouse Hall.

"If we get students involved with doing things with their hands in labs, those students get excited about deforming rocks or looking at sediments and understanding how the Earth works," said Holyoke. "That's what drives the Department of Geosciences."

The Advanced Structural Geology course involves coring rocks and conducting various tests on them. Multiple pieces of equipment are utilized to understand the different properties of the rocks.

One unique machine used is the Griggs Apparatus, which is utilized for high-pressure rock deformation experiments. Only 15 labs worldwide, including The University of Akron, have this machine.

Dr. Holyoke recently received a National Science Foundation grant for $359,704 to perform an integrated field and experimental study investigating how water loss may strengthen the Earth's lower crust and lead to earthquakes in locations where they don't normally occur. The grant will also help fund research efforts by current UA students. One undergraduate student, Nadilee Nottingham of Ashtabula Twp., Ohio, has already begun working on her honors thesis with this grant funding. The project, lasting three years, will include field work in a remote area in Saskatchewan, Canada, over the course of two summers to study the formation of 2.8-billion-year-old pseudotachylyte, a rock formed by melting the sliding rock surfaces during a large earthquake.

The Department of Geosciences is excited to be back in the newly renovated Crouse Hall this fall. For the past two years, the department has been located across various buildings on campus while construction has taken place. With the new building, everything is centralized, creating a more connected and efficient environment for students and researchers.

"One of the things that's important to us in our department is that we have a lot of undergraduates who come through these labs. Many of these students end up working on senior research projects. In my eight-year tenure, I've had roughly 20 undergraduate students working on various rock formation projects," said Holyoke. "It's great to have everything back in Crouse. I am glad to be back in our home." ■

Top photo: Dr. Caleb Holyoke is shown with the Griggs Apparatus.

Middle: Experimental and natural fault rocks are displayed in drawer.

Bottom photo: Group picture from this past year's Field Camp II course (Seminoe State Park, Seminoe Mountains in Wyoming).

BUCHTEL COLLEGE OF ARTS AND SCIENCES

Nectar *of* KNOWLEDGE

BY **BREE SABIN**

Faculty tend to specialize in focused research areas, and it becomes their life's work. For Dr. Randy Mitchell, professor of biology at The University of Akron (UA), his interest lies in the work of plant pollinators, such as bees. His work is so significant that he has been ranked among the top 2% of scientists in the world, in his field of expertise.

Conflict of interest is what drives his research. Looking into evolutionary biology, he has sought to understand the essential elements that make up evolution, specifically how pollinators affect one another.

Flowers have evolved mechanisms that make sure a pollinator is effective at moving pollen, while bees have attributes that help them get the most food with as little effort as possible. This conflict of interest between plants and pollinators is what sparked his interest in bee pollination and the reciprocal impact they have on each other.

Part of his work is completed at the Dr. Paul E. Martin Center for Field Studies and Environmental Education UA Field Station in Bath Township, where he actively gets students involved with his research.

"Students are a vital part of all my research. At the Tamarack Bog restoration at the Field Station, they mostly help to identify and evaluate the plants. By the end of each season, the students go from knowing nearly no plants to being able to identify several dozen, and are able to distinguish perhaps 100 species," said Mitchell. "Many of these students have gone on to careers in environmental restoration, monitoring and consulting, in part based on the skills and experiences gained in this restoration project."

Few UA faculty study ecological interactions outdoors, so Mitchell is all too happy to offer this unique, hands-on approach to students who have an interest in the outdoors, animals and plants.

"This is where the real learning happens. A lot of my research has changed because I have had a surplus of interest [from students] in restoration of wetlands. This has helped to better serve our students," said Mitchell.

Mitchell has three recent research activities worth noting. Firstly, he is in the tenth and final year of evaluating ecological restoration at the UA Field Station, collaborating with Bath Township to recover the area.

This wetland was damaged (drained) in the 1960s, which harmed the native vegetation. Furthermore, the drier environment allowed plants that don't belong there to get established, degrading the habitat for wildlife. Around 2012, Bath Township, which owns and manages the wetland, started work with UA to restore the bog. Shortly after that, the Ohio EPA suggested to a developer that providing monetary support for that restoration work would fulfill a mitigation agreement (meaning that if a developer destroys a wetland, they need to either make new wetlands or protect/improve/restore others). That mitigation agreement pays for the restoration activities, and also for monitoring at the Tamarack Bog. Each year, Mitchell and his students at UA do the monitoring, which is a detailed survey of the wetland to evaluate whether the restoration goals are being met.

Secondly, Mitchell recently completed research, funded by a grant from the National Science Foundation, focused on looking into how plants and pollinators affect one another. The research analyzed how much self-pollination happens under different circumstances and how the diversity of mates that plants interact with changes in the environment.

Thirdly, Mitchell and a team of researchers embarked on a survey of various sites in Ohio to find the Rusty Patch Bumblebee. In 1995, it was the most common bee you would see in Ohio, but by 2000 it was rarely seen. The last time it was spotted in Ohio was in 2013 and, during the past 10 years, it has continued to be unnoted. In 2017, Mitchell and a team of researchers started traveling around the state surveying various sites and looked at more than 25,000 bumblebees, and not one was the Rusty Patch Bumblebee. The species still exists in Wisconsin, Minnesota and Iowa, but its disappearance from Ohio highlights the significance of understanding and preserving pollinator communities.

Mitchell's next task involves developing ideas on how restoration efforts in the Cuyahoga Valley National Park are affecting bee communities. He hopes to contribute to the conservation and understanding of the Cuyahoga Valley National Park and the natural wonders of Northeast Ohio. ■

> "BY THE END OF EACH SEASON, THE STUDENTS GO FROM KNOWING NEARLY NO PLANTS TO BEING ABLE TO IDENTIFY SEVERAL DOZEN, AND ARE ABLE TO DISTINGUISH PERHAPS 100 SPECIES."
>
> **Dr. Randy Mitchell**
> **UA Professor of Biology**

Dr. Mitchell and students at the UA Field Station in Bath Township.

COLLEGE OF HEALTH AND HUMAN SCIENCES

HELPING ATHLETES TO NOT SWEAT THE *SCIENCE of hydration*

BY **ALEX KNISELY**

Leonardo da Vinci once said, "Water is the driving force in nature."

While that's undoubtedly true for the survival of vegetation and people, water is also the driving force behind the performance of athletes, and hydration is one of the deciding factors in making or breaking their performance.

But how do athletes who compete in ultramarathons, triathlons and Olympic sports know how to properly hydrate themselves for their best performance? It all comes down to drinking the right stuff.

"Even the most skilled and accomplished performers can experience adverse effects with just a slight amount of dehydration," said Dr. Ronald Otterstetter, a professor in the University of Akron's (UA) School of Exercise and Nutrition Sciences. "We know that in severe cases, dehydration can escalate to heat stroke or death."

But what really impacts athletes is the loss of sodium in the body. While dehydration can cause sodium to drop, so can too much water.

"Rapid sodium loss without adequate replenishment can be life-threatening, but there's also a condition called hyponatremia that is caused by plasma sodium levels dropping too low due to an excess of water in the body," he said.

Otterstetter directs the Human Performance Lab at UA where he tests the sweat, or more specifically sodium, of athletes and individuals to help guide them in formulating hydration plans that best fit their physiology. His research in sodium is also applied to SweatID, a Cleveland-based start-up company where he serves as chief exercise scientist for the company's new technology on a unique fabric sensor that measures personalized sodium output.

"The goal of the research performed for SweatID and UA's Human Performance Lab is to bridge the gap in hydration tracking and provide personalized insights for athletes, coaches and individuals alike," said Otterstetter. "By understanding their unique physiology, users can tailor their training, recovery and hydration practices to achieve peak performance and better health outcomes. The sensors we use in the Human Performance Lab and the sensors developed by SweatID will monitor how much sodium is lost so you can match output with input in a clearly defined and personalized hydration plan."

How It Works

It all has to do with a little patch of fabric with even smaller nanotubes inside of it to collect perspiration. These nanotubes react to sodium concentration, which changes as a person exercises.

Otterstetter develops the exercise protocols needed to test the technology developed by SweatID and for use in the University's performance lab. For instance, during development, the SweatID team needed to test the sensors. For this, Otterstetter had athletes perform 30-minute cycling trials to make their bodies perspire and see if the sensors they were wearing picked up data. (They did.)

Next, they needed to know if the data was accurate. Otterstetter had athletes perform trials by running for 90 minutes on a treadmill with sweat samples being taken at different time intervals throughout the exercise.

The efforts for SweatID have been supported by grants from the National Science Foundation, Ohio Third Frontier, Great Lakes Innovation Fund and Wright Center for Sensor Systems Engineering.

"Everything skews toward longer races, like triathlons and marathons, where people are exercising hours at a time and need to match taking in with what they're losing," said Otterstetter. "We also know that beyond 30 minutes of sweating, a person's perspiration won't behave the same, so we had to focus on situations where people would be performing for longer than a half hour. We then started comparing our results to other machinery that we knew would give accurate sodium levels to support our findings."

The Impact

With this technology and Otterstetter's supporting research, individuals who want a real-time monitoring device to increase their physical performance or to create a hydration plan that is personalized for them can have it.

"Our research will impact everyday life by transforming how individuals approach their fitness and wellness journeys," Otterstetter said. "With real-time monitoring of crucial biomarkers, people can make informed decisions, avoid dehydration and maximize their athletic potential or daily activities."

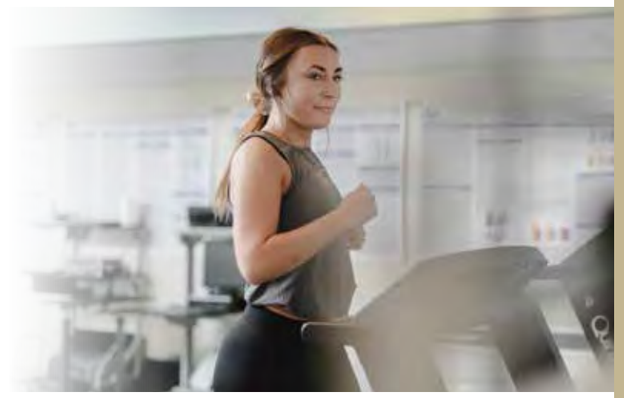
Take an Ironman triathlon, for example, and its 2.4-mile swim, 112-mile bicycle ride and full 26.2-mile marathon. An average triathlete can finish the event in 12-13 hours. But during that entire time, the athletes must hydrate themselves. They already lose part of the hydration challenge because they're unable to hydrate themselves during the swim. So, when they come out of the water and go right into cycling, their sodium output and input levels will be uneven, and they'll have to plan to execute a hydration plan as they cycle and then run the final 26 miles.

And the demand is definitively there. As part of his research, Otterstetter, along with others from SweatID, have attended elite competitions for triathletes, such as the annual Ironman World Championship in Hawaii, to collect data on their needs and interest in sweat and hydration tracking.

"We asked athletes about their hydration plans and learned that they actually do, in fact, have a strong demand for using a monitor that could help them stay hydrated better," he said.

But the application of Otterstetter's research doesn't start and stop with athletes.

"Although the performance of athletes is the current focus, we can functionalize the wearable sensor for whatever we want," said Otterstetter. "Health care professionals may integrate SweatID's non-invasive monitoring into patient care for better health management. The applications also extend to military personnel, outdoor enthusiasts and anyone seeking to improve their well-being through personalized biomarker insights." ■



COLLEGE OF HEALTH AND HUMAN SCIENCES

HEAR, HEAR!
UNLEASHING AUDIOLOGY EXPERTISE AT FETCHLAB™

Dr. Paige Wulliger

BY CRISTINE BOYD

Step onto the University of Akron (UA) campus, and you'll find a learning experience that's as heartwarming as it is educational — the FETCHLAB™. This isn't your ordinary classroom; it's a place where adorable puppies and the pursuit of knowledge collide in the most delightful way possible.

Students in the Doctor of Audiology program aren't just hitting the books; they're gaining hands-on training by working with fluffy, four-legged companions. The FETCHLAB™, short for the Facility for Education & Testing of Canine Hearing & the Laboratory for Animal Bioacoustics, is a hub of puppy-powered learning.

FETCHLAB™ Akron opened in 2016 and offers hearing screenings, diagnostic examinations and tailored guidance for dogs facing hearing impairments — a resource for both vigilant dog owners and conscientious breeders alike.

"Some dog breeds have a genetic predisposition to congenital deafness; therefore, many breeders regularly check the hearing of their puppies before sending them to new homes," said Dr. Paige Wulliger, director of FETCHLAB™ and senior lecturer in the Department of Speech-Language Pathology and Audiology.

To conduct the assessments, dogs are placed onto a table and are outfitted with a special vest. Delicate electrodes are then gently placed around the ears and atop the head of the dog. A gentle symphony of clicking sounds plays through a pair of insert earphones in the dog's ears as a computer screen displays a visual representation of the dog's brainstem response, eloquently illustrated in a graph.

While the same type of tests can easily be conducted in a veterinarian's office, breeders often choose to come to UA, where they can easily bring an entire litter of puppies for screening. FETCHLAB™ holds weekly hearing assessment clinics for both young pups and older dogs that might have hearing loss.

The weekly clinics are an invaluable opportunity for the UA audiology doctoral students, where theory and practice come together.

"Having the audiology students participate in FETCHLAB™ is such a rewarding experience. The lab provides them the opportunity to work with equipment that they can use clinically, while partaking in an experience that differs from their other rotations," said Wulliger.

Appointments for hearing tests for dogs or litters of puppies at FETCHLAB™ can be arranged by calling 330-972-6035.

SCHOOL OF LAW

UNLOCKING THE CONNECTION BETWEEN SCIENCE FICTION AND PATENTS

Imagine diving into the world of futuristic stories where spaceships soar and gadgets do incredible things. Now, think about how those ideas become real things we use. Camilla Hrdy, professor of intellectual property law, and her co-author, former Akron Law assistant professor Daniel Brean, have made new findings about the connection between science fiction and patents.

Using documents maintained in a private research archive at Syracuse University, Hrdy and Brean learned that the famous science fiction editor Hugo Gernsback had some unique views about the nature of science fiction and the role of patents.

In 1926, Gernsback established and served as the editor of the world's first magazine entirely dedicated to science fiction. But he wasn't just a magazine editor. He was also a dedicated engineer and innovator, leaving behind a legacy of more than 30 patents. Within his editorial contributions to his magazines, Gernsback shared the view that a well-crafted science fiction narrative resembles a patent — an official record submitted to the government detailing a fresh, practical and innovative creation.

Gernsback argued that science fiction stories are like patents because they disclose future technologies that, even if they cannot be practiced today, might one day be possible. He believed that science fiction stories inspire readers to figure out how to make those inventions and noted that many of those readers will go on to get patents for inventions they learned about in science fiction.

Many science fiction authors inspire so many later inventions, but cannot usually obtain their own patents because their inventions are not usually capable of being practiced at the time the author describes them. Gernsback believed this was unfair and sought to change this. In a 1952 speech he gave to the World Science Fiction Convention, he argued that Congress should amend the United States patent law to make it easier for science fiction authors to apply for patents on the inventions they describe in their stories.

Even though Gernsback's idea didn't become a law, Hrdy and Brean think it's still worth thinking about. So many things in existence today, such as ChatGPT and the Metaverse, were inspired by science fiction stories.

"This does not mean all science fiction authors should be able to get patents," Hrdy says. "That would be a bad policy. But we should recognize these authors' influence on the present."

As Hrdy and Brean dove into old papers and books, they felt like they were traveling back in time. And this journey of discovery reminds us that the past holds secrets that can help us understand the present and even guide us into the future. ■

Professor Camilla Hrdy

COLLEGE OF BUSINESS

EXPLORING TECH-POWERED LEARNING AND ITS IMPACT ON MARKETING EDUCATION

Dr. Sydney Chinchanachokchai and James McKelvey

BY **CRISTINE BOYD**

Technology is reshaping the field of marketing. Tools like eye tracking and facial expression analysis are helping marketers better understand consumer behavior. These technologies are no longer just for experts — they're becoming accessible in classrooms too.

Course delivery was forced to change during the COVID-19 pandemic, pushing most learning online. This meant fewer hands-on experiences for students. But James McKelvey MBA '85, instructor of marketing at The University of Akron (UA), took on the challenge. He used these new technologies to keep his students engaged and learning.

Together, he and Dr. Sydney Chinchanachokchai, associate professor of marketing at UA, recently published a paper, "Teaching eye tracking and facial expression analysis technology in an online marketing research class" in Marketing Education Review, a journal that publishes innovative approaches to marketing education. They discussed how, using technology, marketing faculty could switch from face-to-face instruction to an online format while still maintaining the same quality of instruction and level of engagement. The paper highlighted McKelvey's COVID-era class as a test subject. The results were promising. Students improved their learning and felt better prepared for their future careers through a four-week online project that used remote technologies to collect eye tracking and facial expression data through a compliant user's webcam.

"The use of these technologies is important," said Chinchanachokchai. "As companies hire, they're looking for people who can handle technology. Having these skills could mean a higher-paying job. Learning to use tech in a classroom setting gives students a head start."

Eye tracking and facial expression analysis used to be extremely expensive and complicated. But now, they're more affordable and easier to use. Even big names like Procter & Gamble and PepsiCo, Inc. are using them to see how people react to their ads. For instance, retailers are tracking where people look on websites, and advertisers are checking how people's faces change when they watch commercials.

Students are shown utilizing the eye tracking and facial expression analysis technology in the Benjamin and Nancy Suarez Applied Marketing Research Lab.

As more students look for online learning opportunities, the use of this technology makes it a great hands-on remote learning opportunity.

In the project highlighted in the paper, teams of students evaluated six 30-second Super Bowl commercials — three that used disparaging humor and three that used humor in a non-disparaging way. They completed literature reviews on the topic and developed a hypothesis on the results of the tests. They then used online software and webcams to get data from volunteers. Students watched how people's eyes moved and how their faces changed. Viewing the real-time data collection of their volunteers and the simultaneous coding of the eye tracking and facial expression data helped generate excitement among the students as they witnessed real-time emotional responses to advertising stimuli from the field.

The 72 students in the initial test reported that the technology helped improve their learning about marketing research, but they also reported having fun with the projects. One student said they liked how the assignments felt like real work. Another enjoyed applying what they learned to real-life situations, such as analyzing ads, saying that the technology made learning exciting.

"Technology is changing marketing, and students need to keep up. Eye tracking and facial expression analysis are opening doors to understanding consumers better," said McKelvey. "Faculty are finding ways to use these tools online. And students are loving it. They're learning, having fun and getting ready for the job market."

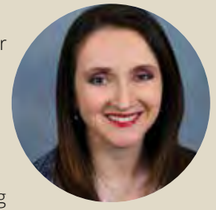
When classes aren't online, the Department of Marketing utilizes the classroom resources found at the Benjamin and Nancy Suarez Applied Marketing Research Laboratories on the fifth floor of the Polsky Building. The lab features a Cognitive Research Laboratory with state-of-the-art technologies focusing on techniques such as eye tracking and brainwave and physiological analyses; a Marketing Intelligence Laboratory with workstations where students and faculty can develop comprehensive market intelligence reports; and an Experiential Research Laboratory where students and businesses use techniques such as facial coding software to test the effectiveness of various types of advertising.

McKelvey often brings real companies, such as Hartville Potato Chips, 365 Holdings and NORKA Beverage Company in to work with the students. "Businesses today rely on research, said McKelvey. "I tell my students that if you're not using data, you're guessing, and guessing is not a strategy. You need data to support business decisions." ■

COLLEGE OF BUSINESS

BUSINESS FACULTY IMPRESS *with research*

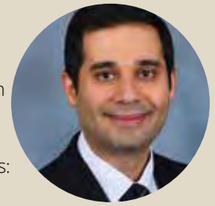
Sharenting impact: vulnerable consumer mothers and children's online privacy



Dr. Alexa Fox, associate professor of marketing, published "Smart Devices, Smart Decisions? Implications of Parents' Sharenting for Children's Online Privacy," in the Journal of Public Policy & Marketing. This pioneering study reveals that mothers, an overlooked consumer group, are susceptible to social media marketing that encourages sharenting, or using social media to share information about one's child. Such tactics may circumvent the legal protection that the Federal Trade Commission (FTC) has in place to protect children's online privacy.

Fox's paper received national attention, being featured in Forbes and The Washington Post.

Deciphering business responses to school property tax shifts in Ohio



Dr. Ali Enami, assistant professor of economics, has received recognition for his paper, "The effect of property taxes on businesses: Evidence from a dynamic regression discontinuity approach" that was published in the Journal of Regional Science and Urban Economics.

The study centers on Ohio's school property taxes, investigating whether voter-approved tax hikes (averaging 8%) lead to a decline in local businesses. Surprisingly, the research challenges this notion, revealing that businesses across industries and sizes display no negative response to such tax proposals. This discovery echoes Enami's prior research, highlighting how elevated school property taxes benefit students from vulnerable economic backgrounds. These findings advocate for increased funding in Ohio's public schools.

Could teaching personal finance in high schools boost financial knowledge?

According to the 2018 Survey of the States conducted by the Council for Economic Education, not all students in the U.S. must complete a high school course in personal finance.

Dr. Taufiq Quadria, assistant professor of instruction in the Department of Finance, is currently researching this inclusion of personal finance in high school curriculum.

His primary objective is to identify how requiring high school students to take a personal finance class might affect their overall understanding of financial topics. This study utilizes data from the National Financial Capability Study and could have an impact on schools across the nation as well as the financial knowledge of today's youth. ■

2023 *Albert Beekhuis* Award Recipient

The H.K. Barker Center for Economic Education was awarded the 2023 Albert Beekhuis Award by the Council for Economic Education for outstanding performance in working with teachers and exhibiting excellence in the delivery of high-quality programs and outreach to its community.

The Barker Center reaches hundreds of educators through its in-person and virtual workshop training opportunities for K-12 educators, all tagged to Ohio's learning standards; inaugural, statewide teaching financial literacy conference; and summer study tour for local K-12 educators to Ireland and the UK in the area of global economic education.

COLLEGE OF ENGINEERING AND POLYMER SCIENCE

UA RESEARCH JUST MIGHT *stick* FOR THE FIELD OF ART RESTORATION

BY **JESSICA WHITEHILL**

Polymer scientists and engineers at The University of Akron (UA) usually do their research in a lab. For one group of UA researchers, the lab included art museums, galleries and institutes across the globe. Their findings should prove transformative for the field of art restoration.

> "WITH THIS PROJECT, PEOPLE FROM ALL OVER THE WORLD HAVE BEEN PART OF THE DEVELOPMENT ALONG THE WAY."
>
> Dr. Ali Dhinojwala
> H.A. Morton Professor of Polymer Science

Dr. Ali Dhinojwala, the W. Gerald Austen Endowed Chair and H.A. Morton Professor of Polymer Science, and a team of undergraduate and graduate students and postdoctoral researchers, have developed an adhesive formulation for the safe relining of linen canvases, which could potentially save priceless artwork all over the world.

UA is collaborating with the Conservation Center at New York University Institute of Fine Arts, which is leading the project from the art restoration side. Other collaborators include the Cleveland Museum of Art, the Metropolitan Museum of Art, the Museum of Modern Art, the National Gallery of Art and several institutions in Europe.

A network of scientists and engineers, including UA's Dr. Abraham Joy, professor of polymer science and polymer engineering, periodically review the research.

So far, several hundred art restorers and conservation scientists have participated in both in-person workshops and online presentations about UA's findings, which indicates the significance of this research to the relatively tiny field of restoration.

The industry-standard adhesive for art restoration of this kind had been BEVA 371, which is an abbreviation for Berger-ethylene vinyl acetate, named after its inventor.

To use the adhesive formulation, restorers apply it to the back layer of the painting. The adhesive is heated to ensure it becomes tacky and the restorative material sticks to the artwork. BEVA 371 tacks between 50 and 55 degrees Celsius, and restorers were satisfied those temperatures would not damage artwork. But around 2008, the company that manufactured BEVA 371 ended production due to unavailability of the tackifier used in the formulation.

A new formulation, BEVA 371b, uses a replacement tackifier, but the temperature necessary to develop tackiness is around 65 degrees Celsius. The Getty Foundation began funding research into a new tackifier. UA was brought on because of its reputation in developing polymers for adhesives.

Four different tackifier agents were tested in the UA lab before the team sent the formulations first to NYU and other partners. There were also workshops in New York City and Turin, Italy, where others could examine the formulations. Two of the four formulations have shown the most promise because they developed tack at lower temperatures. The Akron formulation, as it is likely to be known, becomes tacky at 55 to 60 degrees Celsius.

"It has to work perfectly," said Dharamdeep Jain '17, a UA postdoctoral researcher. "Otherwise, [restorers are] not going to use it."

The UA team has enjoyed working with their partners in the art world.

"Collaboration can be uncommon in science," Dhinojwala said. "With this project, people from all over the world have been part of the development along the way." ■

COLLEGE OF ENGINEERING AND POLYMER SCIENCE

RESEARCHERS FOCUS ON SUSTAINABILITY

through recycled additives and 3D printing

BY **ALEX KNISELY**

Sustainability and 3D printing are prominent themes in modern science as humans strive to make their world a better place. So, it only makes sense that scientists in the University of Akron's (UA) College of Engineering and Polymer Science are researching these areas.

> **"THE ENDGAME IS TO INCREASE RECYCLING CONTENT. THE MANUFACTURING AND PRODUCTION OF GOODS ACCOUNTS FOR ABOUT ONE-FIFTH OF THE WORLD'S GREENHOUSE GAS EMISSIONS."**
>
> Dr. James Eagan
> Assistant Professor
> Polymer Science

A Sustainable Future

"There are two approaches we can take to address issues in sustainability — one is a redesign of materials so they're more recyclable, and the other is recycling materials that already exist," said Dr. James Eagan, assistant professor of polymer science. "When it comes to recycling existing materials, one of the activities we're looking at is mechanical recycling."

Mechanical recycling, or what people think of as conventional recycling, reprocesses materials by grinding or compounding. The plastics then become inherently mixed and, eventually, the processed plastics will phase-separate, like water and oil separating in a container, making the product subpar.

That's the conflict — if there's an interface between two different polymers that do not adhere, pulling on the materials can cause them to separate, leading to inferior properties and significantly impacting the overall quality of the plastic material.

To combat these challenges, Eagan's team has developed additives to sprinkle into the recycling process, designed to improve the mechanical properties of plastics. When the two most abundant plastics — polyethylene and polypropylene — are mixed (e.g., Tupperware® mixed with a milk jug) the resulting plastic is brittle.

Eagan and his team are investigating additives, or "compatibilizers," that would improve the mechanical properties of these plastics to make them more pliable. They're developing unique nano stitches designed to seamlessly join the interfaces of two polymers without relying on conventional adhesives. This could help manufacturers use more recyclable content and get higher-quality products that are more predictable.

"The endgame is to increase recycling content," said Eagan. "The manufacturing and production of goods accounts for about one-fifth of the world's greenhouse gas emissions. If you can reduce process losses or energy intensity, that's going to significantly impact our missions and goals of net zero."

The most impacted materials from the additive Eagan is developing would be plastics categorized as 1, 2, 4 and 5 — water and pop bottles, shampoo and conditioner bottles, bread bags, bottle caps, straws, plastic take-out containers and more everyday plastic objects.

"Polyethylene and polypropylene account for approximately two-thirds of all plastic production, and you can't go into the modern world without them," said Eagan. "So, we're finding how we can make recycled plastics more durable than current brittle recycled plastics."

To help with this, undergraduate students involved with UA organizations Zips Precious Plastics and Engineers for a Sustainable World work with Eagan to collect polyethylene and polypropylene plastics to put through the recycling process to make 3D-printed filaments like flowerpots and keychains. The plastic can also be converted to filaments to use for 3D printing, helping play a role in the future of sustainability. These efforts are supported by the Synthomer Foundation.

Investing in 3D Printing

One of the ways in which sustainability can continue improving is through 3D and 4D printing of shape-shifting materials.

"With 3D printing, there's rapid prototyping and lower capital costs than traditional injection molding," said Dr. Kevin Cavicchi, professor of polymer engineering. "Studies have shown there is money to be saved with this type of low-scale production for industries that manufacture uniquely made items, like jewelry or body implants."

Cavicchi's research group utilizes a 3D printing lab on campus that has been expanded by funds from an Assured Digital Microelectronics Education and Training Ecosystem grant from the Air Force. They are printing in 4D, where the fourth dimension is time, meaning that materials respond to stimulus long after they have been printed and change their shape.

"We're working on shape-memory materials to develop polymers with excellent elasticity that can be misshapen when set into place, and return to their original shape on heating," said Cavicchi, whose research is the synthesis and characterization of shape memory polymers. "It's a general property that shows up in polymer processing being applied to 3D printing — if you take a plastic cup that was made by thermoforming and heat it up, it will start to recover back to the shape of the original sheet it was made from."

With Cavicchi's research, there's potential to program other responsive stimuli, like humidity, or fine tune the thermal response to generate complex motion useful for remote deployment of an item without any tools to guide it along.

Like Eagan, Cavicchi is engaging with students and getting the next generation excited about 3D printing and polymers. Through Project SEED with the American Chemical Society, Cavicchi has been working with an Akron Public Schools student for the last two summers to help 3D print materials and to guide and empower them to explore the world of 3D printing and materials development.

Currently, he is exploring the interaction between heat and 3D-printed polymers to study two-way shape memory. For instance, a bimetallic strip in a thermostat curls and uncurls due to differential thermal expansion, regulating furnace cycles. 3D printing enables layering distinct thermal expansion materials during the printing process, creating dual-memory materials.

"There are exciting opportunities to use these materials as artificial muscles and in soft robotics," he added.

Cavicchi's pioneering work not only extends the capabilities of shape memory polymers beyond their conventional applications, but it also sets the stage for a new era of smart materials with a myriad of exciting possibilities. ■

Pictured below: Dr. Kevin Cavicchi (center) shows a spool on a single screw extruder to undergraduate student Pailey Vitale (right), Ph.D student Ziyan Li (center) and undergraduate student Natalie Bauman (back).

UNIVERSITY LIBRARIES

HISTORIC HOWER HOUSE MENU

BECOMES CLASS PROJECT

BY **BREE SABIN**

The Hower House sits stately on the edge of campus hiding behind large trees. The Victorian mansion, now a museum, was completed in 1871 and lived in by the Hower family until the mid-1980s. During its heyday, it was home to many elaborate dinner parties hosted by the Howers with prominent families such as the Barbers, Buchtels, Bierces, Firestones and Seiberlings, among others.

In 2021, an exhibit at the Hower House explored these lavish dinner parties by examining the recipes found on a bookshelf in the house. Once Dr. Hillary Nunn, professor of English, learned about it, she was immediately intrigued.

"There were a lot of recipes, and they were really interesting," explained Nunn. "They all would tell us how Blanche Hower oversaw the cooking in her house, did the cooking in her own right and would host these parties."

Nunn, known for her research that explores the connections between Renaissance literary culture and domestic medical text and cookbooks of that era, decided to use Blanche Hower's recipe books as inspiration to develop an [Un]class called "Menus & Manuscripts at the Hower House."

A group of 13 University of Akron students, hailing from a variety of majors, signed up for the class and their first task was to transcribe 74 recipes. For many students, this was their first encounter with a rare book, making it an interesting and novel experience.

The [Un]class structure empowered the students to shape the project collaboratively. They had to decide the project's direction, plan their approach and set stepping stones to achieve their goals. Nunn had one ground rule: everyone had to contribute to transcribing and blogging about their experiences.

"They were to approach it in a way that felt meaningful to them. To find a way that was substantial and well researched, but also showed something about the Howers that they didn't know before — all while working in conjunction with the Hower House," explained Nunn.

The students chronicled their progress through blog posts, allowing for creative expression. Some students even created additional websites, cooked dishes from the recipes or made videos to showcase their work.

Students used the recipes, along with other materials from the UA Archives, that would show the dinner menus that Blanche put together. Determined to make their research a peer-reviewed publication, they created a book through the University of Akron Press that provides versions of these recipes, describes the dinner parties and uses pictures found in the archives to show a sense of what it was like to live in the Hower House.

"Students will have something to take out of it to show other people. That's not normally something you can take to show at the end of a course. To say, 'I have an essay in this book and it's a collection of historical recipes,' it's an attractive takeaway," said Nunn.

The book, titled "Menus and Manuscripts," is scheduled for release in December 2023. Nunn expressed her admiration for the hands-on nature of the class, where she worked alongside her students, learning from them as they discovered new perspectives on the material. The collaborative spirit of the class was a model of how diverse experiences can lead to unexpected outcomes. ■

Exceptional
FACULTY HONORED

Chemical, biomolecular and corrosion engineering professor elected as Fellow of the American Institute of Chemical Engineers

Dr. Donald Visco, professor of chemical, biomolecular and corrosion engineering, has been elected as a Fellow of the American Institute of Chemical Engineers. He received this honor for his significant professional accomplishments and contributions in chemical engineering.

English professor awarded Toni Morrison Senior Fellowship

Dr. Philathia Bolton, associate professor in English, has been awarded the inaugural Toni Morrison Senior Fellowship in African Diaspora Literature and Cultural Studies at The Africa Institute in the United Arab Emirates. Bolton will continue her research and writing on Morrison by revisiting work that connects the metaphoric significance of the character Macon Dead from "Song of Solomon" to certain novels by Black women writers of the 1970s and 1980s.

Sociology professor selected for Schomburg Center Fellowship

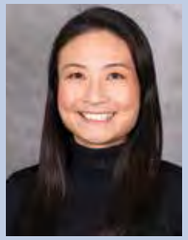
Dr. Kevin M. Moseby, assistant professor in sociology, has been selected by The New York Public Library Astor Lenox and Tilden Foundations to receive a four-week short-term research fellowship at the Library's Schomburg Center for Research in Black Culture for his book manuscript-in-progress, currently under advance contract by the New York University Press.

UA researcher receives prestigious award for outstanding research

Dr. Junpeng Wang, assistant professor of polymer science, has been named a 2023 Sloan Research Fellow in chemistry for demonstrating his innovative and impactful research early in his career. Wang's laboratory has done notable work in developing new sustainable polymers.

Presented by the Alfred P. Sloan Foundation, the Fellowship award is granted to 126 of the best and brightest scientists in the U.S. and Canada studying chemistry, computer science, earth system science, economics, mathematics, neuroscience and physics. This is the first time in UA history that a faculty member has received this honor.

Marketing faculty member receives 2023–2024 Fulbright Award



Dr. Boonthida "Sydney" Chinchanachokchai, associate professor of marketing, has received a 2023-2024 Fulbright U.S. Scholar Program award from the U.S. Department of State and the Fulbright Foreign Scholarship Board. As a participant in the Fulbright Program, Chinchanachokchai will teach thematic seminars on advertising and marketing at Escola Superior de Comunicação Social of Instituto Politécnico de Lisboa. During her time in Portugal, she will also conduct cross-cultural research focused on social media influencer marketing.

Chinchanachokchai was selected as one of approximately 800 U.S. citizens who will conduct research and teach abroad for the 2023-2024 academic year through the Fulbright U.S. Scholar Program. ■

ZIPS CELEBRATE *Renovated* TRACK AND FIELD COMPLEX WITH MAC *Championship*

BY **JESSICA WHITEHILL**

Thanks to the generosity of a group of donors led by Roger '63, '66, and Sally Read, the University of Akron's (UA) Lee R. Jackson Track and Field Complex reopened in April 2023 after undergoing a much-needed overhaul.

Just a few days after a ribbon-cutting ceremony, the Zips outdoor track and field program held its first home meet since 2018. And, a few weeks later, the Zips men's outdoor track and field team won the Mid-American Conference championship, hosted at the UA facility. It was the team's ninth outdoor league championship, and the team has now won nine of the last 15 MAC titles overall.

"Having top-notch facilities and the ability to have support from family and friends is an important part of our teams' success," said UA Director of Track and Field/Cross Country Kendra Reimer-Gonzalez, who was named MAC Men's Coach of the Year for the outdoor track and field season. "It was a big moment for our student-athletes, and they rose to the occasion, winning the conference title at home in front of the Zips family. This is a memory our student-athletes will cherish for a lifetime."

The Reads, who are longtime UA supporters, kickstarted the renovation campaign with a $400,000 donation and challenged others to give. Other donors included Dr. Roland and Mary Bauer, Robert and Alyssa Briggs, Tom '72 and Kitty Dindo '71, David Dorenfeld, Joe '76 and Carrie Hete, Steve '82 and Jeannine Marks '91, '96, and Rick and Alita Rogers.

Improvements to the complex, which had been in continuous use for more than 50 years, include a new track oval sub-base of rubberized asphalt and coated with a polyurethane sealant to provide stability and added comfort; replacement of the pole vault, javelin and long-triple jump runways; and new fencing. The changes strengthen the practice experience for student-athletes, boost recruiting efforts and increase community access to fitness facilities. ■

ZIPS ATHLETICS HAS A NEW MOBILE APP!

Keep up with UA scores and news, purchase tickets and more. Fans can download the new Akron Zips Athletics App (search "Akron Zips Athletics") from both the App Store and Google Play.

Beloved EMPLOYEES

Honoring long-time employees who make a difference for our students and our campus community

Newt Engle

Head Coach, Rifle

Marling "Newt" Engle, head rifle coach, has worked at the University for 47 years, making him the longest tenured coach in UA history. Engle joined the rifle team in 1974 and began coaching the team in 1977. What many do not know is that, in 1979, he also joined the University Police Department (UAPD). He retired from UAPD in 2011 and for 32 years he wore two hats — as coach and a police officer.

"In general, my favorite memory at UA would be the graduations," said Engle. "I love seeing my athletes walk across the stage to get their diploma. A more specific memory would be Feb. 25, 2020, when the team and I attended a NCAA watch party in the stadium for the announcement that the team had earned an invitation to the NCAA Championships ... the first invitation ever!"

Dr. Juanita Martin

Executive Director, Counseling Center/ Psychologist

Dr. Juanita Martin has committed a remarkable 35 years to UA, serving as a psychologist within the Counseling and Testing Center. In reflecting on her experience, Martin shared, "One life lesson I have learned is resilience. It is helpful to be prepared to deal with different circumstances as life changes. I have learned to try to rock and roll with it."

Over these three-and-a-half decades, she has accumulated many precious memories involving UA students. "I have seen many students who came for counseling with significant emotional distress that made it difficult for them to focus on school. Some were on the verge of dropping out," recalled Martin. "My favorite memories are seeing these students move through emotional pain and challenging life circumstances to a successful graduation as they look forward to building a new life."

William Torgler

Executive Director, Student Success Center

William Torgler has been a dedicated employee at UA for 38 years. He has built his career around assisting the University in building initiatives and programs designed to increase retention and success of students, initiatives which allow students to achieve their personal goal of "moving the tassel."

Fortunate to be part of a profession that is built upon care and outreach toward students, Torgler reflects on his time at UA, sharing, "I am so fortunate to have established a career in which I am able to assist the University in accomplishing its goals toward a strong future, and to help students achieve their dreams for a better life for themselves and for a better world."

Janice Troutman

Director, Myers School of Art

Energy and passion are what have propelled Janice Troutman to devote 34 years of her life to UA. As director of the Myers School of Art, one of her favorite memories is from creating and teaching "Design x Nine," an in-house design studio in Folk Hall. A small team of undergraduate graphic design students annually undertake projects for clients, a portion of which are non-profit organizations. The work created by the students is submitted to both local and international professional design competitions. This has played a pivotal role in propelling the careers of students and elevating Design x Nine alongside many well-known design firms.

Troutman shares a valuable insight. "Students listen, so remember that sharing what you say matters. More students than I could ever imagine have contacted me after graduation to thank me for something I said in a lecture, during office hours or just in passing that made an impact in their thinking about their careers and lives."

Dr. Larry Snider

Distinguished Professor, Music

For 46 years, Dr. Larry Snider has been sharing his love of world music with students and the UA community. "Many of my favorite memories focus on our steel drum concerts and Trinidadian guest artists, workshops with South American and African drummers, and so many other experiences that open up our eyes and minds to the richness of diverse cultures and their music," said Snider.

Engaging with students brings a deep sense of fulfillment to Snider, rejuvenating his spirit and keeping him invigorated. "It is pure joy when, during a difficult percussion lesson, a student suddenly puts it all together: the musical concepts, the physical techniques, everything they have been studying for months. I get to witness their sudden glow, their pride of accomplishment and their realization that they really can succeed in the career they have chosen," Snider expresses with pride. "It's wonderful to see the world through their eyes, and to know that it can be better because of what they'll contribute as music professionals."

Dr. Richard Einsporn

Professor, Statistics

For an impressive 36 years, Dr. Richard Einsporn has been sharing his humor and imparting knowledge in the field of statistics at UA. Often labeled as "dad jokes" by some, Einsporn's humor undeniably brings a smile to people's faces.

Reflecting on a cherished memory involving his students, Einsporn recounted an instance that might not typically stand out as memorable. He narrated, "During a class project, a group of my students conducted an experiment where participants were tasked with mentally estimating the passage of 60 seconds. This was done under various conditions — sitting, walking and even while watching one of my supposedly 'boring' recorded lectures. Astonishingly, the findings revealed that time passed remarkably faster when watching my videos!"

Dr. Rebecca J. Erickson

Department Chair, Sociology and Anthropology

Positive outcomes come to fruition when you choose to be in the company of individuals who consistently exhibit empathy and compassion. This is precisely the path that Dr. Rebecca Erickson has followed during her remarkable 32-year journey at UA.

When you ask Erickson to reflect on her favorite memories and why she has chosen to stay at UA for three decades, you will find that all her responses revolve around the individuals she has chosen to be surrounded by.

"This was supposed to be a good 'first job' when I left graduate school. The people I met here at UA — particularly in the Department of Sociology — helped ensure that I stayed here for more than three decades. Little did I know that my last decade here would allow me to flourish even more fully as I collaborated with amazing leaders from all sorts of organizations, as well as having the opportunity to learn from some of the best hearts (and minds) that can be found anywhere. The 'UA Advantage,' its gold standard lies in its people. These people, in and around our great city and University are the reason that, for me, Akron IS flourishing," boasted Erickson.

Dr. Sucharita Ghosh

Department Chair, Economics

Continuous curiosity has fueled Dr. Sucharita Ghosh to dedicate 31 years of her professional life to UA. Through her embrace of lifelong learning and adaptability, Ghosh has been able to face a constantly changing academic world with resilience and curiosity, thereby enhancing the UA experience for many. Currently positioned as the chair of the Department of Economics, Ghosh fondly looks back on some of her favorite experiences at UA.

"My conversations with students allow me to not only learn from them, but to also see the world through their lens. To me, students are a microcosm of society and my interactions with them allow me the opportunity to constantly stay connected with the next generation. My interactions with students and the knowledge that we potentially can have a deep impact on them brings joy to my daily work experience," Ghosh stated. "Whenever a UA student reaches out to me to share their after-graduation life story, I never fail to be amazed at how their UA experience has had such a profound impact on their future life and careers." ■

ZIPPY TURNS 70

Meet the creative artist behind her look

BY **BREE SABIN**

Fans all around the world are in love with Zippy, the fun-loving, University of Akron (UA) mascot. But have you ever wondered about the creative mind behind the original concept of our beloved kangaroo?

The school's nickname of Zips, short for Zippers, was introduced in 1925, inspired by a B.F. Goodrich brand of rubber galoshes with metal fasteners. In 1954, administrators at UA launched a contest for a mascot to represent the University, deciding on a kangaroo with boxing gloves and a zipper.

There were three finalists, and it was up to the student body to cast their votes. The winner was Joseph (Jim) Dick '56 and his drawing of Mr. Zip.

Jim Dick '56 and Zippy met for the first time.

Mr. Zip evolved over the years and, with a zippered pouch, she (because only female kangaroos have pouches) became Zippy.

Astonishingly enough, despite being the original creator, Dick had never met Zippy. When UA became aware of this fact, they quickly arranged a meeting between Zippy and her creator, surprising Dick with a visit from Zippy at his home.

"What Zippy has become is exciting. What I imagined in my mind has changed over the years several times," stated Dick. "But it was exciting to be the originator of what people would see out in the world as Zippy. To now get to see Zippy in person and see what [she] has become is exciting."

At the time of the contest, Dick was a student at UA. He was active on campus working at The Buchtelite, where he created a cartoon strip and wrote articles about campus news. He also worked at the Tel-Buch, the UA yearbook, and eventually served as editor.

"As I was growing up, art was the focus of my life," stated Dick.

Inheriting artistic abilities from his mom, who used to design clothes for him and his three siblings, Dick began his journey into cartooning at the young age of six.

After high school, Dick enlisted in the United States Army, serving from 1948-1950. He was stationed in Japan and utilized his cartooning skills to contribute to his troop's newspaper.

Art remains a major part of Dick's life. A show of his work, "The Art of a Lifetime" was recently held at the Summit ArtSpace. Featured in the show was the original drawing of Mr. Zip.

Now 70 years later, Dick and Zippy finally met in person and Dick understands the impact and legacy his drawing made on the University.

"Zippy represents the spirit of Akron in a way," Dick said with a smile. ■

COMMUNITY *celebrates* E.J. THOMAS HALL AT GALA EVENT

BY **JESSICA WHITEHILL**

When the University of Akron's Edwin J. Thomas Performing Arts Hall opened in October 1973, then-UA President Emeritus Norman Auburn called the new building a "cultural bridge" between the Akron community and the University.

This September, UA and hundreds of supporters — including a number who attended the opening night gala in 1973 — celebrated the 50th anniversary of Auburn's vision with two special performances and a red-carpet gala. The weekend of events showcased a facility that continues to be among the most vital in the region and unique in the nation.

Fittingly, the Akron Symphony Orchestra (ASO) kicked off the festivities on Friday, Sept. 29, with a performance of Beethoven's Ninth Symphony, which features the "Ode to Joy" finale. It was the same piece the ASO performed during the opening night concert in 1973.

Emmy and Tony Award-winning actor and singer Kristin Chenoweth took the E.J. Thomas stage on Saturday, Sept. 30, to entertain concertgoers with her songbook of Broadway and pop hits.

Theron Brown, an assistant professor of practice in UA's School of Music and a renowned jazz musician who has performed across the country and his trio, opened for Chenoweth.

It was a fitting program, as E.J. Thomas Performing Arts Hall has in its 50 years featured some of the greatest stars of the stage, and also been a home for regional performing arts groups such as the Akron Symphony, Tuesday Musical Association and others. Many UA faculty members have appeared on the stage and students have had opportunities to perform in the Hall, gaining valuable experience that can be applied to their careers as performers and educators. The Hall has also been the site of many theater and ballet performances, speaker series, higher education and high school commencement ceremonies and other events.

During the gala celebration, UA President Gary L. Miller recognized several family members of the Hall namesake, Edwin J. Thomas, who were in attendance. Their presence, and the entire celebratory weekend, was a tribute to five decades of the Hall, the importance of arts and culture on the UA campus and in Akron, and to the enduring ties between the University and the community. ■

Top left: Pictured with President Miller and his wife, Georgia, are the grandchildren of E.J. Thomas, for whom the performing arts hall is named. (Left to right) Georgia and President Gary L. Miller, Eddie Thomas, Maryann Street, Dave Thomas and Dr. James Mercer.

Top right: (Pictured left to right} Guy and Renee Pipitoné, and Sally and Roger Read.

Bottom right: Theron Brown opened up for Kristin Chenoweth on Saturday evening.

ALUMNI CONNECTION

Visit akron.edu/magazine *for the entire list of Class Notes, Farewells and other alumni news. You'll also find full-length versions of the stories in this issue, along with videos and additional images.*

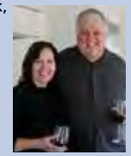
Class Notes

1960s

James A. Titmas, B.S.C.E. '60, a renowned engineer and recipient of the Distinguished Alumni Award from the UA's College of Engineering and Polymer Science, has launched a sideline hobby writing books on the subjects of science and engineering for children. See his works by visiting jbjbooks.com.

1970s

Richard C. Fedorovich, B.S.A. '74, a Cleveland Clinic board member, and his wife, Lisa, have committed $5 million to Cleveland Clinic Akron General. The gift will support future priorities and innovations to ensure the health system's leaders have resources to remain agile and responsive to community needs in the years to come. Akron General integrated into the Cleveland Clinic health system in 2015. Fedorovich's leadership as Akron General board chair helped bring the two together. As a result of this successful integration, more patients have been able to be served in Northeast Ohio and Akron General has developed as one of the region's top hospitals.

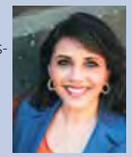


James M. "Jim" Pulk, A.A.S. '77, '79, and his wife, Julie Pulk, are the owners of Prime Vine Winery in New Franklin, Ohio. The estate includes a three-story brick mansion, carriage house and greenhouse. The mansion has been added to the National Register of Historic Places. The Pulks have been making Venture Wines at The Caves of Soda Canyon in Napa Valley, Calif., since 2012 along with business partner, Scott Dilyard.

John C. Smithkey, III, B.S.E. '77, B.S.N. '88, a certified Red Cross nurse, recently received his 50 Years of Service pin. In honor of this recognition, Congresswoman Emilia Sykes flew a flag over the U.S. Capitol and Senators Kirk Schuring and Scott Oelslager wrote senatorial letters of congratulations.

1980s

Marlene Anielski, B.A. '83, completed her term-limited position as a State Representative and accepted her current position as executive director of the Ohio Board of Nursing (OBN). OBN actively safeguards the public through equitable regulation of nursing and other health care professions.



Lakshmi M. Eleswarpu, B.S.E. '87, senior vice president and global chief information officer of Sanofi, was elected to the Women Business Collaborative (WBC) Board of Directors. WBC is an unprecedented alliance of more than 80 women's business organizations and hundreds of business leaders building a movement to achieve equal position, pay and power for all women in business. Eleswarpu joins the board with exceptional experience in leading digital and business strategy on a global scale.

Jeanene M. Kress, B.A.E. '89, has been named one of "Eight over 80" for 2023 by Crain's Cleveland Business. Kress was a schoolteacher, then went on to run a small business with her husband for more than 30 years while also serving on the school board and working in the community. She finished her college degree in her 50s before running for public office. Kress has become a trusted advisor working with the Northeast Ohio Areawide Coordinating Agency. And as an Olmsted Township trustee, she is currently spearheading a nature trail and a park in the southwest part of the township that will include a 1-mile walking track and a 3-acre dog park.

James G. "Jim" Maser, B.S. '83, M.S. '85, senior vice president of Aerojet Rocketdyne's Space Business Unit, was selected as a 2023 Honorary Fellow of the American Institute of Aeronautics and Astronautics and elected as a member of the National Academy of Engineering. Maser has enjoyed a distinguished aerospace career, spanning entrepreneurial space launch, human spaceflight, as well as commercial and military jet engines. In his current position, he is responsible for critical propulsion programs supporting the nation's defense and exploration endeavors, including the 53 elements on NASA's Space Launch System and Orion spacecraft that were built by Aerojet Rocketdyne, and performed spectacularly during the Artemis I mission.

1990s

Christopher C. "Chris" Keppler, B.A. '91, M.A. '14, professor of practice in the School of Communication and general manager of WZIP-FM, was named The University of Akron's institutional winner for the Mid-American Conference's 2023 Outstanding Faculty Award for Student Success. The award recognizes outstanding efforts of MAC faculty who support and develop students both inside and outside of the classroom. Keppler focusses on assisting with initiatives that help to build educational and social aspects of students' college experience, helping with meetings with prospective students, arranging student trips to national conferences or finding ways to build self-confidence in students involved with the radio station.

Mary B. Outley Kelly, B.S.E. '90, M.S.E. '96, recently led Akron Public Schools as interim superintendent from Feb. – Aug. 2023. Formerly the district's executive director of elementary education, Outley Kelly stepped up to fill the interim role after 32 years in the school system. She was the second Black woman to lead the school system.

Christopher W. Kuhar, B.S. '97, was selected to receive the Buchtel College of Arts & Sciences Buchtel Award for Distinguished Alumni for his outstanding contributions in the field of wildlife conservation. Kuhar has demonstrated dedication and leadership at the Cleveland Metroparks Zoo in providing excellent animal care, increasing positive conservation impact, creating conservation educational opportunities and growing sustainable techniques.

2000s

Duane M. Abel, B.A. '02, a cartoonist, has produced a comic strip called, "Zed," for roughly 28 years which appears in 50 weekly newspapers across the country. He also travels to schools, presenting an elementary school assembly program called "Draw Your Destiny," which showcases goal setting, the value of literacy and the importance of education, with the four words to success: work, study, learn and try. Most recently, "The Green Oak Guardian," a feature film and his screen writing debut, was just released on Amazon and Tubi.

Meghan L. Guegold Hege, B.M. '08, joined The Cleveland Orchestra in July 2023. She previously served as principal horn of the Akron and Canton Symphony Orchestras and frequently performed with The Cleveland Orchestra as a substitute player for the past 13 years. She has also performed with the Minnesota Orchestra, the Orpheus Chamber Orchestra, the Florida Orchestra and the ProMusica Chamber Orchestra of Columbus.

Amanda M. Leffler, J.D. '02, has been named the Akron managing partner for Shumaker, a Toledo-based law firm that is opening an office in Akron following the acquisition of a dozen people from Brouse McDowell's insurance recovery group. Leffler, who had previously been with Brouse McDowell, will lead the office.

Sarah C. Vojtek, B.S.E. '05, MBA '08, was named CEO at Stewart's Caring Place, which provides free support services and programs for individuals and families dealing with cancer. Vojtek brings a wealth of experience in nonprofit leadership and a deep commitment to serving the community. With more than 15 years of experience in the nonprofit sector, she has a proven track record of creating impactful programs and fostering meaningful connections within the community.

2010s

Jordan M. Clark, B.S.N. '12, a high school tennis coach and personal soccer and wellness coach in Highlands Ranch, Colo., recently signed to play professional soccer for the FC Vetlanda in Sweden for 2023.

Lindsey M. Colangelo, B.S.N. '11, has been named the chief nursing officer of University Hospital's Ahuja Medical Center in Beachwood, Ohio. In her new capacity, she will oversee clinical operations and manage process improvements for the facility.

Kerri L. Shelton Taylor, M.S. '14, Ph.D. '16, an associate professor at Columbus State University, was among the 18 higher education faculty from throughout Georgia selected as a Governor's Teaching Fellow for the May 2023 symposium. Shelton Taylor's subject-matter expertise draws multiple areas of chemistry, including organic synthesis, drug efficacy, art restoration and material science.

2020s

Catherine "Cassie" Cunningham, MBA '22, assistant director in the Office of Undergraduate Admissions at The University of Akron, was recently awarded the Ohio Association for College Admission Counseling (OACAC) New Member Award during the OACAC Annual Conference. Cunningham serves on the OACAC Executive Committee, sits on the Planning Committee for the OACAC Annual Conference, chairs the Professional Development Committee and has served as a mentor for incoming admissions professionals.

Madison N. LaCourse, B.S.A. '22, has been hired as staff accountant, assurance and advisory services, at Bober Markey Fedorovich, a national Top 200 CPA and advisory firm.

Kathy L. Murphy, B.M. '22, was recently named high school band director at Chesterfield in South Carolina.

Sanjiv Tewari, M.S.L. '22, has been appointed chief medical officer at HCA Florida Blake Hospital. Tewari will oversee all aspects of medical operations, playing a crucial role in maximizing the hospital's clinical performance and patient experience while fostering a culture of excellence and continuous improvement.

Farewells

For more Farewells, visit the website.

Larry H. Acker, M.S.E. '68, March 13, 2023

Evelyn L. Au, A.A.B. '82, A.A.S. '85, Jan. 11, 2023

Ellen A. Barry, A.A.B. '83, B.S.A. '83, May 7, 2023

Susan L. Banker, A.A.S. '80, B.A. '04, July 18, 2023

Randolph Baxter, J.D. '74, July 31, 2023

Charles L. Benko, A.A.S. '74, B.S.T. '74, M.S.T. '78, April 21, 2023

Amanda M. Boutton, B.A. '12, J.D. '15, April 4, 2023

Ann A. Brennan, B.A.E. '86, J.D. '82, July 24, 2023

Rosemary F. Brett, B.S.E. '62, M.S.E. '74, June 28, 2023

Marco S. Burnette, B.S.E. '62, June 4, 2023

Rosemary A. Capotosto, B.S.E. '71, M.S.E. '94, June 21, 2023

Robert E. Crow, B.A. '04, MBA '07, April 5, 2023

Freda DeCerbo, B.A.E. '69, M.A.E. '74, July 23, 2023

Carol Ann Fazekash, B.S.B.A. '58, B.A.E. '71, March 12, 2023

Gloria M. Ferguson, A.A.S. '01, B.A. '05, M.S.W. '10, July 1, 2023

Patricia L. Graves, March 31, 2023

Madelynne C. Horak, B.S.E. '65, M.S.E. '69, June 2, 2023

Hedy J. Jones, B.S.E. '75, M.S.E. '78, Ph.D. '92, Feb. 17, 2023

Antony T. Kanakkanatt, Ph.D. '63, June 30, 2023

Martha S. Kelly, A.A.S. '70, B.S.E. '70, May 7, 2023

John E. Knecht, B.S.I.M. '79, A.A.B. '84, April 8, 2023

Dale S. Lynk, A.L.S. '85, B.S.T. '89, M.S.T. '91, May 11, 2023

Beverly L. McFerren, B.S.E. '57, M.S.E. '83, Feb. 12, 2023

James P. Mesko, B.A.E. '70, M.S.E. '83, March 29, 2023

Shirley O'Hara, B.S.T. '83, July 9, 2023

Abraham M. Papadakis, B.S.N. '10, June 5, 2023

Kenneth J. Pramuk, B.A. '66, M.A. '68, March 18, 2023

Frank Pittman Jr., B.S.E. '71, M.S.T. '77, May 30, 2023

Renni R. Ridgeway, B.S.E. '76, M.S.E. '82, May 2, 2023

Ronald A. Runeric, M.A. '78, Ph.D. '99, June 9, 2023

Thomas C. Sawyer, B.A. '68, M.A.E '70, May 20, 2023

Albert Simone, A.A.S. '72, B.S.I.M. '77, April 1, 2023

Catherine A. Thomas, M.S.T. '73, Ph.D. '98, May 29, 2023

John S. Wallace, A.A.S. '73, A.A.S. '75, B.S.T. '75, Feb. 23, 2023

Moved? Changed Names? New Job?

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RESILIENCE *BEYOND* LIMITS:

The journey of Ernest Williams '10

Photo credit: NASA/Bridget Caswell

BY CRISTINE BOYD

When we're young, adults always tell us to work hard, and we will go far. Most kids just ignore that advice. But Ernest Williams '10 listened.

Williams grew up in Euclid, Ohio, as one of three children. He liked learning and was looking for ways to pay for college when he learned of a scholarship the Lubrizol Corporation was giving out for aspiring engineering students. He wrote an essay and won, beating out other classmates.

He chose The University of Akron (UA) after hearing about the quality of the engineering program, the strength of the co-op office and meeting some of the professors when he visited campus. He enrolled and lived in Grant Hall where he became a resident assistant before moving over to Garson Hall.

He then landed a prestigious co-op in Flint, Mich., with the General Motors Corporation and, on his return, was feeling more tired than ever. He was soon diagnosed with Hodgkin's Lymphoma, a type of cancer that impacts the immune system.

"Going through chemo and taking classes was rough; one semester I had to go part-time," he said. "My doctors and parents told me to go back home, but I just couldn't. I stayed busy … working out, going to class when I could. My professors would check in with me and give me updates on what I might have missed."

After seven years, Williams graduated, but getting a job during an economic downturn was a struggle, even with his degree. He spent time working in retail and teaching courses at Cuyahoga Community College before a contractor reached out to him about an electrical test engineering job in Cleveland. It turned out that the job was at NASA Glenn Research Center.

Williams continues to work for NASA, nine years later. He now serves as a test facility manager for the Electric Propulsion and Power Lab. The lab has many purposes for NASA and private customers, but its main focus lies in the use of two large vacuum simulation chambers that simulate the space environment — the chambers are perfect for testing small engines, electrical components and spacecraft electric propulsion thrusters.

He is thankful for his time at UA in helping him to learn how to overcome adversity. "The program was tough so, because of it, I had to develop a lot of other skills to get things done," he said. "Even before I was diagnosed with cancer, that program gave me the strength not to give up. High school was easy, but college was a struggle. I didn't know how to study — I had to create relationships with other classmates, develop communication skills and learn to work well with others."

He developed these skills through coursework and his involvement with the National Society of Black Engineers, the Increasing Diversity through Engineering Academic Program and in holding many different jobs on campus.

Now, Williams is enjoying life with his wife, Deanna, and daughters, Isabella (6) and Elizabeth (3). And, although he said he initially thought he would never pursue another degree, he has since earned a Master of Business Administration from Liberty University.

"For anyone going through challenges, I would encourage them to have faith, communicate your feelings to your family and friends, take things one day at a time and keep yourself motivated — exercise, work and stay busy," Williams says.

And for anyone interested in engineering, he encourages them to pursue it. "It's challenging and allows you to think outside the box. I'm a problem solver and I think it keeps your brain fresh. I am always thinking." ■

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