TAKING

THUNDEROUS STEPS TOWARD THE FUTURE

The pursuit, advancement, and application of knowledge—the lifeblood of universities big and small—is essential to the success of Purdue University Fort Wayne, northeast Indiana, and beyond. Fueled by external funds, faculty and student research projects push the bounds of knowledge.

The benefits of externally funded research are vast. Discoveries from research projects lead to innovation, improve society, and support business and industry. These projects connect the university with the community and the world, laying the groundwork for immediate and future improvements. Students who take part in experiential-learning opportunities help increase the university's rates of engagement, retention, and graduation. Research projects also create different teaching opportunities, expanding the learning experience for students and improving the community as a whole.

SPONSORED PROGRAMS FUNDING
BY SOURCE AND RECIPIENT

JULY 1, 2021–JUNE 30, 2022

Grant Sources

Federal	$2,016,372	(51%)
Foundations	$909,809	(23%)
State and Local Government	$853,440	(22%)
Industrials and Applied Research	$116,844	(3%)
Purdue Fort Wayne	$62,000	(1%)
TOTAL	$3,958,465	

Funding for Academic or Administrative Unit

Office of Diversity, Equity, and Inclusion	$1,514,730	(38%)
College of Engineering, Technology, and Computer Science	$713,430	(18%)
Office of Academic Affairs	$556,982	(14%)
College of Science	$450,259	(11%)
School of Education	$305,280	(8%)
Doermer School of Business	$274,084	(7%)
College of Liberal Arts	$129,750	(3%)
College of Visual and Performing Arts	$11,650	(<1%)
Division of Enrollment Management and the Student Experience	$2,300	(<1%)
TOTAL	$3,958,465	

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From Fruit Flies to Humans: Gaining a Better Understanding of Genetic Risk Factors for Obesity

REBECCA A. S. PALU | ASSISTANT PROFESSOR OF BIOLOGY

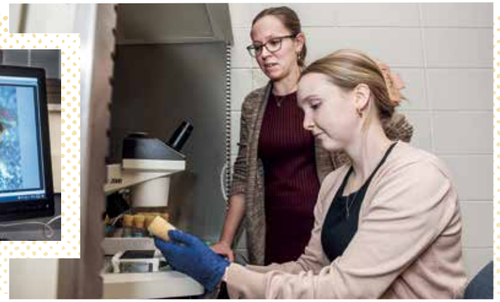
Research is a key component to improve—and even save—lives. At Purdue Fort Wayne, faculty and students embrace this crucial work. Take, for example, Rebecca A. S. Palu, assistant professor of biology, and Audrey Nicol, a graduate student working on her master's thesis, who, in 2022, took on a research project dedicated to the identification of genetic risk factors for obesity.

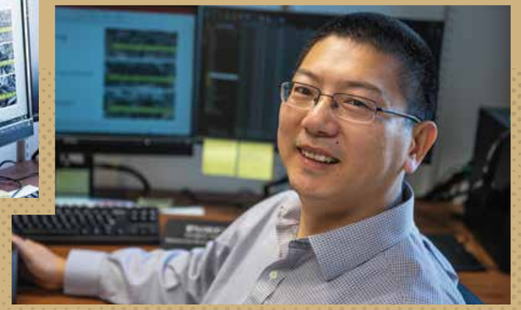
Palu explained that this project, sponsored by the Indiana Academy of Science, was part of an even larger goal: identify genetic modifiers of metabolic disease. This identification work is important because many of the associated genetic risk factors are not yet known or understood. To perform this research, Palu and Nicol took a unique approach that focused on what many of us consider to be nothing more than a pest: fruit flies.

While they might not seem to have much in common, fruit flies and humans are alike in an unexpected way. It turns out that fruit fly metabolism is regulated in similar ways to human metabolism. As Palu explained, "The genetic risk factors for obesity in flies are frequently also genetic risk factors for obesity in humans. Because flies are so easy to work with, we can quickly get a lot of information that could eventually be used to treat human patients."

Improving the lives of humans is the driving force behind this research. The genes identified and validated can help with this in two ways, according to Palu: "First, they can be used as markers for future disease severity. If the risk version is present in someone with early symptoms of the disease, doctors can better tailor patient care to prevent severe disease. Second, they could eventually be developed as therapeutic targets. If reducing the expression or activity of a gene improves the obesity symptoms, the gene product may be a good drug target to alleviate those symptoms in patients."

Palu's work shows what research can do: take a global public health issue and provide the key that leads to real change.





How Artificial Intelligence Is Helping Our Environment and Hometown

BIN CHEN | ASSOCIATE PROFESSOR OF ELECTRICAL AND COMPUTER ENGINEERING

Fort Wayne is a city is built around industry. With copious factories and acrid smells of production, it's no secret that these factories impact the environment. How do we decrease our environmental impact and reduce waste? One way is to improve the efficiency and quality of recycling industrial byproducts, including scrap metal—like Bin Chen, associate professor of electrical and computer engineering, did.

Last year, Chen, alongside Sortera Alloys, a company that envisions the ability to reuse 100 percent of metals recovered from end-of-life products, used artificial intelligence to address the problem. Chen explained, "This project used state-of-the-art artificial intelligence, image analytics, and advanced sensors to sort scrap aluminums for recycling and reuse. It aims to generate high-purity recycling products through advanced sorting algorithms." This, in turn, has a direct impact on the domestic supply of aluminum, the economy, and the environment.

Chen said it's quite challenging for traditional automatic sorting systems because various types of aluminum scrap metals look very similar, and they all must be properly sorted: "Nonferrous metal sorting is one of the greatest challenges in scrap-metal recycling. It requires highly intelligent and sophisticated systems to automatically sort metals into different types of aluminum alloys." Chen continued, "In optical sensor-based sorting systems, the sorting decision is determined by image processing and computer vision. Improving the speed and accuracy of object detection, localization, and classification is critical in technical research and development for higher sorting throughput and reliability."

At Purdue Fort Wayne, amazing technologies, such as artificial intelligence, are continually being improved to bring new advances that help companies, the city of Fort Wayne, the economy, and the environment thrive.

The Center for Collaborative Media: Addressing a University and Community Need

ART HERBIG | ASSOCIATE PROFESSOR OF MEDIA PRODUCTION
ALIX WATSON | PRODUCER, HOBNOBBEN FILM FESTIVAL DIRECTOR

The Center for Collaborative Media, one of Purdue Fort Wayne's Centers of Excellence, is a production company, an art-house movie theatre, and a television station that partners with various groups around Fort Wayne. It also "exists at the intersection of student learning and community need," according to Art Herbig, associate professor of media production and the center's director.

"When the center started, it was just supposed to be a production company. We were to work on projects with local nonprofits and companies in ways that would allow us to better serve Fort Wayne, while also expanding opportunities for students," Herbig said. "Shortly after we started, it became clear that this project needed to expand. Local nonprofits needed help creating media content. Cinema Center needed help with its infrastructure. Our campus needed help maintaining College TV. Each of these things provides unique opportunities for our students that can't be replicated. Without this center, these opportunities wouldn't exist."

An example is Hobnobben—Fort Wayne's international film festival. In 2022, there were 128 films from 19 different countries at Hobnobben. These ranged from student productions to Oscar-nominated shorts—and Purdue Fort Wayne students were part of it.

Thanks to the center, students receive other valuable experiences, including the creation of professional-quality work and original content as well as interacting with film experts and professionals. These opportunities add up to skills and knowledge that will help propel them in their careers.

As for the center, Herbig is proud of what it has become—"a place where students can connect with community partners to build something that benefits everyone."