INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

2025 IMPACT REPORT

“The University of Michigan is home to one of our nation’s most dynamic research communities, and at its core, university research is about advancing society and improving people’s lives. Our innovation community at the University of Michigan leads the way in driving this mission forward. We are fortunate to have such a talented and dedicated team in Innovation Partnerships leading the charge in research commercialization. Their team works tirelessly to help our innovators move their groundbreaking technologies from the lab to market, changing society for the better.”

Arthur Lupia

Vice President for Research and Innovation and
Gerald R. Ford Distinguished University Professor

Dear Colleagues,

At Innovation Partnerships, we believe in the transformative power of research. This year's Impact Report celebrates how our innovation ecosystem translates research discoveries into real-world solutions that improve and save lives.

Fiscal Year 2025 was a landmark year for research commercialization at the University of Michigan. Our office received **673** invention reports from our talented faculty and staff, setting a new record for creativity and discovery. In addition, we executed **326** license agreements and for the second time in our office's history we supported the launch of **31** new startups. These achievements underscore the university's commitment to translating groundbreaking research into tangible benefits.

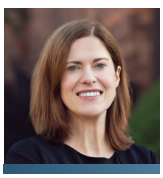
Additionally, we executed **135** sponsored research agreements with company partners totalling more than **$32.9 million** in value — a significant contribution to the university's total of **$170.6 million** in corporate sponsored research awards. These corporate research alliances enable our researchers to drive real-world, scalable solutions across vital fields ranging from biotechnology to mobility to climate resilience.

The University of Michigan's research commercialization enterprise would not be possible without the drive and brilliance of our faculty and strength of our partnerships with investors, founders, companies and ecosystem collaborators.

None of this would be possible without the drive and brilliance of our faculty, and the strength of our partnerships with investors, founders, companies and ecosystem collaborators. We are deeply grateful for your engagement and support.

I invite you to explore this report to learn more about the ideas, people and partnerships that are shaping the future of innovation at the University of Michigan.

Sincerely,



Kelly Sexton
Associate Vice President for Research -
Innovation Partnerships and Economic Impact

About Innovation Partnerships

Amplifying the Impact of Research

Innovation Partnerships is the nexus of research commercialization at the University of Michigan. Our office plays a critical role in translating discoveries from U-M faculty and researchers into real-world solutions by supporting patent protection, commercialization, startup company formation and growth. Through strategic connections with industry, foundations, entrepreneurs and investors, Innovation Partnerships ensures that U-M innovations from researchers and faculty at all schools and colleges across the Ann Arbor, Dearborn and Flint campuses reach society, address critical needs, spur technology-driven economic growth and create lasting, positive societal impact.

Committed to being the most startup-friendly technology commercialization office in the country, Innovation Partnerships was #2 in the nation for inventions received and startup companies launched according to the latest annual licensing survey from AUTM.*

To support the growing portfolio of U-M startup companies, Innovation Partnerships created the Accelerate Blue Fund — an evergreen venture fund designed to bridge the gap between initial startup launch and securing angel or venture capital funding. With the aim of helping more U-M innovations enter the world, Innovation Partnerships launched the Accelerate Blue Foundry in 2025. This new program connects startup founders with some of the most promising innovations stemming from U-M research.

In partnership with the Michigan Economic Development Corporation, Innovation Partnerships also supports the development of a strong university research commercialization ecosystem across the state of Michigan. This includes collaborating with university technology transfer offices on the Michigan Translational Research and Commercialization (MTRAC) programs and the Technology Transfer Talent Network (T3N). Additionally, Innovation Partnerships manages the Michigan University Innovation Capital Fund in collaboration with universities across the state to provide early-stage capital to startups licensing technology from any public research university in the state of Michigan.

As one of the world's foremost universities for groundbreaking research, U-M is poised to drive economic growth through transformative innovation. Innovation Partnerships is a unit of the Office of the Vice President for Research and is inspired to redefine how world-class university research can solve the world's greatest challenges and fuel a region.

**AUTM is a nonprofit organization that supports research commercialization at universities.*

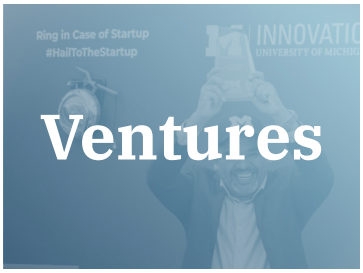
The Innovation Partnerships Team

Areas of Service

Innovation Partnerships' team of professionals brings business, scientific and legal expertise to amplify the impact of U-M research. We center our efforts around three areas of service:

- Connect faculty with corporate and foundation research opportunities
- Provide strategy and negotiation support for corporate and foundation research agreements
- Establish new large-scale corporate and foundation research partnerships
- Manage ongoing research alliances

- Invention intake support
- Intellectual property strategy and funding
- License agreement negotiation
- Data licensing



- Translational research funding
- Business mentorship from industry experts
- Venture capital investment
- Connections to entrepreneurial talent

Corporate and Foundation Research Alliances Team at Innovation Partnerships to Boost Foundation Research Support

As part of our commitment to enhancing U-M's competitiveness in securing external research funding, we established the Corporate and Foundation Research Alliances (CFRA) team within Innovation Partnerships in 2025.

By integrating foundation-sponsored research support into the existing Corporate Research Alliances unit, CFRA is now better positioned to help faculty navigate the increasingly complex and outcomes-driven landscape of foundation and nonprofit funding.

Our Performance

Fiscal Year 2025 In Review

Alliances

U-M faculty had another strong year of industry collaboration, with **$170.6M** in corporate sponsored awards, **$66M** of which related to research outside of clinical trials. The Corporate and Foundation Research Alliances team within Innovation Partnerships strengthened this campus effort by providing direct relationship and negotiation support for **135** new corporate sponsored research agreements totaling **$32.9M**.

$32.9M New Corporate Sponsored Research Awards Supported

135 New Corporate Sponsored Research Agreements Supported

6 New Industry Consortia and Master Research Agreements Established

Licensing

Innovation Partnerships' licensing effort had a remarkable year, receiving **673** invention reports and executing a record number of license and option agreements. Over the past 5 years, Innovation Partnerships' licenses have generated over **$140M** in licensing revenue to reinvest in research and innovation *(see opposite page)*.

673 Invention Reports

326 License/Option Agreements

$31.4M Licensing Revenue

533 U.S. Patent Applications Filed

472 Patents Issued

Ventures

31 Startups Launched

3 IPOs and Other Public Offerings

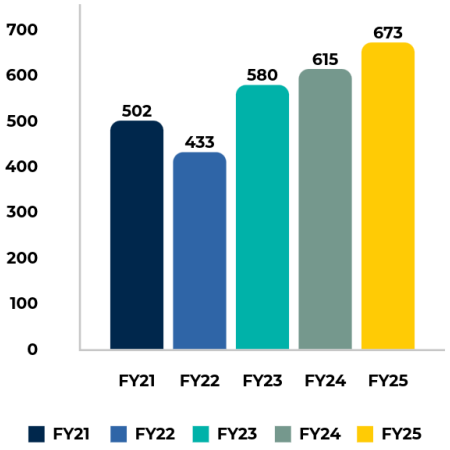
$662.8M Raised by Startups

FY25 Startups

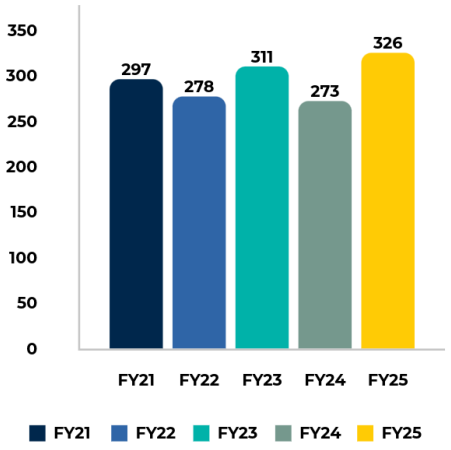
A2 Intelligence · Aquatonomy · Arbor Halides · BlueShift Carbon · Courage Therapeutics · Digital Blue · Energy Equity Project · Fibarcode · Fragmatics · Genevi Technologies · GripFusion · Heat2Power · Humanica · Joy of Coding · Liferna Biotech · Media Shield · MI-Hip · NanoOnco · Nytricx · Ocutheia · Probetruth · Recens Medical · Rewind · Roadmap Learning · SaferDrive AI · Sequestro · Sidescope · SignetRisk · Supercritical · Syntheos · Volt Harbor

Key **#** New Record

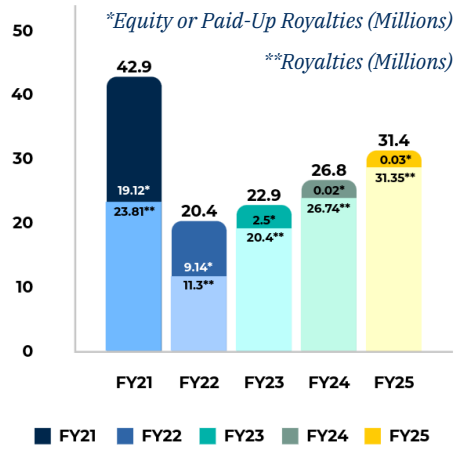
Five-Year Breakdown



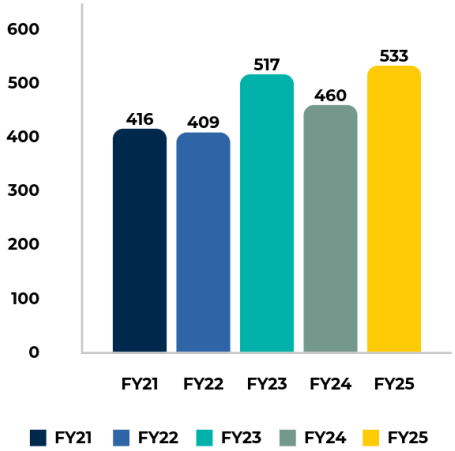
Invention Reports



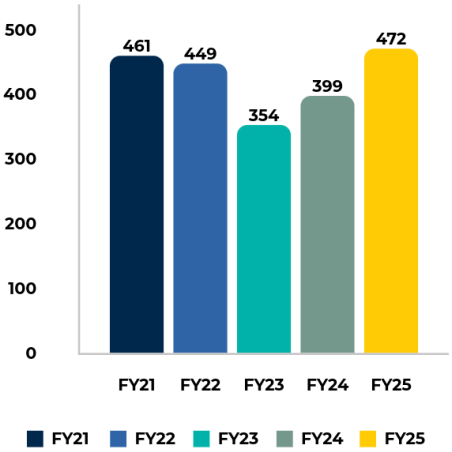
License/Option Agreements



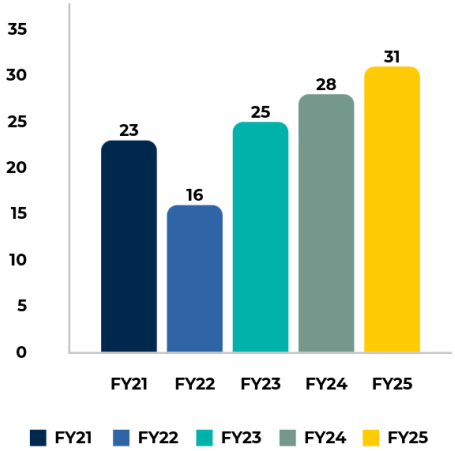
Licensing Revenue *(Millions)*



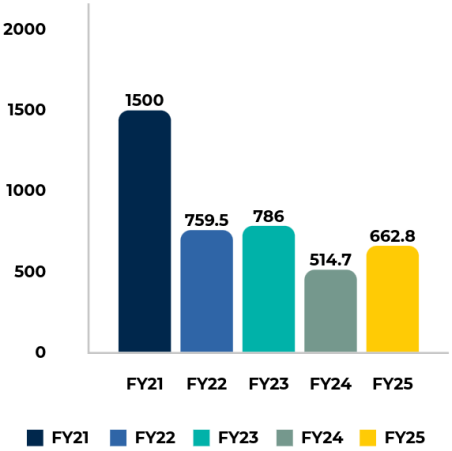
U.S. Patent Applications Filed



Patents Issued



Startups Launched



Funding Raised by Startups *(Millions)*

Technologies like HistoSonics' Edison System not only provide life-saving treatments, but also boost Michigan's economy. Photo: Erica Bass, Rogel Cancer Center, Michigan Medicine

University of Michigan Research Discoveries Improve Lives, Drive Economy

One thing that most research discoveries have in common is that they all started with a question.

“Can we create a non-invasive interventional technology that performs surgery?”

“Is there a radiation detector on the market that meets my needs?”

These questions led to real-world solutions that are now revolutionizing how we approach treating cancer or ensuring physicians are able to monitor radiation levels in real time.

When Charles Cain and Zhen Xu were asked about whether biomedical engineering techniques could be used for non-invasive surgery, they went on a research journey that ultimately led to the development of a new scientific field: histotripsy.

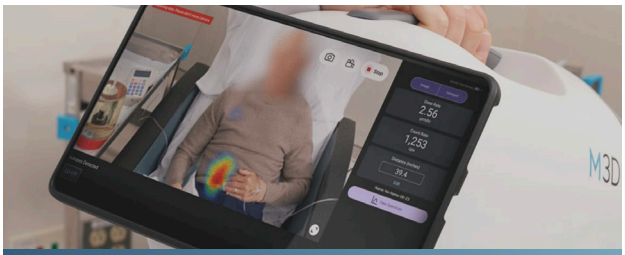
Histotripsy was discovered via an NIH-funded project that tested a focused ultrasound wave on a sample that mimicked human skin. The results were astonishing — the ultrasound wave had created tiny microbubbles in the materials, liquifying the damaged tissue within the zone of treatment. This discovery ultimately led to the launch of a startup company, HistoSonics, to take the platform technology through the rigorous FDA approval process so that it may benefit patients in Michigan and across the globe.

For Zhong He, when he realized he could not find a radiation detector that suited the needs of his laboratory, he made it himself. His work eventually led to the launch of a U-M startup, M3D, which created RAVIN, a camera that monitors levels of radiation in medical settings. RAVIN was made possible with NIH funding for proton cancer therapy.

Both HistoSonics and M3D have roots and a continued presence in southeast Michigan, and both have made a positive impact by utilizing revolutionary technology to help thousands of patients throughout the region and world.

HistoSonics’ Edison System histotripsy device received FDA clearance in 2023 for the destruction of liver tumors. Today the devices are used in 30 hospitals across the world and have treated more than 2,000 patients.

M3D’s RAVIN is used by more than 25 hospitals to monitor radiation levels in a variety of settings including assisting surgeons in the OR, patient radiation treatments and supporting the cleanup of radioactive contamination.



M3D’s RAVIN System

M3D (along with sister companies H3D and MH3D) are headquartered in Ann Arbor and primarily hire U-M grads to help retain talent. To date, they have exceeded $90 million in revenue.

In October 2024, the HistoSonics team held a ribbon-cutting ceremony for their 30,000-square-foot advanced research facility in Ann Arbor. The company anticipates employing more than 40 high-wage workers to continue advancing the histotripsy technology at the Ann Arbor facility. HistoSonics is also overseeing clinical trials to evaluate the use of the HistoSonics Edison System for treatment of kidney and pancreatic tumors.

From a Michigan mom who now has more time with her daughter thanks to histotripsy, to physicians who gain peace of mind knowing they have real-time monitoring of radiation levels across activities, these technologies are not just saving lives, they’re restoring patients’ confidence and quality of life.

Fund Features

Michigan University Innovation Capital Fund and Consortium

The Michigan University Innovation Capital Fund (MUICF) is a pre-seed venture capital fund that invests in founders building fast-growing technology companies based on research from the state of Michigan's public universities.

The fund focuses on accelerating innovative university technology startups by providing risk-tolerant investment capital and a state-wide network of business support services to accelerate the completion of key business milestones that unlock long-term value to drive economic and job growth in Michigan.

The MUICF was established by an award from the Michigan Strategic Fund and Michigan Economic Development Corporation through the Michigan Innovation Capital Fund in 2024.

Strategic guidance and support of MUICF is provided by the Michigan University Innovation Capital Consortium (the Consortium). The Consortium is composed of a statewide network of leaders from university tech transfer offices, university managed pre-seed funds and university associated economic development organizations along with the Michigan Economic Development Corporation. Consortium members include:

- **Biosciences Research Commercialization Center of Western Michigan University**
- **Grand Valley State University**
- **Innovation Partnerships**
- **Michigan Economic Development Corporation**
- **Michigan State Univesrity**
- **Michigan State University Research Foundation**
- **Michigan Technological University**
- **University of Michigan**
- **Wayne State University**
- **Western Michigan University**

Since launch, the MUICF has invested **$2.4 million** in **15** companies, leveraging more than **$19.6 million** in total investments from outside investors. MUICF has invested in companies commercializing research from the University of Michigan, Michigan State University, Michigan Technological University and Western Michigan University.

The current investment pipeline includes companies under review from the universities mentioned above, as well as new startups launched from Wayne State University, Grand Valley State University and the University of Michigan–Flint.

Fund Features

Accelerate Blue Fund

The Accelerate Blue Fund (AB Fund) is an evergreen fund dedicated to U-M startups by providing support and investments to aid in their growth and success. As an early-stage venture fund focused exclusively on startups based on U-M intellectual property, the AB Fund bridges the funding gap between initial launch and angel/venture capital.

In Fiscal Year 2025, the AB Fund's portfolio expanded, with investments in **9** new companies, bringing the portfolio up to **30** U-M startups. Thanks to generous donor and U-M support, the Accelerate Blue Fund now oversees **$16.1 million** in assets.*

Learn more about the Accelerate Blue Fund at acceleratebluefund.com

Governor Gretchen Whitmer with Lieutenant Governor Garlin Gilchrist II and a group of supporters on Jan. 13, 2025, after signing the Michigan Innovation Fund into law.

Michigan Innovation Fund

In early 2025, Governor Gretchen Whitmer signed the Michigan Innovation Fund (MIF) into law, marking the largest state appropriation for innovation and entrepreneurship in Michigan in nearly two decades. This was a visionary, bipartisan and collaborative commitment to Michigan's entrepreneurial future. This landmark initiative will provide crucial early-stage capital to help founders build and scale their companies in Michigan, strengthening our state's position as a destination for innovation and entrepreneurship.

The concept for the MIF originated at an Innovation Partnerships National Advisory Board meeting as an initiative designed to support the state's entrepreneurial ecosystem. Governor Whitmer announced the Accelerate Blue Fund as one of the awardees that will receive **$10.6 million** of investment capital.

*as of July 16, 2025

Attendees at the inaugural Accelerate Blue Foundry Pitch Day celebrate the event's official kick-off after the close of a rousing opening presentation by Foundry lead Dave Repp. Photo: Alana LaRoche

Accelerate Blue Foundry Expedites Startup Creation

It all started with a question: is there a way to expedite the launch of University of Michigan innovations into startups that help solve some of society's greatest challenges? The answer is "yes" as confirmed by the new Accelerate Blue Foundry program by Innovation Partnerships.

"We've long recognized that beyond the startups we're already creating, a large pool of high-potential U-M research discoveries remains untapped, waiting for the opportunity to be spun out," said Dave Repp, director of ventures and managing director of the Accelerate Blue Fund. "Connecting the right entrepreneur with the right technology at the right time is often the missing – and most challenging – piece. So, we rethought our approach to ensure more of these promising innovations reach the world."

This new program matches entrepreneurs with U-M technologies that have not yet been developed into a startup or licensed to another company. Once matched, project groups gain a mentor-in-residence through the Technology Transfer Talent Network (T3N) to guide them through the Foundry process with a goal of being invited to a pitch day where groups have the opportunity to pitch for the first time in front of an audience.

The Foundry team began with 45 curated technologies to pair with an entrepreneur, and more than 100 people applied to be considered for the program. After a review and vetting process by the Foundry team, as well as conversations between potential entrepreneur and researcher teams, 27 matches were made.

Matched researchers and entrepreneurs worked together to develop a pitch deck and vision for their companies. Along the way, some teams exited the Foundry process as expected, recognizing that timing, team or technology readiness weren't quite aligned for the rigors of the program.

Ahead of pitch day, each team had the opportunity to practice and refine their pitches in collaboration with the T3N mentors-in-residence. This provided teams the chance to receive wide-ranging feedback and insights to refine their presentation and strategy ahead of pitch day.

"This process has been seamless - from the introduction to weekly touch bases to development of our pitch," said Duxin Sun, Charles R. Walgreen Jr. Professor of Pharmacy, professor of pharmaceutical sciences and associate dean for research in the College of Pharmacy. "I am pleasantly surprised this program has worked so well; it has exceeded my wildest expectations."

Pitch day was on May 15, 2025, with 11 teams invited. Upon completing their pitches in front of a group of startup investors the teams participated in a Q&A session.

"The Innovation Partnerships team prepared us very well for pitch day with good feedback at the dry run," said Scott Hotz, an entrepreneur who participated in the Foundry. "Being able to participate in pitch day was awesome and meant you were pitching with real consequences. We've been incredibly busy since pitch day with lots of exciting activities on the horizon. I would absolutely recommend the Foundry to other entrepreneurs and look forward to participating again myself in a future cohort."

Teams that progressed past pitch day have an opportunity to license the technology and receive Seed investment of at least $50,000 from the Accelerate Blue Fund.

The Foundry program set out to explore the idea of expediting startup creation and found that it is possible. It successfully helped bridge the talent gap and utilized U-M's portfolio of high-potential, licensable innovations.

The Foundry will launch a second cohort later in 2025.

Learn more about the Foundry at myumi.ch/79Xg5

Twenty U-M Faculty Leaders Named Innovation Champions

In early 2025, Innovation Partnerships announced a new program to deepen its connections with innovators across the University of Michigan's research community. The new program, Innovation Champions, named 20 faculty innovators to serve as "champions" in their schools, colleges and departments. The Champions act as peer-level departmental contacts, sharing information and resources to help other researchers work with businesses and entrepreneurs to amplify the impact of their innovations. Additionally, the Champions will disseminate innovation-related news to colleagues, suggest ways to provide better support for U-M innovators and collaborate with other members of the cohort and U-M leadership on innovation efforts universitywide.

The Innovation Champions were chosen for their passion and dedication to advancing innovation within their units. Together, they have achieved more than **190** inventions, formed **40** commercialization partnerships and launched **10** startups based on U-M discoveries. The group includes two past recipients of the Distinguished University Innovator of the Year Award and one National Academy of Inventors fellow.

Melissa Bathish
Clinical Associate Professor of Nursing

Kevyn Collins-Thompson
Associate Professor of Information

Alexandre DaSilva
Professor of Dentistry

Krisztian Flautner
Clinical Professor of Electrical Engineering and Computer Science

Justin Heinze
Associate Professor of Health Behavior and Health Equity

Kas Kasravi
Lecturer III in Industrial and Manufacturing Systems Engineering

Robert Kennedy
Hobart H. Willard Distinguished University Professor of Chemistry

Wei Lu
James R. Mellor Professor of Engineering, Professor of Electrical Engineering and Computer Science and Professor of Materials Science and Engineering

Khalid Malik
Director of Cybersecurity and Professor of Computer Science

Mania Aghaei Meibodi
Assistant Professor of Architecture

James Moon
J.G. Searle Professor and Professor of Pharmaceutical Sciences

Alison Narayan
Mary Sue Coleman Collegiate Professor in the Life Sciences and Chemical Biology Program Director and Research Professor

Zaneta Nikolovska-Coleska
Associate Dean for Graduate and Postdoctoral Studies and Professor of Pathology

Chinedum Okwudire
Professor of Mechanical Engineering

Arvind Rao
Professor of Computational Medicine and Bioinformatics and Professor of Radiation Oncology

Katherine Rosenblum
Professor of Psychiatry, Professor of Obstetrics and Gynecology, Professor of Pediatrics and Co-Program Director of Zero to Thrive and the Women and Mental Health Program

Simpa Salami
Associate Professor of Urology

Eric Shah
Clinical Associate Professor of Internal Medicine

Maria Woodward
Edward T. and Ellen K. Dryer Career Development Professor of Opthamology and Visual Sciences

Alan Sugar
Research Professor of Opthalmology and Visual Sciences and Professor of Opthamology and Visual Sciences and Section Head, Coma

Zhen Xu
Li Ka Shing Professor in Biomedical Engineering and Professor of Biomedical Engineering

T3N Program Selects Six Postdoctoral Commercialization Fellows

Six doctoral students from across the U-M ecosystem were selected for Tech Transfer Talent Network (T3N) postdoctoral commercialization fellowships. These fellows were selected based on the strong commercialization potential of their doctoral research. With a $50,000 funding award and matching university contributions, as well as mentorship from a T3N mentor-in-residence, the fellows' time in the program provides them the opportunity to further develop their innovations into marketable products and services.

The postdoctoral fellowships are supported through a partnership with the Michigan Economic Development Corporation's T3N, the U.S. Economic Development Association Global Epicenter for Mobility program and Innovation Partnerships.

Charlie Childs

Complex 3D models of the human intestine in the preclinical drug screening space

Ijaz ul Haq

Prototype system for deepfake detection technology with applications in courtroom settings

Tomasz Kulakowski

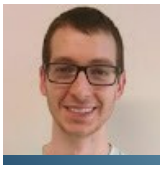
Phase change materials for the thermal management of lithium-ion batteries

Marco Mangano

Water turbine technologies for generating energy using water flows from rivers and tides

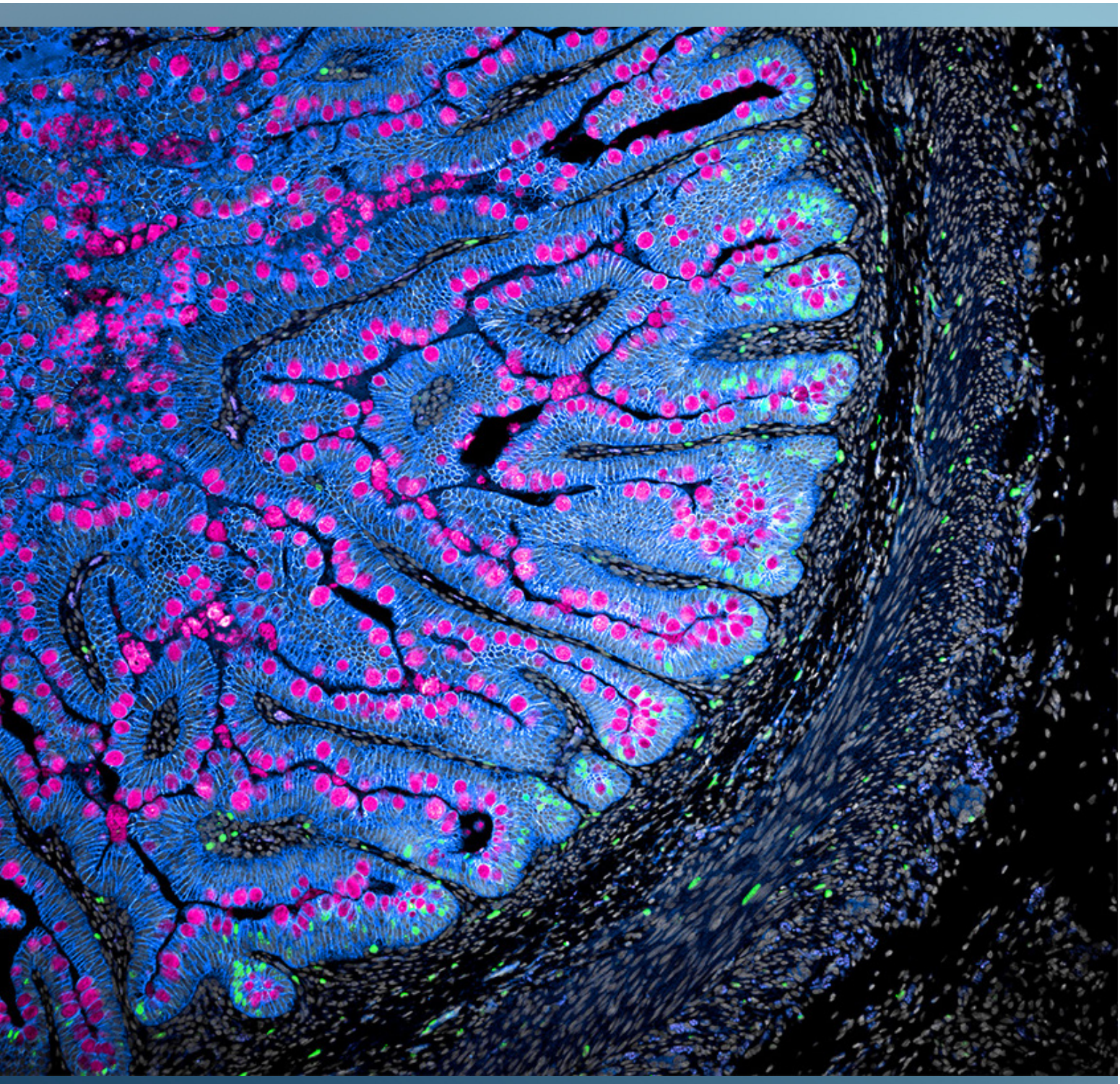
Waad Naim

Thermo-photovoltaic device that implements cell level advances into a large demonstration module



Gabriel Saccol

Scaled-down prototype of a low-cost power converter that can be integrated with any commercial-grade photovoltaic panel



Organoids, like the one pictured above, provide drug developers with a new alternative to animal testing for therapeutics research. Photo: Intero Biosystems

Leveraging Organoids to Revolutionize Preclinical Testing

Human-derived organoids, or 3D lab-grown mini-organs, might sound like something out of a science fiction movie, but they are a reality in today's world. Increasingly, organoids are reshaping the development of new medicines. As organizations seek alternatives to animal testing in preclinical models, they are turning to organoids as a promising tool in the drug development process.

This is where Intero Biosystems comes in.

A biotechnology startup launched in 2024 and co-founded by Charlie Childs, Jason Spence and Madeline Eiken, Intero Biosystems is revolutionizing the world of drug discovery and development with the creation of their intestinal organoid, GastroScreen. Intero's flagship product, a complete miniature intestine 'in a dish,' was developed by Childs and Eiken in the lab of Spence, the H. Marvin Pollard Collegiate Professor of Gastroenterology and a professor of internal medicine, cell and developmental biology and biomedical engineering at the University of Michigan. GastroScreen is made from adult stem cells and includes the intestinal lining along with functioning supporting tissues such as neurons, blood vessels and muscle. This technology provides the ability for researchers to perform comprehensive safety and efficacy testing, predicting how drugs will behave in humans before going into human clinical trials, mitigating risk and identifying safer, more effective compounds.

"Outdated preclinical models — animals and simple cells — can't predict how drugs perform in humans. As a result, 90% of drugs fail in clinical trials, leaving patients in need and wasting billions of dollars and decades of work," said Childs, CEO of Intero. "It is really exciting to see the basic biology work our team developed translate into real-world outcomes. Our goal is to help bad compounds fail faster, ultimately streamlining drug development to help identify and invest in the next blockbuster drugs earlier in the process."

After exploring avenues for commercializing the organoid she developed in Spence's lab, Childs was introduced to David Olson, a mentor-in-residence at Innovation Partnerships, an adjunct faculty member and experienced life sciences founder and CEO. Childs brought her idea for creating an organoid spinout to Olson in May 2022.

> **"Our goal is to help bad compounds fail faster, ultimately streamlining drug development to help identify and invest in the next blockbuster drugs earlier in the process."**
>
> **Charlie Childs**
>
> Co-Founder & CEO, Intero Biosystems

"I was introduced to Charlie when she was a third-year graduate student with a big idea and lots of enthusiasm," Olson said.

"From the onset it was abundantly clear how keen Charlie was to commercialize. We worked together to develop a plan, including resources to apply for, and when. I cannot think of another project where things developed so neatly as envisioned — a testament to Charlie's energy, aptitude and desire to learn."

Intero has taken advantage of the funding resources and support available through the University of Michigan and state ecosystem. In 2023, the company received MTRAC Kickstart funding, which is part of the MTRAC Life Sciences Innovation Hub and made possible by the Michigan Economic

Development Corporation. The Hub offers early-stage funding to biomedical researchers across the state and aims to enhance the commercial potential of a technology to the point of demonstration of utility.

After using the Kickstart funding to further develop GastroScreen, the Intero team was awarded support through the MTRAC Life Sciences Innovation Hub for mid-stage funding. This funding type provides translational research funding and resources for proof-of-concept and late-stage translational studies with a high potential of commercial success.

In addition, Childs was named a Technology Transfer Talent Network (T3N) postdoctoral fellow in fall 2024. T3N fellows receive training in the fundamentals of technology assessment and work closely with a mentor, receiving valuable training for their careers. Participating in the T3N program was instrumental in Intero developing their technology.

Photo: Getty Images

Intero Biosystems received support from the MTRAC Life Sciences Innovation Hub and the Technology Transfer Talent Network, both of which are programs administered by the Michigan Economic Development Corporation to advance research commercialization across the state.

Once it launched in 2024, Intero Biosystems pitched for early-stage funding support through the Accelerate Blue Fund and the Michigan University Innovation Capital Fund. The University of Michigan's Accelerate Blue Fund invests solely in U-M licensed startups with the aim of bridging the critical funding gap between a startup's initial launch and its ability to attract angel or venture capital funding. The Michigan University Innovation Capital Fund is a pre-seed venture capital fund that invests in founders building fast-growing technology companies based on research from the state's public universities. Both funds invested in Intero Biosystems. This support was pivotal in Intero closing their pre-seed round at just over $2 million in June 2025 and being awarded Phase 1 Small Business Technology Transfer funding from the National Institutes of Health.

"We are thrilled by Intero Biosystems' momentum and promise," said Kelly Sexton, associate vice president for research - innovation partnerships and economic impact.

"The team has transformed an academic innovation into a high-potential startup company that is backed by Michigan's entrepreneurial ecosystem. Intero is exactly the kind of success story we aim to cultivate - one that promises to accelerate therapeutic development and ultimately benefit patients, while creating economic opportunity in our state."

"We worked together to develop a plan, including resources to apply for, and when. I cannot think of another project where things developed so neatly as envisioned."

David Olson

Mentor-in-Residence, Innovation Partnerships

Learn more about Intero Biosystems at interobiosystems.com

Pilot Initiative Elevates Open Source Software

Michigan Open Source Support (MOSS) is a pilot initiative by the Innovation Partnerships software team to support University of Michigan open source projects with community building and strategies for long-term impact and sustainability. MOSS equips open source project teams with the tools, resources and connections needed to achieve sustained funding, industry engagement and spinouts. Open innovation in software in particular is a key approach to improving collaboration, creating trust and transparency, leveraging community knowledge and accelerating solution development. U-M's academic innovation ecosystem has increasing interest in this space and the Innovation Partnerships team is dedicated to actively supporting this important area.

As of FY25, MOSS has supported seven open source projects, ranging in scope from an open source prosthetics research platform to community storytelling.

Photo: Adobe Stock

Braid

Braid, developed at the University of Michigan with support from the Public Interest Technology University Network, provides students and faculty a new open-source platform for conducting vocational storytelling about socially relevant topics. This set-up allows users to connect on a deeper level than existing "milestone-based" social media platforms currently allow.

Photo: Ford School

iXBRL

iXBRL, a free, open-source tool designed by the University of Michigan's Ford School of Public Policy, helps local governments make financial data more accessible. Developed by the Ford School's Center for Local, State and Urban Policy, or CLOSUP, in partnership with DAC Bond, a tech company that helps clients with municipal bond disclosure requirements, the Excel to iXBRL Conversion tool is designed to be user-friendly and straightforward for smaller local governments with relatively simple finances.

Photo: Open Source Leg

Open Source Leg

Open-Source Leg is an end-to-end open source platform that democratizes prosthetics research. By providing a standardized hardware/software platform, Open-Source Leg makes it possible to compare results across research groups studying the control of prosthetics technologies. OSL provides an open-access platform that not only facilitates research of prosthetic control but also offers a common framework to test and evaluate these strategies.

MTRAC Programs

Michigan Translational Research and Commercialization Innovation Hubs Help Bring University Research to Life

Created in 2012 by the Michigan Economic Development Corporation (MEDC) and designated a statewide hub system in 2016, the Michigan Translational Research and Commercialization (MTRAC) program accelerates new technologies from Michigan's universities into the commercial market by supporting the creation of licenses or startups. In addition to providing funding support to promising university research projects, program participants also receive guidance from mentors-in-residence affiliated with the MEDC's Tech Transfer Talent Network program.

Michigan is home to five MTRAC Innovation Hubs, each of which supports research and innovation across a key technology area:

- **Advanced Computing Innovation Hub** *(Wayne State University)*
- **Advanced Materials Innovation Hub** *(Michigan Technological University)*
- **Advanced Transportation Innovation Hub** *(University of Michigan)*
- **Agri Bio Innovation Hub** *(Michigan State University)*
- **Life Sciences Innovation Hub** *(University of Michigan)*

Programs like MTRAC are critical to assisting university research launch into the world where it can be invested in and create jobs. Funding for the program is one of the lowest-cost, highest-leverage dollars in the state's economic development portfolio. Since the program launched, MTRAC Innovation Hubs have funded **400** projects and supported the spinout of **76** startups. Additionally, the MTRAC program's proven success enables Innovation Partnerships and partner institutions to attract other state and federal funding to augment its impact, including support from the U.S. Economic Development Administration, the Global Epicenter of Mobility and the Michigan Department of Labor and Economic Opportunity.

MTRAC Advanced Transportation Advances Battery Technology, Novel Lighting Solutions

MTRAC Advanced Transportation supports translational research projects that have high commercial potential, with the ultimate goal of launching new technologies into the mobility and transportation sectors. Since its inception, MTRAC Advanced Transportation has awarded grants of more than **$7.5 million** in grant funding to advance mobility-centric research projects, allowing the projects to earn more than **$98 million** in follow-on funding – a **14x** return on investment. The program has also launched **33** startups. Examples of projects MTRAC Advanced Transportation has supported include:

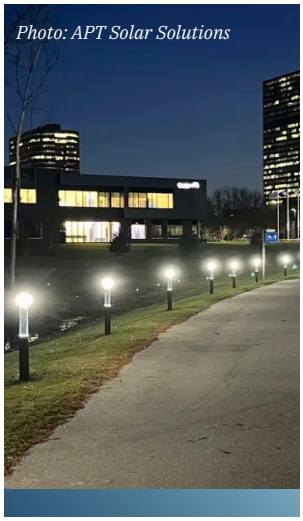


Photo: APT Solar Solutions

APT Solar Solutions

APT Solar Solutions develops unique vertical solar arrays to improve efficiency in solar power generation, regardless of the space available. APT Solar Solutions' lighting systems have been deployed across Michigan, including at the Keweenaw Dark Sky Park in Copper Harbor, Michigan. Prior to spinning out as a startup in 2025, APT Solar Solutions, led by Mojtaba Akhavan-Tafti, associate research scientist of climate and space sciences and engineering at U-M, received a funding award from MTRAC Advanced Transportation.

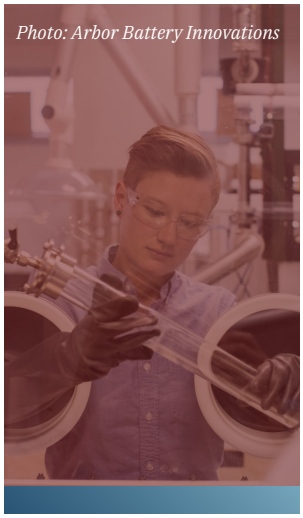


Photo: Arbor Battery Innovations

Arbor Battery Innovations

Founded by Neil Dasgupta, a Miller Faculty Scholar and associate professor of mechanical engineering and materials science and engineering, Arbor Battery Innovations is a U-M startup advancing lithium-ion battery technology by reducing degradation and accelerating charging capabilities. Arbor Battery Innovations stems from a 2020 research project by Dasgupta, which received a one-year funding grant from MTRAC Advanced Transportation.

MTRAC Programs

MTRAC Life Sciences Brings Life-Changing Biomedical Research to Market

MTRAC Life Sciences aims to support projects in the areas of medical devices, therapeutics, health IT, diagnostics and research tools. MTRAC Life Sciences has awarded grants of more than **$27 million** to support and advance research projects with high commercial potential since its founding in 2014. These projects have led to the formation of **47** startups, and have raised **$400 million** in follow-on funding. Some of the projects MTRAC Life Sciences has supported include:

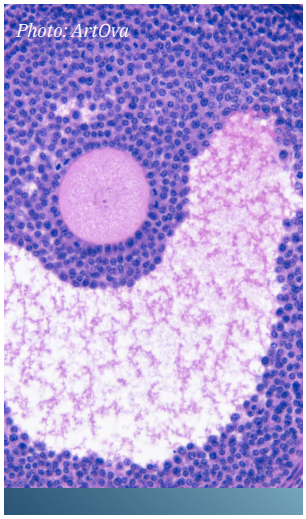


Photo: ArtOva

ArtOva

ArtOva was developed by Ariella Shikanov, professor of biomedical engineering, professor of macromolecular science and engineering, professor of obstetrics and gynecology and associate director in the cellular and molecular biology program. The company provides restoration treatments of ovarian endocrine function in young women with premature ovarian insufficiency through the use of a polymer capsule containing healthy ovarian tissue. ArtOva received a funding award from MTRAC Life Sciences in 2019 and is currently planning for a Phase I clinical trial with the goal to submit an investigational new drug application to the FDA.

Photo: Decimal Code

Decimal Code

Based in Ann Arbor, medical-coding startup Decimal Code began as an MTRAC Life Sciences grant recipient in 2019. Thanks to the support from MTRAC, Decimal Code launched as a startup in 2023. Since then, the company has received multiple accolades from business accelerators across the country, including the Top Healthcare Company and People's Choice awards at Ann Arbor SPARK's Invest360 2024 showcase. Decimal Code also won fourth place in the University of Chicago Booth School of Business' New Venture Challenge in 2024. The funding received as part of these awards is currently being used to expand applications of their AI technology, including Current Procedural Terminology (CPT) coding for prior authorization models, surgery and anesthesiology.

Zhong He is a professor of nuclear engineering and radiological sciences at the University of Michigan and the founder of three Ann Arbor-based startup companies: H3D, M3D and MH3D. Photo: Michigan Engineering

Zhong He, entrepreneurial researcher with large economic impact, named Distinguished University Innovator of the Year

When Zhong He was unable to find a radiation detector that operated the way he wanted, he decided to build one himself.

He developed a semiconductor gamma-ray detector with unprecedented energy accuracy and imaging capability combined on the same sensor. The new detector was so effective that it was sent to the International Space Station in early 2025.

For his pioneering room-temperature semiconductor gamma-ray detector technology, the professor of nuclear engineering and radiological sciences at the University of Michigan is being awarded this year's Distinguished University Innovator of the Year.

The award is the highest honor for U-M faculty members who have developed transformative ideas, processes or technologies and shepherded them to market for broad societal impact. It was established in 2007 and is supported by endowments from the Office of the Vice President for Research (OVPR) and the Stephen and Rosamund Forrest Family Foundation.

"What Professor He has done is exemplify what it means to be a researcher and innovator," said Kelly Sexton, associate vice president for research - innovation partnerships and economic impact. "When he was unable to find what he needed to conduct his work, he created it himself. It just so happens that the radiation detector he created is a significant improvement from anything else on the market and has become a resounding commercial success."

OVPR selected this year's recipient based on the recommendation of a faculty selection committee that reviews a pool of nominees. He will receive the award Sept. 24 at the annual Celebrate Invention event.

Innovative Idea Leads to Economic Impact

He's novel radiation detector was more accurate and easier to deploy than existing gamma-ray sensors that were on the market. In addition, his detector enabled operators to see gamma-ray emitting sources in real time. He understood the importance of patenting this world-changing technology and connected with Innovation Partnerships.

This relationship culminated in the 2011 launch of H3D, which was formed with three of He's former students, Feng Zhang, Weiyi Wang and Willy Kaye. He and his team chose to headquarter H3D in Ann Arbor, and their commitment to southeast Michigan and the university has resulted in significant economic growth.

H3D and its sister companies have hired several U-M graduates, with 23 out of H3D's 40 employees being U-M alumni. In total, H3D's revenue exceeds $90 million.

> **"What Professor He has done is exemplify what it means to be an innovator."**
>
> **Kelly Sexton**
>
> Associate Vice President for Research - Innovation Partnerships and Economic Impact

"Our product is now used in 75% of nuclear power plants across the country and is being used worldwide," He said. "Most recently, we sent some of our radiation detectors to the International Space Station. I never could have imagined the wide-ranging use of our detector nor the economic impact of our company. This came to fruition thanks to the support we received from the Innovation Partnerships team in helping us commercialize."

H3D's radiation detector has a multitude of uses. In addition to its original function of identifying and detecting radiation, the company is exploring several future applications including emergency response, CBRNE (Chemical, Biological, Radiological, Nuclear and Explosives) management, defense, homeland security, international nuclear non-proliferation, medical imaging and more.

He's work is also expanding into the medical space. Two more startups based in Ann Arbor have stemmed from H3D to support medical professionals — M3D and MH3D. M3D offers a variety of gamma cameras powered by H3D's sensor technology for use in healthcare facilities by surgeons, physicians, physicists and environmental safety personnel. MH3D focuses on larger imaging scanners, such as traditional SPECT imaging.

"H3D is the poster child for everything Innovation Partnerships values," said Richard Greeley, associate director of licensing, engineering. "They're creating a great product that addresses the market's needs and are a stable company that not only creates jobs but provides opportunities for students. A true triple threat!"

The University of Michigan and He have a financial interest in H3D, M3D and MH3D.

"H3D is the poster child for everything Innovation Partnerships values. They're creating a great product that addresses the market's needs and are a stable company that not only creates jobs but provides opportunities for students. A true triple threat!"

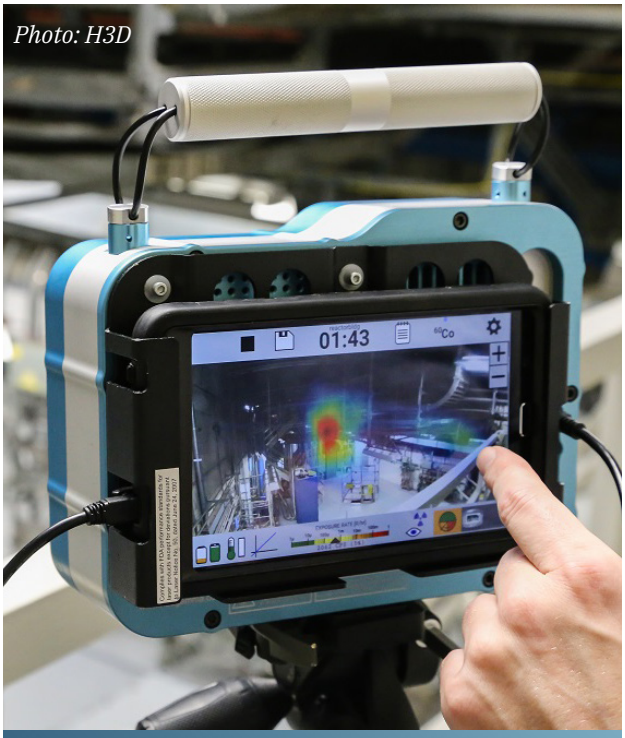
Richard Greeley
Associate Director of Licensing, Engineering

Learn more about Dr. He's work at myumi.ch/P39zb

Photo: NASA

He's gamma ray detectors were sent to the International Space Station in early 2025.

Photo: H3D



He's radiation detector technology led to the spinout of startup H3D and is now used in 75% of nuclear power plants across the country.

GripFusion's ForceBall technology uses biomechanical data from pitchers to detect both inputs and outputs, giving athletes and coaches the clearest vision yet of their performance. Illustration: GripFusion

GripFusion Advances Accuracy of Sports Analytics, One Pitch at a Time

Analytics have long been at the heart of baseball. Today, data informs a wide range of decisions made by baseball teams, and while this information has improved everything from pitch design to player development, there is one area of the sport that has proven difficult to address from analytics-based improvement: injury prevention.

Top Major League Baseball (MLB) and college teams pay millions of dollars each year for data tools to gain an advantage, yet injuries — particularly pitching injuries — continue to cost teams more than $500 million per year.

GripFusion, a pre-seed startup company from the University of Michigan, aims to change the current dynamic of pitching analytics. They are doing this by developing the world's first grip-sensing baseball, the ForceBall, that is identical in look, feel and weight to a regulation baseball.

Using real-time biomechanical insights, the ForceBall transforms how athletes train and perform while preventing injury. Existing pitching technology focuses on ball outputs such as ball velocity and spin rate, but GripFusion hones in on the inputs of grip mechanics. This includes tracking things like an athlete's finger placement, pressure and release timing.

GripFusion's technology is a coach's dream, as the data will provide a new level of insight for skill development, while enabling them to better monitor workload and fatigue. The ability to detect issues with technique that could lead to injuries has the potential to revolutionize every level of the sport, from MLB to youth.

The ForceBall leverages GripFusion's patented sensor architecture specifically designed for curved surfaces, incorporating 688 high-resolution pressure sensors embedded beneath the baseball's leather exterior. The ForceBall also contains advanced inertial sensors for tracking spin and velocity, making the product an end-to-end pitching solution. This data is then collected and analyzed by the company's AI-powered platform, delivering personalized feedback to athletes and coaches.

GripFusion was co-founded by Mason Ferlic, Ph.D. candidate in statistics at the University of Michigan, aerospace engineer and former Olympic track athlete; and Dr. Michael Freehill, associate professor of orthopaedic surgery and chief of the shoulder and elbow service at Stanford University Sports Medicine, former associate professor of orthopaedic surgery at the University of Michigan and former professional baseball player with the Los Angeles Angels and Texas Rangers.

GripFusion's technology is a coach's dream, as the data will provide a new level of skill development while enabling them to better monitor workload and fatigue.

The founders first met in 2019 during Freehill's time at Michigan Medicine when Ferlic was the lead research engineer at the U-M Exercise and Sports Science Initiative. Ferlic would go on to join Freehill's research team alongside former Michigan Engineering research scientist Stephen Cain. Together, the team sought to uncover the root causes of throwing injuries and prototyped early solutions for measuring real-time grip mechanics.

Freehill and Ferlic then signed a commercialization agreement with U-M in spring 2024, paving the way for the official launch of GripFusion as a university startup just a year later. Throughout the development of GripFusion, Freehill and Ferlic were supported

by the Technology Transfer Talent Network's (T3N) mentor-in-residence program.

"At GripFusion, we are developing products situated at the intersection of sports, advanced sensors and innovative analytics," Ferlic said. "We are pioneering a whole new category of AI-enhanced sporting equipment capable of providing real-time grip analysis aimed at optimizing athletic skill, performance and health outcomes. I am particularly passionate about leveraging my experience as an Olympic athlete, aerospace engineer and statistician, to create products that not only generate novel insights but also actively guide athletes toward improvement."

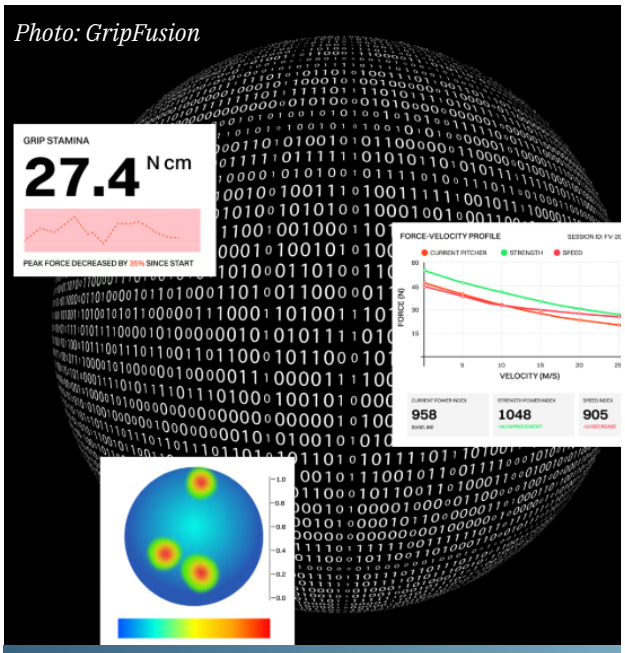


Photo: GripFusion

GripFusion's ForceBall uses a patented curved sensor architecture under the leather to track spin and velocity during a pitch.

Ferlic added that working with Freehill to develop GripFusion has been an "amazing collaboration" between science, technology and data.

"Dr. Freehill's expertise in throwing injury research, combined with the support we've received from Innovation Partnerships, T3N and the University of Michigan ecosystem, are what have made the dream of input-driven sports analytics a reality," Ferlic said.

As the GripFusion team continues to develop its novel sensing technology, it is hoping to expand the scope of the technology's applications. Further applications of its grip-sensing technology are being developed to include not only other balls, but also equipment including bats, golf grips and rackets. Applications outside the realm of sport are also being explored, with potential use cases in industrial and therapeutic fields.

"The environment of a university is uniquely suited to bring thoughtful research from a wide variety of disciplines together, and can lead to the development of new technologies that would otherwise not be possible," said Don Manfredi, associate director of ventures and fund manager. Manfredi was part of the team, which included mentor-in-residence Mike Kole, that provided venture support for the GripFusion team.

"The research ecosystem fostered by the University of Michigan is what gives projects like GripFusion the opportunity to change an athlete's performance and health outcomes for the better."

"The research ecosystem fostered by the University of Michigan is what gives projects like GripFusion the opportunity to change an athlete's performance and health outcomes for the better."

Don Manfredi
Associate Director of Ventures and Fund Manager

Learn more about GripFusion at gripfusion.com

Celebrate Invention is the University of Michigan's premiere event celebrating faculty research and innovation. Photo: Leisa Thompson, Michigan Photography

Celebrate Invention Showcases U-M Innovators

On October 15, 2024, Innovation Partnerships hosted more than 300 attendees at its annual Celebrate Invention event. Members of the University of Michigan community and the broader entrepreneurial ecosystem gathered together at the Michigan League to honor campus innovators and the societal impact of their discoveries.

The event kicked off with the Distinguished University Innovator of the Year award panel and presentation. The 2024 award recipient was Dr. Kevin Ward, executive director of the Weil Institute for Critical Care and Research and professor of biomedical engineering and emergency medicine. Ward received the award for his contributions to U-M's culture of entrepreneurship and innovation in the fields of critical and intensive care.

After Ward's presentation, Kelly Sexton, associate vice president for research – innovation partnerships and economic impact, hosted a panel titled "Transforming Critical Care: A Conversation with Pioneers in Medical Innovation." The discussion featured Ward, Andrew Malcolmson, CEO of Fifth Eye, Inc. and Dr. Sridhar Kota, Herrick Professor Emeritus of Engineering and co-founder of AeroSolve.

Following the panel, doors opened for the Celebrate Invention networking reception and technology demonstrations. Sexton opened the remarks by introducing a new program by Innovation Partnerships: the Accelerate Blue Foundry.

"The Foundry will partner interested entrepreneurs with University of Michigan technologies that have the potential to become high-growth startups," Sexton said.

"Teams that successfully complete the program and launch a University of Michigan startup are guaranteed investment from the Accelerate Blue Fund, our offices' early stage seed fund focused on university startups. The aim of the Foundry is to expand the entrepreneurial network connected with U-M innovations and technologies, to facilitate the launch and growth of successful startup companies."

Remarks were also provided by the State of Michigan's first-ever Chief Innovation Ecosystem Officer, Ben Marchionna, and Vice President for Research and Innovation, Arthur Lupia, who presented the Distinguished University Innovator of the Year award to Ward.

"It's clear how deeply Innovation Partnerships – and the university as a whole – are committed to not just the growth of Ann Arbor or southeast Michigan, but to the entire state," Marchionna said.

"I'm excited to strengthen our partnerships and help elevate Michigan as a prime destination for startups and venture capital in the future. With your help, we aim to establish Michigan as the Innovation Hub of the Midwest and America's scale-up state."

Upon concluding their remarks, Marchionna and Lupia joined attendees in touring the room, where nine dynamic U-M startups and technologies showcased their work. The projects and startups included: ArtSpective, BallotIQ, Demask, EIPC Scan-Lab, Heat2Power, LearningClues, Lumetec, Precision Trauma and RUA Diagnostics.

Learn more about Celebrate Invention at myumi.ch/G2qPq

Learn more about the Distinguished University Innovator of the Year Award at myumi.ch/D8zey

Thank You to our National Advisory Board

Innovation Partnerships' National Advisory Board (NAB) was founded in 2002 to provide advice and connections to enhance technology transfer performance. Composed of industry, venture, government, university and community leaders, the NAB has transformed the university and the state of Michigan with several initiatives, including Ann Arbor SPARK, the Tech Transfer Talent Network (T3N) and the Accelerate Blue Fund. We would like to extend a warm thank you to our National Advisory Board Members for their expertise and support.

Photo: Michigan Photography

Welcome, Ben Marchionna

In October 2024, Ben Marchionna was appointed to the Innovation Partnerships National Advisory Board. Marchionna is the first-ever chief innovation ecosystem officer for the Michigan Economic Development Corporation (MEDC) and State of Michigan. In this role, Marchionna is focused on development, growth and sustainability of the rapidly growing Michigan innovation economy.

Photo: Renaissance Venture Capital

Congratulations, Chris Rizik

Congratulations to board chair Chris Rizik for a year of well-deserved recognition. In Fiscal Year 2025, Rizik received the Venture Vanguard Award from the National Venture Capital Association and was inducted into the Michigan Venture Capital Association's inaugural Hall of Fame class. Through his leadership and generous commitment of time and talent to Innovation Partnerships, Rizik has helped drive the success and impact of our work.

National Advisory Board Members

Jim Adox
Venture Investors
Ann Arbor, MI

Serena Glover
Angel Investor, Advisor
Redmond, WA

Mira Sahney
IPG Photonics
Marlborough, MA

Bill Brinkerhoff
EVOQ Therapeutics
Ann Arbor, MI

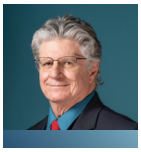
Paul Krutko
Ann Arbor SPARK
Ann Arbor, MI

Rich Sheridan
Menlo Innovations
Ann Arbor, MI

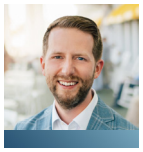
Jeff Donofrio
Business Leaders
for Michigan
Detroit, MI

Kirsten Leute
Osage University Partners
Bala Cynwyd, PA

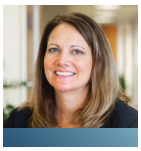
Maria Thompson
Arsenal Growth
Superior Township, MI



Richard Douglas
Genzyme Corp - *Retired*
Southborough, MA

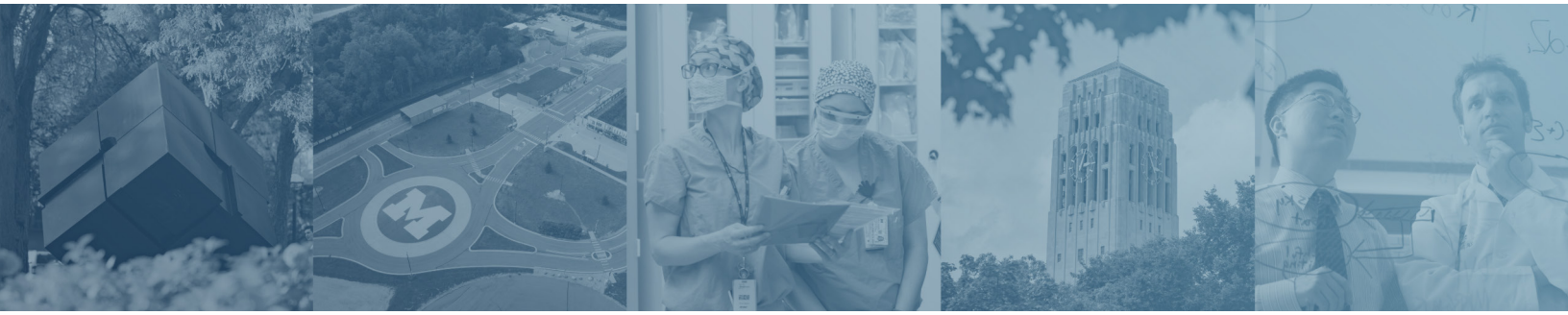


Ben Marchionna
State of Michigan
Lansing, MI



Patti Glaza
Invest Detroit Ventures
Detroit, MI

Chris Rizik *(Board Chair)*
Renaissance Venture Capital
Ann Arbor, MI



The Regents of the University of Michigan

Jordan B. Acker, Michael J. Behm, Mark J. Bernstein, Paul W. Brown, Sarah Hubbard,
Denise Ilitch, Carl J. Meyers, Katherine E. White

U-M has a financial interest in some of the companies featured in this report through licensing agreements.

University of Michigan Nondiscrimination Policy (effective June 2025)
The University of Michigan, as an equal opportunity/affirmative action employer, adheres to all relevant federal and state laws governing nondiscrimination and affirmative action.

The University of Michigan is dedicated to maintaining a policy of equal opportunity for all individuals and refrains from discrimination based on race, color, national origin, age, marital status, sex, sexual orientation, gender identity, gender expression, disability, religion, height, weight, or veteran status in the realms of employment, educational programs and activities, as well as admissions.

Inquiries or complaints regarding these matters can be directed to the Equity, Civil Rights, and Title IX Office at 2072 Administrative Services Building, Ann Arbor, Michigan 48109-1432. Contact can be made via phone at 734-763-0235 or TTY 734-647-1388, and through email at ecrtoffice@umich.edu.

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