2024
INDIANA
UNIVERSITY

WELCOME TO IU INNOVATES

If you are an entrepreneur or aspiring entrepreneur at IU, this is an opportunity to get plugged in. We aim to create a community built on helping each other. We understand starting a business can seem like a monstrous task but with the support of other founders, mentors, and lots of coffee, we make that first step in the journey easier. We are here to help, grow, and learn together as we innovate further and tackle what was once believed impossible.

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Letter from the President,

At Indiana University, we nurture a spirit of innovation that extends far beyond the classroom.

Home to a thriving and ever-growing entrepreneurial ecosystem, we provide the expertise and infrastructure to enable our students and faculty to transform their boldest ideas into impactful startup ventures.

The recently launched IU Innovates initiative advances IU's commitment to strengthening the spirit, mindset, and skill set of entrepreneurship. In alignment with the ambitious goals of the IU 2030 strategic plan, IU's entrepreneurship efforts are serving and strengthening communities in Indiana and beyond. They are further catalyzing Indiana's flourishing startup community, propelling high-potential business ideas that will fuel economic growth, and tightening the bonds between IU's research endeavors and societal impact.

Through collaboration, doing together what can't be done alone, we holistically and collectively provide access to tools, mentorship, and support found across campuses and throughout the wider university community.

Within these pages, you will find stories of perseverance, creativity, and ingenuity. Spanning initial ideas to groundbreaking startups, these narratives offer a glimpse into the transformative power of entrepreneurship and the boundless opportunities that arise from embracing innovation.

I invite you to join me in celebrating the remarkable individuals who are making IU a hub of innovation and entrepreneurship. May their stories inspire us to reach new heights of creativity, resilience, and impact in all our endeavors.

Watch interviews with student entrepreneurs.

STUDENT SUCCESS & OPPORTUNITY

PHOTOGRAPHY BY WENDI CHITWOOD

Medard Mikobi

COLLEGECARRY

Easing the stress of moving in and out of dorms or apartments

Student athlete and IU senior Medard Mikobi’s entrepreneurship journey began at eight years old. “I was a very young kid in Africa and had to grow up quick,” he explains. Along with his friends, Mikobi worked for a neighbor with a large garden, which evolved into the group selling the produce at the market. His resourcefulness and creative thinking have undoubtedly continued into his adulthood. “I think the drive we had back then is just a part of me now. I always remember where I came from,” Mikobi says. CollegeCarry, Mikobi’s current entrepreneurship venture, is a student-led campus moving and storage service. He will graduate this year with a degree in Sports Management and plans to jump straight into an MBA while continuing to grow CollegeCarry.

Why Choose Entrepreneurship?

A long-time athlete, Mikobi often struggled to fit a job into his busy schedule–so he thought outside the box. Inspired by his host mother Rebecca Ellis’s experience in business, Mikobi identified a desperate need in his community: stress-free moving and storage. “I’ve had the idea for a while, and one day I decided to go for it,” Mikobi shares. “I’ve had nothing but full support from my IUPUI professors and those close to me. Now, there’s not a day I wake up and don’t get excited to work on this idea or learn from my mentors.”

CollegeCarry’s Mission

“CollegeCarry tackles the dual challenges of costly summer storage for families and the stress of campus moves,” Mikobi explains. “With our flexible and affordable ‘only pay for your items’ storage method, families save money while ensuring belongings are safely stored during breaks. Meanwhile, our streamlined moving service handles logistics and heavy lifting, allowing students to focus on academics without the hassle of transitions.”

Finding Motivation When Entrepreneurship Gets Overwhelming

Mikobi’s number one motivator is his faith. “I have always put my full trust in Jesus Christ,” he says. “I know if it’s meant for me, He will make it happen.” He’s also working toward retiring his parents, which helps to ground him. “It reminds me that it’s not always about me, which then motivates me to go be great no matter what comes my way.”

Entrepreneurial Stage

Since its launch in March of 2023, CollegeCarry has been actively working with customers and anticipates its clientele to grow even more in the coming year. CollegeCarry has also recently launched a partnership with IUPUI’s Reslife, becoming the school’s go-to company to recommend to parents. Reslife also employs CollegeCarry when a student needs to transition from one dorm to another in the middle of a semester. Mikobi hopes to establish a similar partnership at IU Bloomington in the near future.

The Gratifying Moments

Mikobi has relished in the moments he’s been able to take the company to the next level. The day IUPUI’s Reslife told him they wanted to partner with CollegeCarry stickers out as one of the best days on the books. “I probably smiled for a week,” he recalls.

Mentors

Mikobi feels incredibly grateful to have had many incredible mentors throughout this process. Rebecca Ellis and Professor Barb Cutillo, however, stand out for him. “Rebecca Ellis has mentored me since the first day I had this vision,” he says. “From learning how to register my business to hopping on business calls with me.”

“Professor Barb Cutillo guided me into our first business pitch competition that helped secure funding through the JagStart Pitch Competition,” he shares. “She has blessed me with new connections to move my business forward.”

Mikobi feels strongly that CollegeCarry wouldn’t be what it is today without the people who supported him.

Long-Term Business Goals

In the future, Mikobi hopes to expand CollegeCarry to universities across Indiana, to build safe, secured storage facilities owned by the company, and to continue to provide work opportunities for students.

Advice for Students Considering Entrepreneurship

Mikobi wants any student considering entrepreneurship to remember that there’s no such thing as a bad idea. “If you never take that first step, you’ll always have that regret of ‘what if?’” he encourages. “Just go for it–IU has all the support staff to help you every step of the way.”

COLLEGECARRY.COM

Ruhani Sharma

TANDOORI CAFE & GRILL

Bringing a fusion of traditional Indian flavors and global culinary influences to Northwest Indiana

Her family's background in business sparked MBA student Ruhani Sharma's entrepreneurial journey. It was Sharma's travels around the world, though, that focused and fueled her ambition to become a culinary entrepreneur. While pursuing her MBA at IU Northwest, Sharma's ambition blossomed into an idea. "I envisioned opening a restaurant or cafe, combining my love for food, travel, and aesthetics into a single, immersive experience," Sharma explains. So, as she worked to complete her MBA, Sharma prepared to open her first business, Tandoori Cafe & Grill. An exciting fusion of traditional Indian flavors and global influences, the Griffith-based cafe opened its doors in December of 2023.

Why Choose Entrepreneurship?

Sharma cites her father's success as a business owner as what gave her the confidence to carve out her own path in the world. "His achievements instilled in me a drive for independence and a vision of creating something meaningful," Sharma says. "The allure of innovation, coupled with the promise of financial success, ignited my ambition to embark on this journey."

Tandoori Cafe & Grill's Mission

"Despite a high demand for Indian food in Northwest Indiana, there are limited options available, with only a few restaurants offering fine dining experiences," Sharma explains. "Recognizing this gap, my business endeavors to offer a unique culinary experience that goes beyond the conventional offerings."

"We aim to satisfy the cravings of Indian food enthusiasts while also attracting a broader audience seeking new and exciting dining experiences."

Finding Motivation When Entrepreneurship Gets Overwhelming

When overwhelmed by aspects of entrepreneurship, Sharma seeks counsel from her network of mentors, friends, and family. This invaluable group of people has helped her navigate through all the struggles that she's faced in her entrepreneurship journey.

Sharma also makes it a priority to maintain a positive outlook. "Celebrating small victories and acknowledging progress along the way also serve as reminders of the journey's significance, encouraging perseverance," Sharma says.

Entrepreneurial Stage

Sharma's restaurant has been open and running since December of 2023. Her undergraduate degree in Marketing and Business Analytics has proven to be an asset in growing her cafe within the community. While the business is in its early stages, she's already developed an enthusiastic, consistent customer base.

The Gratifying Moments

In the process of bringing her vision to life, Sharma feels there have been endless gratifying moments. She specifically notes positive feedback, overcoming challenges, building a cohesive team, and celebrating milestones as the moments she's been the happiest. "The modern entrepreneurial landscape offers unparalleled advantages," Sharma shares. "I am deeply grateful for the opportunities present in today's world and eagerly anticipate the possibilities that lie ahead on this entrepreneurial journey."

Mentors

Sharma is endlessly grateful for the support and wisdom she has received from her support system and cites their guidance as an asset in her journey.

"Throughout this journey, I've been fortunate to have a diverse group of mentors who have played crucial roles in guiding me. My parents, younger brother, extended family, close friends, and the faculty and staff at IUN have all contributed equally to my growth and development."

Long-Term Business Goals

In the future, Sharma would like to access a wider audience by potentially opening new locations throughout the region. "I aspire to elevate the restaurant to the next level by enhancing the dining experience and introducing innovative concepts," Sharma explains. "I plan to partner with local organizations to offer unique dining experiences and foster a sense of community within the culinary industry."

She also expressed interest in connecting more with the community through events and experiences. "Whether it's themed nights, culinary workshops, or special promotions, these events can add vibrancy to our restaurant and strengthen our connection with the community."

Advice for Students Considering Entrepreneurship

With the right guidance and commitment, Sharma believes that anyone can start a business. "Crafting a detailed business plan, focusing on objectives, target markets, and financial projections, serves as a roadmap for the venture," Sharma says. "Ultimately, success in entrepreneurship requires dedication, perseverance, and a willingness to learn and adapt."

She encourages any student interested in entrepreneurship to leverage the resources at IU for the incredible programs and networking opportunities offered–she considers them essential to her journey.

TANDOORICAFEGRILL.COM

PHOTOGRAPHY BY POLINA OSHEROV

Ahmed Awad

GYMSPOTT

Connecting users with workout partners and fitness groups in their community

Data Science and Philosophy undergraduate student Ahmed Awad is no stranger to cultivating community through fitness. As a high schooler in New York, he founded a weightlifting club that went on to break half a dozen state powerlifting records, but an injury forced him to take a hiatus from his own club during his senior year. Awad returned to weightlifting during his freshman year of college. By virtue of being new to the campus, his reentry was through solo workouts–a new experience for Awad. Used to the camaraderie of a fitness group, he felt just how hard it can be to get into fitness without the support of a similarly-minded community. As he continued to push himself through recovery, Awad grew to understand that this solo workout was a problem bigger than himself, and he was determined to solve it on a larger scale. He returned to an app idea he had in high school, one that connects users with workout partners and fitness groups within their community. He called it GymSpott.

Why Choose Entrepreneurship?

Awad’s passion for the fitness space emerged at a young age, but quickly grew beyond himself–he wanted to help other people get healthier. “Feeling the friction point myself, I felt there had to be a better way,” Awad shares. Entrepreneurship emerged as a possible solution.

“I traveled the country speaking with health club owners and learned what issues they had, in order to understand what GymSpott needed to be,” Awad explains. Those experiences and insights molded GymSpott into the application it is today. Once Awad saw what the future of fitness could look like with GymSpott, there was no going back.

GymSpott’s Mission

It’s Awad’s intention for the app to simplify staying active. “Our goal is to make it as easy as possible for anyone to be active by joining any sports game, discovering a fitness class, or connecting with a workout partner,” Awad says.

Finding Motivation When Entrepreneurship Gets Overwhelming

Awad stays motivated simply by keeping his eyes focused on his overall goal: making a positive impact. And rather than specific icons within the business world, he prefers to look up to action and impact. “I like to focus more on chess moves than chess pieces,” he shares. Awad trusts that putting his head down and doing the work will be enough when things feel overwhelming.

Entrepreneurial Stage

Launched in March of 2023, GymSpott has regular users at IU Bloomington. Awad is working to expand usage by selling the software platform to gyms directly to support their community building and member retention.

The Gratifying Moments

For Awad, GymSpott is all about promoting community within fitness. He explains that the happiest moments in this entrepreneurial journey of his are the times he sees the app working. He shares, “My favorite moment so far was when I was working out once with friends at the university gym and bumped into another GymSpott group!”

Mentors

Awad pursued his idea on his own for a while before meeting Cherif Redissi, the current CTO of GymSpott. While they haven’t had a direct mentor in this process, Awad cited the members of Sparklab, the student startup incubator within IU Innovates, as incredibly helpful in bringing his idea into reality.

Long-Term Business Goals

While he has plenty of ideas for features to add to GymSpott, Awad’s committed to first making the core features function at their best. “We want to reduce the friction to staying active and help you have fun doing it,” Awad says. “So right now, we are singularly focused on connecting workout partners, bringing fitness groups together, and making it easier to discover activities. Our goal is to be fitness in your pocket!”

Advice for Students Considering Entrepreneurship

At the beginning of a person’s entrepreneurial journey, Awad encourages researching other startups. He remembers specifically taking inspiration from Apple’s order of product lines and how they built their ecosystem. The intentionality and strategic reasoning behind those decisions stood out to Awad.

He explains that understanding those decisions can help someone new to the business and technology world strategize within their own ideas. His advice: “Pick out the things about those startups that are meaningful to you and apply them to your own work.”

GYMSPOTT.APP

Grace Snyder

TEEGENIUS

Maximizing the potential of online tee-time booking

Entrepreneurship and Corporate Innovation student Grace Snyder characterizes her relationship with entrepreneurship with a quote from the movie ***Lone Survivor***. "Anything in life worth doing is worth overdoing. Moderation is for cowards." And Snyder is certainly living up to the idea. A lifelong golfer and aspiring entrepreneur, she has combined the two passions to solve a problem she saw in the golfing industry. "I've always noticed that booking a tee time online was such an annoying and long process, so I would always call the golf courses to book my tee time instead," Snyder shares. "But it wasn't until the summer of 2023 when I really became curious as to why this is." Her curiosity quickly grew into an idea, and Snyder got to work. "I started researching and interviewing hundreds of golfers and golf courses," Snyder explains. "I realized there was a bigger problem happening on the golf course side of things." With the encouragement of her brother and family, she registered her business with the state of Indiana in January of 2024 and has been in the works since then to shape her idea into a reality.

Why Choose Entrepreneurship?

Snyder's life changed drastically when, the summer before her freshman year of college, her father passed away after a short and sudden battle with cancer. "My dad was my best friend in the whole world," Snyder shares. "And one of the pieces of advice he gave me was to find something I love to do and do it."

What Snyder discovered she wanted the most was to start her own business. "I had the opportunity to watch my dad start his wealth management business before he got sick, and this is where I pull my inspiration and motivation from," Snyder says. "The entrepreneurial mindset has been engraved in me. Somehow, without words to describe why, I have always known starting my own business is what I was meant for."

TeeGenius's Mission

"When a golfer cancels their tee time, golf courses really have no way of letting other golfers know that the tee time has opened up–they just take the loss," Snyder explains. "Which means they're leaving a ton of revenue on the table every year."

"TeeGenius is solving this problem for golf courses in a way that is financially advantageous for them."

Finding Motivation When Entrepreneurship Gets Overwhelming

Snyder keeps her eyes focused on the big picture. "You could do quite literally everything right, but it still might not work out in your favor," Snyder shares. "I pull my strength from knowing that I have already been through the absolute worst situation I will ever face." Ask her and she'll tell you, only control what is controllable–let the rest of it go.

Entrepreneurial Stage

Snyder has raised pre-seed investment from Elevate Ventures for TeeGenius and is in the software development process. Even before its release, TeeGenius has garnered interest from several golf courses that have agreed to use the software once it is developed.

The Gratifying Moments

While overwhelming for some, Snyder finds joy in the hustle of a start-up. "The best part is that I'm never bored," Snyder says. "I always have something going on or work to get done."
On a larger scale, Snyder is incredibly grateful that she can do work she's passionate about while positively impacting an industry she's loved since age four.

Mentors

The professors and staff at IU have been an incredible asset in Snyder's journey. "Cy Megnin and Landon Young from Elevate Ventures have also helped me a ton, so I am very grateful for them," Snyder says. "My uncle, Pat Cook, owns and manages a golf course in Wisconsin, so his insights have been very helpful. Lastly, my family has supported me from day one which has helped to make this entrepreneurial journey a little easier."

Long-Term Business Goals

Snyder isn't afraid to dream big–she aims for TeeGenius to expand and become a universal tee time booking platform across the sport. "Our mission is to help golf courses and save them as much money as possible. We want to have every golf course on our platform," Snyder explains.

Advice for Students Considering Entrepreneurship

A piece of advice that has stuck with Snyder throughout her entrepreneurial journey: "Don't get paralysis from over-analysis."

"There is no need to overthink everything, to have everything all figured out," Snyder says. "It's entrepreneurship–things are going to change anyway. As long as you have a point in the right direction, just start."

Snyder also encourages taking advantage of the resources available to you at IU. She often takes advantage of the available spaces to work–even a little support makes the journey much easier.

“With so many young folks trying to develop new ideas, the ability to articulate an idea clearly and quickly to potential investors is critical.”

PITCH COMPETITIONS

ENTREPRENEUR SUPPORT

Dr. Joe Lovejoy & Dr. Donald F. Kuratko

CONNECT CHALLENGE & CLAPP IDEA COMPETITION

Funding and exposure for promising new concepts through pitch competitions

The Connect Challenge and Clapp IDEA Competition are two pitch competitions at Indiana University tailored for students pursuing an entrepreneurial, innovative career path. The competitions offer a platform for students to share ideas and compete for money to see those ideas come to life. Dr. Joe Lovejoy is Assistant Dean in the College of Arts and Sciences and Executive Director of the Walter Center for Career Achievement at IU Bloomington. In his current role, he helps the College facilitate an intentional student experience to prepare students for success. Three years ago, Dr. Lovejoy and the Walter Center created the Connect Pitch Challenge to give a platform for ideas in three categories: social impact endeavors, creative works, or business startups. Dr. Donald F. Kuratko, IU Professor and Academic Director of Entrepreneurship, launched the IDEA pitch competition with the Kelley School in 2010. IDEA stands for Innovations Developed for Entrepreneurial Action. Dr. Kuratko found that calling it an "idea competition" rather than a "business plan competition" made the program more approachable. Three years later, in support of the mission, Vernon Clapp became the lead sponsor of the competition, renaming it to the Clapp IDEA Competition.

An Effective Pitch

Dr. Lovejoy believes that the ability to pitch an idea successfully benefits a range of career skills. "You have to have subject area knowledge for whatever you're pitching," he says. "Then, you have to research who the alumni judges are, distill complex information in a concise manner, and then communicate it clearly and persuasively."

Skills needed for pitching an idea require practice. When pitching, a student has to think quickly to respond to unexpected questions or comments. "Another unique aspect of what we do in the college is that our students are pitching ideas that are both financially viable and socially responsible, which requires ethical reasoning among the tools students are developing," Dr. Lovejoy says. "When you think about everything happening in the world right now, social responsibility is critical and is going to be increasingly sought after by employers."

Dr. Kuratko asserts that the value of succinctly articulating an idea cannot be overstated. "With so many young folks trying to develop new ideas, the ability to articulate an idea clearly and quickly to potential investors is critical," he says. "They are usually busy individuals who do not have time to waste, so getting their attention is paramount. Our Clapp IDEA Competition helps to foster those skills."

A Launch Pad For Success

Both the Connect Challenge and the Clapp IDEA Challenge have been a launching pad for success among students. "Some of the exciting projects students bring to the competition range from pitching energy drinks, as well as a podcast streaming service, an immersive multimedia musical webcomic, a clothes swap app for social good, and even a trauma-informed young adult fantasy novel," Dr. Lovejoy shares. "In fact, one of our alumni judges is a publisher and is interested in the student's novel once it's completed!"

In the first year of the Clapp IDEA competition, the winner was DoubleMap, a transit tracking system for the IU campus. "They were the official tracking system for the Super Bowl fan buses in Indianapolis in 2012," Dr. Kuratko shares. "They also expanded to numerous campuses across the US."

Developing the Entrepreneurial Skill Set

While there are many ways to approach the entrepreneurial journey, an entrepreneurial mindset develops within every path. "Innovation and the entrepreneurial mindset are a combination of intellectual curiosity, attaining and utilizing knowledge, but also having a vision — the ability to identify a challenge or a great opportunity, and bring together ideas, disciplines, and people to achieve your ambition of finding a solution to a problem or seizing an opportunity for success," Dr. Lovejoy says.

"What the Connect Challenge is really about is creating the opportunity for students to network with alums, while building skills that will serve them well throughout their careers–whatever their majors," Dr. Lovejoy continues. "As educators and administrators, we need to continue to look for more opportunities for students to showcase their abilities to create and innovate, and the Connect Challenge is just one way we're doing this."

Dr. Kuratko insists that, in today's world, students need entrepreneurial skills to succeed. "We are in an age of constant disruptive innovation–the rapid rise of Artificial Intelligence is a great example of that disruption," he shares. "As we develop more innovators on the campus, the Clapp Competition, as well as our academic program in Entrepreneurship and Corporate Innovation, will be key in developing their skills to compete and advance."

Thomas Parmer, Emmah Leu, Ahmed Awad & Ben Frische

SPARKLAB

Programming and supporting the entrepreneurial journey for student-led startups

Sparklab, formerly known as The Shoebox, is a student-led incubator that supports students through the entrepreneurial journey as they build, launch, and sustain their startups. Located within IU Innovates at the Von Lee building, this experiential learning program provides students access to mentors, legal experts, venture capitalists, and a network of like-minded peers. Sparklab Program Manager Thomas Parmer recently graduated from IU where he earned a Ph.D. in Complex Systems within the Luddy School of Informatics, Computing, and Engineering and cofounded the student group Ideation and Creation Entrepreneurs. Emmah Leu and Ben Frische are Client Managers within the Sparklab. Both Leu and Frische have participated in the Sparklab program as entrepreneurs–Leu with her clothing line Foster and Ozzy, and Frische with his clothing brand Bootlegs. Their personal passions for entrepreneurship and experiences in the program sparked their interest in working with Sparklab. As undergraduates at IU, Leu studies Marketing, Awad studies Data Science and Philosophy and Frische studies Finance.

The Basics of Sparklab's Incubation

Sparklab is designed to support student entrepreneurs regardless of the good or service they're seeking to provide. "Our students are working on business ventures across the spectrum, from AI-based tech companies, to consumer packaged goods, to social entrepreneurship, to creative industries, such as fashion and music," Parmer shares. "We accept startups from any industry, at any stage, and with any type of business structure."

As a startup incubator, Sparklab's primary goal is to equip students with the necessary tools, knowledge, and resources to do the work they're passionate about. And the team of Client Managers knows that the community is key.

Parmer says, "It's difficult to start and run a successful business, and providing students with this community greatly enhances their chances of success, as well as providing them with a robust professional network."

Participating in Sparklab

The most important prerequisite for joining Sparklab is a commitment to developing and progressing your business. "It's common for someone to start with only an initial idea, but then we expect them to continually and incrementally test and develop this idea throughout the semester," Parmer explains. "We require weekly updates from each student team, and we require that the team spends at least ten hours per week at the Von Lee space where the incubator is located. Additionally, we have weekly meetings where teams give updates on their progress to the group at large and receive feedback."

On the principle that collaboration is the backbone of entrepreneurship, Sparklab expects participating students to actively engage in the community. "For instance, several client teams have collaborated on organizing a golf tournament due to shared interests in their respective industries," Frische explains. "While events like this are not obligatory for participation in the Center, they exemplify the dedication of our clients to leveraging the opportunities provided by the Sparklab."

Supporting Student Entrepreneurs

Since Sparklab students come from varied backgrounds, it's especially important that there is a diverse and experienced range of client managers to match the students' needs. "I tailor my guidance to suit their circumstances as students balancing the pursuit of a degree and the launch of a business," Leu shares. "By fostering a supportive environment and providing access to resources, I aim to empower students in the program to fearlessly explore their ventures, embracing 'failure' as a pathway to learning and persistently pursuing their startup goals."

Frische describes coming to Sparklab in his junior year after making the hard decision to switch his major from Biology to Finance and move full force toward his goals. With just an idea, a few designs, and one Instagram follower–himself–Dr. Travis Brown welcomed him into the incubator with open arms. "I was nervous at first, but Sparklab proved to be an invaluable educational resource. Through the guidance of my client managers and the center's resources, I navigated the various stages of establishing my business, from customer discovery to product launch," Frische shares.

"We don't expect that students will necessarily be successful in their first business venture, or their first several," Parmer explains. "But I believe that the experience a student gains through the Sparklab program, as well as their network of peers and mentors, will help them achieve success later in life, whether they are self-employed or not."

PHOTOGRAPHY BY JAY GOLDZ

Travis J. Brown, Ph.D.

SHOEMAKER INNOVATION CENTER

Building solutions into startups at Indiana University

Between stints in corporate banking and life sciences leading operations, Dr. Travis J. Brown completed three degrees from Indiana University. In 2013, he was asked to return to the Luddy School of Informatics, Computing, and Engineering to build the Luddy Innovation & Entrepreneurship Program, which included the responsibility to establish and direct the Shoemaker Innovation Center. Indiana University’s Shoemaker Innovation Center provides academic programming for students focused on innovation and entrepreneurship to facilitate experiential learning. Made possible through a donation from John and Donna Shoemaker, the Center hosts talks from experienced entrepreneurs, workshops for technical skill development, mentorship, and a product development clinic. And Dr. Brown already has plans to expand and refine the Center’s offerings even more in the coming years. In his work at the Shoemaker Innovation Center, Dr. Brown has launched the Shoebox Incubation Program, which helps student entrepreneurs build, launch, and sustain their businesses. In tandem with that program is the Shoebox Fund, which gives financial support to student startups built in the Shoebox. (As of the Spring 2024 semester, the Shoebox is being rebranded to the Sparklab and has been migrated to IU Innovates.) In addition to these responsibilities, Dr. Brown teaches courses on design strategy, product management, technology entrepreneurship, and technology innovation. He also acts as a faculty advisor for the Ideation & Creation Entrepreneurs (ICE), Product Management Club (PMC), and Shoemaker Scholars. In 2016, Dr. Brown launched the Cheng Wu Innovation Challenge. “The challenge is focused on celebrating the development of technological innovations by students,” Dr. Brown shares. “I work in partnership with my colleagues across campus to ensure the development of a comprehensive mosaic of resources and services to collectively provide the infrastructure to support student inventors and entrepreneurs.”

Entrepreneurship & Higher Education

Dr. Brown is a firm believer that universities should provide entrepreneurship education and programming. “Entrepreneurship in an institution of higher education represents a vehicle for self-discovery,” he says. “Students learn tenacity, resourcefulness, and resilience. These are skills which transcend entrepreneurship as a career ambition–they are life skills that equip students to persist in the face of adversity.”

Donors and Their Role In Supporting Students

Donor support has been essential to making the programs at the Shoemaker Innovation Center possible. “I have been incredibly fortunate to have donors who not only support the programs I run through their generous contributions but also through their time and guidance on the Shoemaker Innovation Center’s advisory board,” Dr. Brown shares.

The Shoemaker Innovation Center has supported student inventors and entrepreneurs for over five years now. This program would not be possible without the support of Donna and John Shoemaker. “They have been instrumental in enabling the Luddy School to work in partnership with the Kelley School in the fostering of students from across disciplines moving beyond pitching their ideas and get to building their solutions,” Dr. Brown explains.

Complementary to the Shoemaker programs, Cheng Wu has made significant contributions to the Luddy School of Informatics, Computing, and Engineering. “Cheng has enabled the Luddy School to clearly establish the mission of the Luddy Innovation & Entrepreneurship Program as being focused on the development of radically innovative technologies,” says Dr. Brown. “The Cheng Wu Innovation Challenge and Fellowship have provided the programming necessary to guide students as they work to invent the technologies of tomorrow.”

The Future of the Shoemaker Innovation Center

While the Shoemaker Innovation Center’s goal remains the same as it always has been — supporting students moving from idea to implementation — Dr. Brown hopes to hone the focus of the Shoemaker Innovation Center to support technological innovation and product development.

“The center will be more tightly coupled with the overarching strategic mission of the Luddy School and continue to play an integral role in the student entrepreneurship ecosystem,” Dr. Brown shares. “Toward that end, the Shoemaker Innovation Center now serves as the home of the Luddy Innovation & Entrepreneurship Program, and I am in the process of working with my colleagues to develop a clinic that will expand the programming that we already support through the Cheng Wu Innovation Challenge and Fellowship.”

PHOTOGRAPHY BY JAY GOLDZ

“With Indiana aspiring to become a leading state for startup innovation, it’s crucial for IU to leverage this thriving ecosystem.”

INAUGURAL EVENT

ENTREPRENEUR SUPPORT

Melanie Beldock

STARTUP CAREER FAIR

An exclusive career fair for future pioneers and innovators at IU

Melanie Beldock serves as Associate Director of Employer Relations at the Kelley School of Business. Her primary goal is to connect employers with the incredible talent at IU. In her frequent conversations with students seeking employment, she noticed a recurring theme–a strong desire for more opportunities to connect with startup companies. This sparked an idea from Beldock: a startup-dedicated career fair. "Startups often have distinct hiring needs compared to established organizations," Beldock explains. "I envisioned an event specifically tailored to connect students with exciting opportunities in the startup world." And, by connecting young, blossoming companies with the innovation-minded students at IU, that's exactly what this event achieves.

The Inaugural Event

The inaugural event, which took place on March 1, 2024, featured a guest speaker, a panel discussion, and a two-hour networking session. Twenty-five companies in various fields were present, offering opportunities ranging from internships to full-time jobs.

The Fair began with a talk from Gus Bessalel, author of *The Startup Lottery,* and a panel of seasoned alumni founders like Drew Kincius, founder of Sprintable. Following the talk, attendees had the opportunity to network with startups and explore open positions.

The startups attending varied in their focuses, from creating more sustainable waste management solutions to spearheading the next generation of blood testing. The common theme among them all was a fast-paced, dynamic environment where the smallest of ideas can make large differences.

Following the event, the startups communicated how impressed they were by the attending students. "The companies consistently mentioned the students' high caliber and the level of preparation they demonstrated," Beldock shares. "Many students came to the event already knowledgeable about the companies and their founders, which really set a positive tone for the conversations."

The Students

Over 150 students interested in working for a startup attended the 2024 fair. "Students who seek roles where they can deeply influence outcomes, thrive amidst ambiguity, and possess a proactive 'make it happen' mindset are exceptionally suited for startup environments and thus our career fair," Beldock shares. "The allure of startups lies in the opportunity to contribute to transformative ventures from their inception. Moreover, startups foster a dynamic atmosphere where employees are frequently tasked with diverse responsibilities, providing invaluable learning opportunities not typically found in established organizations."

Wins and Takeaways

Beldock felt the biggest win for the event was the dedicated cross-college and departmental collaboration it fostered. "It took a true team effort from across Indiana University, and that spirit of unity was something special," she shares. "It was exciting to witness new networks forming and doors opening for future collaboration."

"From the outset, I collaborated closely with faculty across several departments at Indiana University, including Kelley, O'Neill, Jacobs, and Eskenazi," Beldock says. "Many others were instrumental as well, including Julie's team at IU Innovates, Nate from facilities, my team at Kelley Career Services, and our colleagues at Luddy."

Beldock also enjoyed watching relationships form within the entrepreneurial ecosystem at IU. "I remember one faculty member was surprised at the impressive range of founders they hadn't previously met," she continues. "With new networks forming and doors opening for future collaboration, the event delivered value on multiple levels for everyone involved."

The Future of the Startup Career Fair

"I'd like to express my sincere gratitude to everyone who helped make this Startup Career Fair such a success," Beldock says. "It was a true team effort–we built this event from the ground up, and the combined efforts of faculty and staff were instrumental."

The next Startup Career Fair is in the works and will occur during the fall recruiting season. The Careers team is building on the momentum of the event and planning to come back even bigger and better.

"We are excited to grow into a comprehensive event that fully embraces and highlights the myriad ways students can immerse themselves in the startup community, gaining insight into its inner workings," Beldock shares. "Startups are the engines of job creation, propelling our economy forward. With Indiana aspiring to become a leading state for startup innovation, it's crucial for IU to leverage this thriving ecosystem, guiding our students to seize opportunities at the forefront of one of the primary catalysts of the US economy."

PHOTOGRAPHY BY JAY GOLDZ

Will Emigh

ENTREPRENEURSHIP & GAME DESIGN

Offering real-world entrepreneurship experiences through game design

The Bachelor of Science in Game Design at Indiana University is a unique four-year degree that emphasizes both the technical and creative skills necessary for professional success in the field. The degree culminates in a two-year capstone that takes students through an invaluable real-world game design experience, from concept to publishing. Will Emigh holds a B.S. in Computer Science and B.S. in Philosophy from North Carolina State University and an M.S. in Telecommunications from Indiana University. In 2006 he co-founded the gaming company, Studio Cypher, and in 2013 he joined Indiana University as a game design lecturer. He is now the Director of the B.S. in Game Design–a program that directly reflects his comprehensive experience of professional game design.

Bachelor of Science in Game Design Capstone

In a two-year capstone project for the B.S. in Game Design, student teams work together to form companies and publish a video game. Emigh sees the extended project as a critical aspect of the experience. “It gives students a real stake in figuring out and dealing with problems in a way that is just impossible with a group that will disband at the end of the semester,” he says.

The first year of the capstone is spent building concepts and working through the pre-production phase. By the end of the initial semester, students have formed into teams, and, together, they have polished their prototypes and pitches. In the department’s “Game Design Shark Tank” students pitch their ideas live in a Shark Tank-style format to industry professionals. “Based on feedback from the professionals, we usually cancel about half the projects and end up with four slightly larger teams with the most promising ideas,” Emigh explains. “At this point, the teams flesh out their concept and prototypes until they have a solid design document and timeline.”

In the second year, Computer Science students join the teams to help complete the concepts, polish the games, and add more content. Students discuss work structure, file legal paperwork, and think through their goals. “Filing the paperwork with the state to make it official not only makes it easier to get a bank account and publish their game through online stores, it makes the students true professionals in that they are working not just in a class but for their own company,” Emigh explains. “We often talk about game development as a marathon and not a sprint, and forming companies is a core way of communicating that to students.”

Game Design Shark Tank

The Game Design department’s annual “Game Design Shark Tank” gives classroom work real-world stakes. “They present themselves and their ideas to luminaries in the industry that they hope to join,” Emigh shares. “It is nerve-wracking ahead of time, but the experience leaves students confident that they can present to anyone. Broadcast live, the *Shark Tank* is also a great way to showcase our program to the world and give our alumni insight into how the program has progressed.”

Low Risk, High Reward

One of the greatest benefits of Indiana University’s game design program is that students can experiment in the high-risk world of game entrepreneurship in a low-risk situation. As students, they have an entire university and department to back them up and shoulder some of that burden.

“We had one student group who pitched a concept focused on AI-generated art in 2021,” Emigh explains. “Grappling with the technical and legal issues surrounding AI and art over the two years of their capstone gave them a huge head start when the concept burst into the mainstream in 2022.”

A Student’s Journey Learning Entrepreneurship

Emigh has the opportunity to witness a real metamorphosis in these students over their education. “The biggest change is how students go from thinking of themselves as a ‘student’ to understanding that they are already professionals in the industry,” Emigh says. “They take this very seriously, as they should, and it helps them focus on what’s most important for building their skills and network.”

Emigh wants students to internalize that, in that classroom, they’ve already started their careers. The experiences students have in these courses at IU will be instrumental to their future work, even if they end up not in entrepreneurship after graduation. He says, “Having worked in and run a small business gives them the confidence and knowledge to make a difference even early in their careers.”

Dr. David Wild & Isak Asare

INNOVATION FOR IMPACT

Developing solutions to national, real-world problems

Innovation for Impact is a university course sponsored by the U.S. Government that matches teams of students with emerging real-world problems related to national issues. Available at sixty universities nationwide, the program was brought to IU in 2020 by Isak Asare, Scott Shackelford, and Esfan Haghverdi. The research and work of the Assistant Dean for Undergraduate Affairs and Co-Director of the Cybersecurity and Global Policy Program, Isak Asare, is at the intersection of emerging technologies and policy. Asare sought to bring the program to IU with the recognition that finding solutions to critical problems facing the world needs unique solution mechanisms. Professor of Informatics and Computing Dr. David Wild joined the initiative a few years after IU started offering the course. An expert in applying data technologies to complex areas like healthcare and cybersecurity, Dr. Wild is incredibly passionate about providing students with experiential learning experiences with real impact. A few notable projects created in the program are an app designed to help the National Guard better manage its cybersecurity talent and matching processes, a new online strategy for a large national park, and an app to address food insecurity on military bases.

Interdisciplinary, Experiential Learning

Asare's original focus in implementing the program was to integrate high-impact, experiential learning into the curriculum of their cybersecurity programs–the MS in Cyber Risk Management and the BS in Cybersecurity and Global Policy. "We wanted to give students who had strong public service ethos, combined with strong tech skills, the opportunity to solve real-world problems in a classroom setting," Asare says. "The program did much better than we could have expected–I believe we are one of–if not the–largest programs in the country regarding student participation. Students have done some incredible projects."

The Innovate for Impact course is built on the lean startup methodology, a system focused on experimentation and feedback. "You start with lots of calls with people involved in this problem so you can understand from all different angles: why it's a problem, why it hasn't been solved, what people think the solution might be, and then identify a way you can solve this problem," Dr. Wild shares.

From Idea to Funded Venture

The Innovate for Impact program has given students incredible connections and resources. "We have worked with many senior leaders across government and non-profit sectors," Asare shares.

There are multiple pathways students can further their businesses after completing this course. "Students can look to government sources for funding or further development of their business plans or prototyping their products," Asare explains. "We also emphasize dual-use technology–even better than being able to solve that problem for the US government is being able to solve that problem for other people as well."

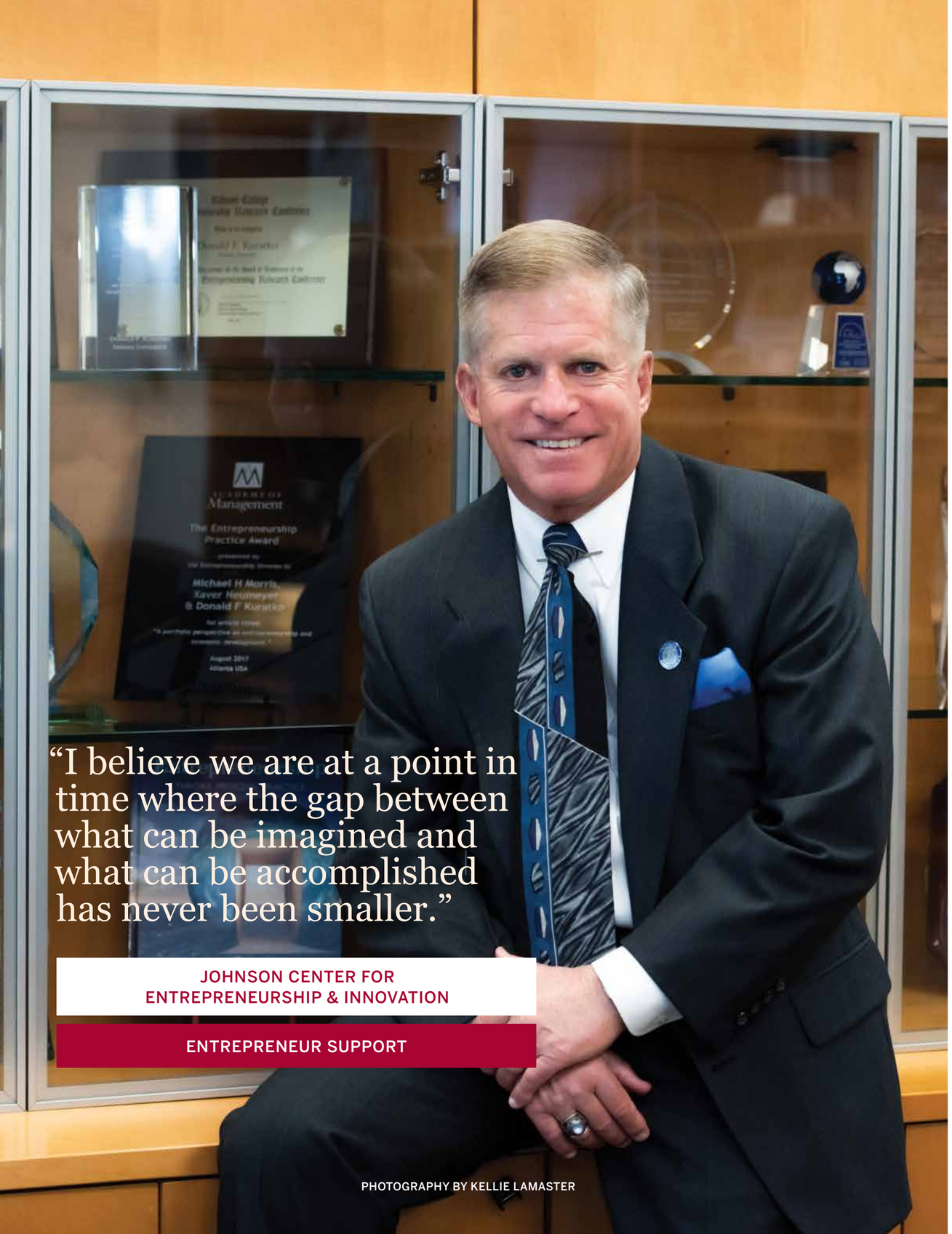
From incredible job offers to starting their own companies, Innovation for Impact prepares students for an exciting and rewarding post-grad life.

The Future of Innovation for Impact

Dr. Wild and Asare see the tangible impact this program already has on real-world issues. Now, they hope to streamline this process so innovation doesn't stop at the end of the semester. "For the students who want to create a new startup, we want to make it as easy as possible for them not just to take this idea and try it as a business idea but to see it through to at least seed funding," Dr. Wild says.

Dr. Wild and Asare hope to see this proven formula for problem-solving expand into even more fields in the future. Asare shares, "At this stage in the development of this program, we are really looking to shore up and expand these support mechanisms to support the bold vision of IU 2030 of doubling the number of startups produced at IU."

PHOTOGRAPHY BY JAY GOLDZ



"I believe we are at a point in time where the gap between what can be imagined and what can be accomplished has never been smaller."

JOHNSON CENTER FOR ENTREPRENEURSHIP & INNOVATION

ENTREPRENEUR SUPPORT

PHOTOGRAPHY BY KELLIE LAMASTER

Dr. Donald F. Kuratko

TEACHING THE ENTREPRENEURIAL MINDSET

Teaching World-Class Entrepreneurship at the Kelley School of Business

The Kelley School of Business boasts an expansive and demanding collection of degrees in entrepreneurship. Undergraduates studying business are offered a Major in Entrepreneurship & Corporate Innovation, while non-business majors can pursue a Minor in Entrepreneurship or a Cross-Campus Customized Certificate in Entrepreneurship. On a postgraduate level, the Kelley School offers an MBA in Entrepreneurship & Innovation and a Ph.D. in Entrepreneurship & Corporate Innovation. Prominent scholar and national leader in the field of entrepreneurship Dr. Donald F. Kuratko, known by his students as Dr. K, has been spearheading this curriculum with the Kelley School for twenty years while also working to establish the school's presence in Silicon Valley. "I formed a West Coast Advisory Board years ago that has blossomed into a twenty-member board," Dr. Kuratko explains. "We are able to bring students out to them for presentations, and immersions into the Valley ecosystem." This collection of incredible opportunities has garnered praise across the country. The Kelley School was named #1 University for Entrepreneurship Research by the Journal of Small Business Management and the World Rankings for Entrepreneurship Productivity. The school was also named among the top five undergraduate and graduate business schools for entrepreneurship by the U.S. News & World Report.

Model Entrepreneurship Program Award

In 2023, the Kelley School's entrepreneurship program won the Model Entrepreneurship Program Award from the United States Association for Small Business and Entrepreneurship. The honor is given to the institution with the highest caliber educational program for future generations of entrepreneurs.

"I think an award like this is sort of like the Good Housekeeping Seal of Approval," Dr. Kuratko says. "It says to incoming students that, if you're interested in an entrepreneurial mindset or being innovative even in organizations, this is the school for you. Not only did we think we're good, but now the world thinks we're good."

Entrepreneurship is one of the core pillars of the Kelley School of Business and the university. This award recognizes not just the Kelley School but every member of the staff, faculty, and student body who has spent the previous decades shaping the entrepreneurship program into the accomplished, storied program it is today.

Entrepreneurial Alumni

Dr. Kuratko has been provided with a plethora of testimonials for the Kelley School's entrepreneurship program. Derek Pacqué, BS Entrepreneurship Class of 2011 and founder of custom coat check service, Chexology, shares the invaluable experiences gained in the program. "Looking back, starting my company with a full course load created an environment where new education was applied in real-time," says Pacqué. "The culture in Kelley's Entrepreneurship program was that of mentorship and encouragement to take risks, which made it all possible. It is the foundation of the success of our company." Blake Sorensen, MBA class of 2018 and founder of allergy-friendly snack brand Blake's Seed Based, also shares his experience forming his company in a Kelley School class. "At the Kelley School, I got a top-notch education, made lifelong friends, and created a business along the way," Sorensen says. "I owe everything to the IU MBA program and the support of my classmates, professors, and the rest of the Kelley MBA support staff. I cannot recommend the IU MBA program enough."

The Increasingly Essential Entrepreneurial Mindset

Studying in the IU entrepreneurship program exposes students to not just theory but also process and practice. By truly understanding every level of entrepreneurship, students can develop what Dr. Kuratko believes is essential for the modern age: the entrepreneurial mindset.

According to Dr. Kuratko, organizations increasingly recognize the importance of an entrepreneurial mindset in any field, which has led to an exponential growth of opportunities across disciplines.

"Entrepreneurship is the new revolution, and it's about disruptive innovation and creativity. It is the future of our world economy," Dr. Kuratko says. "I believe we are at a point in time when the gap between what can be imagined and what can be accomplished has never been smaller."

According to Dr. Kuratko, entrepreneurship and innovation have forged the way through every economic challenge. "Entrepreneurship and innovation are the results of individual innovation, passion, and tenacity," Dr. Kuratko explains. "That is something that cannot be legislated, media-created, or bought. It is deep within individuals who develop an idea, create the business model, and then work relentlessly to grow the venture."

PHOTOGRAPHY BY WENDI CHITWOOD

Charlie Edmonds

POCKET METHODS

Making early instrumental music education more accessible through Black culture

Multifaceted music teacher and Ph.D. student in Music Education, Charlie Edmonds is an unwavering advocate for building equitable learning experiences. “After six years of teaching as a middle school band director in a predominantly Black community that had experienced centuries of racial and economic trauma, I realized that I had come to the end of the work that I, alone, could do in a single classroom,” Edmonds shares. “I began pursuing a Ph.D. in Music Education and have conducted research that focuses on urban music education and teacher preparation for urban school music programs.” After seeing a flyer for IU’s Innovation Competition at the Jacobs School of Music in 2020, Edmonds found herself brainstorming ideas that could innovate teaching for band directors and students. The next year, Edmonds won the Innovation Competition with her newfound idea for an instructional system for beginner bands that uses Black gospel music, Pocket Methods. “In my first year of the doctoral program,” Edmonds recalls. “I had unknowingly sparked an interest in entrepreneurship that would beautifully compliment and drive my research in urban music education.”

Why Choose Entrepreneurship?

In support of her long term goals for improving education, Edmonds noticed that entrepreneurship has a unique ability to intensely target specific problems. “While I enjoy research and discussing problems from multiple angles and methods,” Edmonds explains, “I have seen that entrepreneurship combines with research to bring the needed innovation to life.”

Pocket Methods’ Mission

Even though Black culture is foundational in music from the United States, these traditions have largely been omitted from contemporary method books and digital materials for classes in beginning band and beginning orchestra. “When a teacher wants to teach a beginning instrumental music class using Black music genres, the teacher—already limited on time and grossly underpaid—would need to write the songs and exercises themselves or go searching deeply for something to use,” Edmonds explains.

“Students in their first year of playing likely experience no Black examples at all. I found that many of my Black students would express that band is not ‘for them,’” Edmonds shares. “Pocket Methods, LLC works to fill this longstanding gap for Black students and for all students, regardless of racial or ethnic background.”

Finding Motivation When Entrepreneurship Gets Overwhelming

Edmonds’s guiding motivator is her purpose of making music education more accessible and equitable. “I remember that it’s much bigger than me,” she says. “I’m a person of faith, so I go into prayer for strength to keep going with what I believe I’ve been assigned to do.”

She also considers her former middle school students. “Intentional material like Pocket would have blown them away!” Edmonds gushes. “I’m finally getting the chance to develop what I wish I had when teaching, and I consider that a unique opportunity that I want to steward well.”

Entrepreneurial Stage

Edmonds has already launched Pocket Method’s website containing pilot materials–just the beginning of what she plans to develop. Using a survey on the website, Edmonds can get direct feedback from educators on the material. Until its official launch, Edmonds is refining Pocket’s curriculum, adding historical context to the exercises, and working on building a strong web and mobile platform.

The Gratifying Moments

As an educator herself, Edmonds’s most gratifying moments have been seeing music teachers get excited about the possibilities of this resource. “I have felt that instrumental music learners at the beginning level have long needed Pocket Methods, and it is a joy to see that same feeling reflected back to me from the teachers,” Edmonds explains. “I’m greatly looking forward to watching students have fun with this.”

Mentors

Throughout her entrepreneurial journey, Edmonds has had an incredible network of mentors. Edmonds specifically cites Dr. Alain Barker, Richard Millunchick, Andy Lehman, and the staff at the Sparklab Incubation Program as just a few of the people who were essential in the development of Pocket Methods.

Long-Term Business Goals

“Within three to five years, I aim to have Pocket Methods in 12,900 schools–about ten percent of the US school market, fifty university music education departments, and 1,600 private lesson learners,” Edmonds explains. “After the first year of revenue, I will host an annual teacher professional development conference where music educators can come and have a space to discuss equity in music education, urban music education, strategies for the use of Pocket Methods, and work with an honor band of students in a lab setting to apply instructional techniques.”

Advice for Students Considering Entrepreneurship

To successfully launch a startup, Edmonds believes that the key is truly caring about the issue you’re working toward solving. “The amount of work it will take–the hours of juggling school work, employment to live, and a business–must be worth solving your problem.”

Edmonds also encourages everyone to connect as much as they can with the mentors and resources available to them–for Edmonds, that made all the difference.

POCKETMETHODS.COM

Ned Bingham, Ph.D.

BROCCOLI

Solving challenges for signal processing in Aerospace and Defense

Ned Bingham's work building the next generation of computer processors began in 2012 as an undergraduate research project, and it carried through his Ph.D. in 2020. Through his direct experience, Bingham was struck by the lack of community and progress in this rather small and specialized field. This observation led Bingham to IU to pursue his MBA to gain the necessary knowledge and skills to commercialize his research. "As part of the MBA, I've been able to develop the business strategy and financial plan, draft and submit a grant proposal to the National Science Foundation, and make local connections in both government and industry." Bingham's venture, Broccoli, is developing a specialized processor to solve signal processing issues in Aerospace and Defense while accelerating development time and cutting costs.

Why Choose Entrepreneurship?

Following his Ph.D., Bingham knew the global impact his research could have but wasn't able to find existing opportunities that would allow him to continue pursuing that work. "From there, it was quite straightforward," Bingham says. "If there was any hope in realizing that impact, the only way to do it was through my own venture."

Broccoli's Mission

"Signal processing problems in Aerospace and Defense like radar and electronic warfare need specialized high speed and low energy processors," Bingham explains. As of right now, the only available solution is a Field Programmable Gate Array (FPGA). Which, according to Bingham, "is extremely difficult to program and requires specialized circuit design expertise."

"These problems represent the tip of the spear for modern warfare and are subject to what is effectively an arms race. Therefore, these algorithms must be updated often, and development time represents the most significant cost in this process. Broccoli is developing a specialized processor much like an FPGA that is software programmable to alleviate this cost and accelerate development time."

Finding Motivation When Entrepreneurship Gets Overwhelming

More often than not, the experience of developing Broccoli has been overwhelming, so Bingham just keeps his attention on what can be done right now. "I simply focus on the next task in front of me and recognize that I cannot do everything," he explains. "I know that I am making positive and meaningful contributions both to my niche community of practice and to my local community with the open lectures and open source tools I am developing in the process."

Entrepreneurial Stage

Bingham is currently in the works to design and market the product. "Designing a new processor is a long process that requires specialized tooling and expertise, and the design methodology I have chosen struggles with both of those," Bingham shares. "I am in the process of developing that specialized tooling, and teaching that expertise to the local community."

The Gratifying Moments

Bingham has found joy in the skills and relationships built throughout his entrepreneurial journey. "I have really enjoyed teaching what I know to the people around me," he says. "I know that I can have a direct impact on their lives and that I am creating connections that will last."

Mentors

Bingham cited several mentors as essential to his development of Broccoli. "My Ph.D. advisor, Rajit Manohar, has guided my work from day one and will continue to be an integral part of my development," he shares.

Bingham mentioned Heath Murray, Andy Lehman, Richard Millunchick, and Dr. Donald Kuratko as incredible mentors for networking, grant applications, and company formation, as well as Greg Sapp and Derek Whitley for guidance through government processes.

"My family, friends, and community members have all been there to support me," he says. "I owe any progress I've made to all of these amazing people and I hope that I can continue to be so lucky–I do my best to pay it forward every day."

Long-Term Business Goals

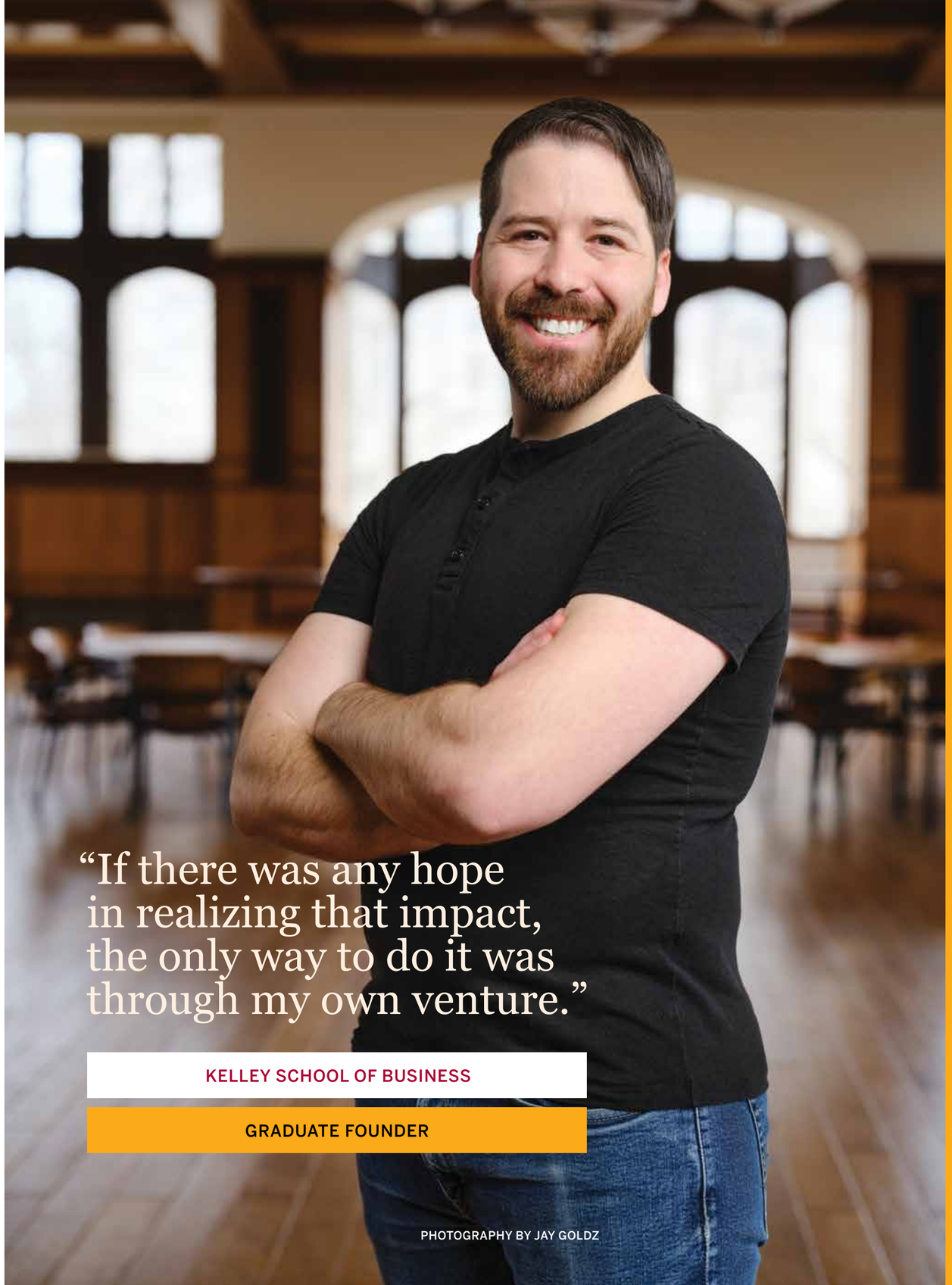
Bingham is anticipating a major shift in the computer industry from Reduced Instruction Set Computers (RISC) to Complex Reconfigurable Instruction Set Computers (CRISC). "This could mean orders of magnitude improvements in CPU and GPU performance and energy efficiency, but existing companies are struggling to make this happen with FPGAs," Bingham explains. "I hope to make this paradigm a reality."

Advice for Students Considering Entrepreneurship

Bingham encourages entrepreneurs to focus on small-scale, consistent progress. "Grit and resilience are the most important skills," Bingham says. "Break down impossibly large problems into bite-sized tasks, and focus on only the next three steps."

In the sea of advice on entrepreneurship, Bingham believes an important skill is being selective. "Ensure you know the right direction," he shares. "Learn everything you can, but in the end, you need to choose what's right for you."

BROCCOLIMICRO.IO



PHOTOGRAPHY BY JAY GOLDZ

CELLADORE PROTOTYPE

Jamie Tagg

CELLADORE

Revolutionizing the sound and potential of a cello solo

Solo cellists play on risers. And each riser is always a little different from the others, which matters specifically because the physical podium uniquely impacts the cello’s tone and volume. This means the same instrument will literally sound different from place to place. It’s a problem that Associate Professor of Music, Audio Engineering and Sound Production Jamie Tagg ran into while working for a professional orchestra in 2013. The orchestra was playing in an unfamiliar venue that had no podium at all for the cellist’s solo. The instance made Tagg painfully aware of the precariousness of these risers, and he decided to take on the challenge and set out to construct a podium on his own. Using his experience in acoustics and carpentry, Tagg designed a riser that complements and enhances the sound of a cello, eliminating a cellist’s need to constantly change how they play in every performance location. Celladore, an acoustically optimized and modular cello podium, makes the instrument louder and clearer for the audience and performer alike. Tagg began developing the idea in 2013 and secured an official patent for the design in 2022. Now he is focused on making Celladore the industry standard for cello risers–he’d like to put one in every major orchestral performance venue around the globe!

Prototypes

Tagg was nervous about how cellists would respond to this new product. “Musicians spend thousands of hours practicing a certain way and connecting with a specific instrument,” he says. “Anything that changes that interaction physically takes adaptation on the part of the performer.”

Fortunately, the response to the invention has been very positive. Tagg specifically remembers one cellist’s reaction to a colleague playing on the Celladore. “They came up to me after the first rehearsal test run and said, ‘That’s the first time I’ve ever been able to hear the soloist all the way through the piece. This allows us to connect and play with them more cohesively,’” he shares. “It went beyond my wildest dreams to learn it also had implications for improving the performance quality of the ensemble!”

Patents

Tagg recently acquired a patent for Celladore. “It lends credibility to the design and deters ineffective copycat designs,” he explains. “Of course, it’s also a wonderful addition to the accolades that can earn a faculty member promotion.”

“This is my first patent and has been a lifelong goal,” shares Tagg. “I’ve always found small ways to innovate in my industry, but this marks a significant accomplishment and will protect the intellectual property of the design as I commercialize the podium design and attempt to put it out into the world.”

Advice for Faculty Pursuing Entrepreneurship

Tagg’s biggest piece of advice for aspiring entrepreneurs is to just start. “It’s okay not to have the full picture or path forward,” he says. “There is a wonderful community and ecosystem here in Central Indiana which we, as IU people, are connected to.” Tagg encourages a perspective of childlike curiosity when pursuing entrepreneurship. “The more fun I could foster while working at it, the faster I learned,” he explains. “In some ways, I expected to fail at every step, so every time something worked out—which I am fortunate that it did frequently—I was surprised and delighted.”

Support from IU and Startup Community

Tagg believes that interaction with the community is critical for successful entrepreneurship. “It’s so easy for us to stay in our academic bubble, and this can be really limiting when trying to commercialize to a national or international market,” he says. “Having the connection to The Mill and other resources was essential for me to get the perspective I needed on how things happen out in the real world.”

Tagg is also incredibly grateful for the option he had to take a sabbatical to put more focus on this idea. “I could not have realistically gotten the company established or commercial prototype developed without that release from teaching, committees, and the other creative work I am expected to produce.”

The Mill and IU Innovation and Commercialization Office (ICO) were incredibly important tools that Tagg took advantage of. “These resources are a bridge to a much larger, highly supportive, and collaborative community of entrepreneurs who can provide training network contacts, and often free resources and programs to help you on your journey,” he shares. “Look into programs like the ICO’s Faculty Startup Accelerator, gener8tor’s gBETA programs like Main Street, attend some regional pitch competitions, and get to know some of the good folks like Pat East and Andy Lehman at The Mill.”

"My hope is that not only will the innovators at the forefront of this technological revolution jump at the opportunity to explore AI's potential, but all of IU will dive deeply into its use."

ALGORHYTHMS

ENTREPRENEUR SUPPORT

PHOTOGRAPHY BY JENNIFER WILSON-BIBBS

Alain Barker

AI TECH MUSIC POP-UP SUMMIT

Exploring the impact of artificial intelligence on the music industry

The Jacobs School of Music's AI Tech Music Pop-Up Summit, AlgoRhythms: The World of Music and AI, occurred in March 2024 and provided a platform to showcase current trends related to music and artificial intelligence. The in-person and virtual event featured four panel discussions with leading industry experts, performances, networking opportunities, and poster sessions with students at the Jacobs School. Alain Barker, originally from South Africa, moved to the US in the 1980s to pursue his master's and then his doctorate at IU, where he now serves as the Director of the Office of Entrepreneurship & Career Development at the IU Jacobs School of Music. His experience includes arts organization development, arts research, communications and marketing, teaching, and performance. Drawing from his extensive experience, Barker banded together with a large and interdisciplinary team to make the AlgoRhythms summit happen. "I had the opportunity to attend last year's Music Tectonics conference in LA, organized by Bloomington-based company Rock Paper Scissors, and was inspired by what I saw in the fast-moving arena of generative AI," he shares. "After forming a small team of IU and Bloomington innovators, we set about designing a similar 'summit' that would showcase current trends related to music and AI."

The Fast-Moving and Collaborative Arena of Generative AI

"While there are concerns with the emerging technology, I was amazed by the range of creative tools on display and the excitement about how this tech can help with areas of music production, data analysis, marketing, and collaboration," Barker says. "It's clear that generative AI is propelling a new era in creativity and production that is going to assist millions, if not ultimately billions, of music producers around the world."

The hot-button topic of AI is not bound to any specific discipline. "For this reason, we embraced a wide range of perspectives while keeping our focus on music and AI," Barker explains. "IU units and community organizations involved were the Jacobs School of Music, the Maurer School of Law, the Luddy School of Informatics, Computing, and Engineering, the Eskenazi School of Art, Architecture, and Design, the O'Neill School of Public and Environmental Affairs, and the Dimension Mill."

Sparking Innovation

The overarching goal of the summit was not only to inform but to inspire. "While organizing the summit, I became aware of an ever-expanding network of creatives and researchers involved in exploring its potential, studying its impact, and establishing legal paths for its use," Barker shares. "My sense is that the concentric circles of activity, including that of the Arts & Humanities Futures group, the phenomenal work by students and faculty at Jacobs, Luddy, Eskenazi, and others, will continue to reveal how impactful AI will become."

"My hope is that not only will the innovators at the forefront of this technological revolution jump at the opportunity to explore AI's potential, but all of IU will dive deeply into its use," Barker says. "The changes AI will bring to the world are vast and profound, and it's in all of our interests to establish how the IU community can participate in the emergence of the technology."

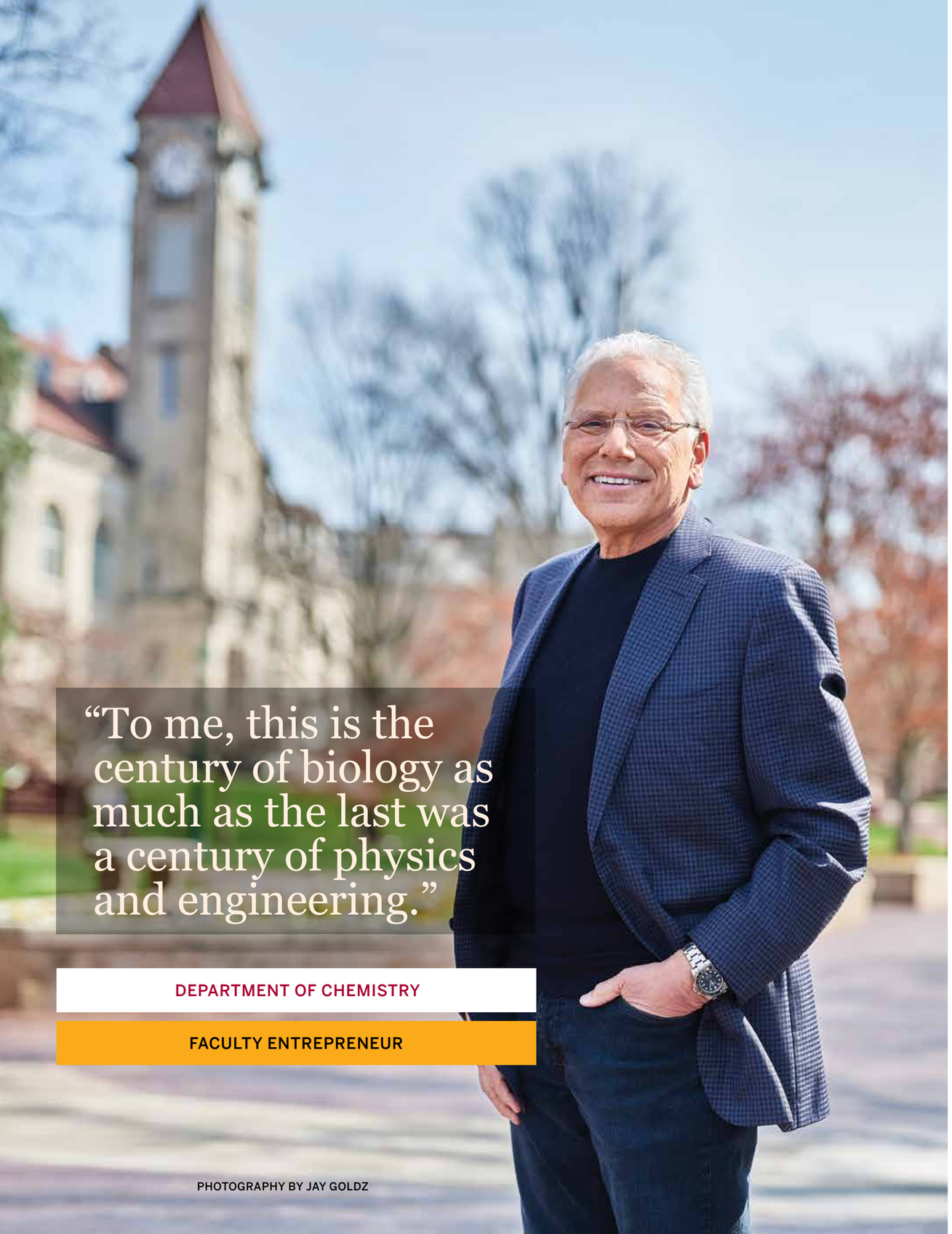
The Future of Entrepreneurship at IU

Barker believes IU is teeming with talent and opportunity. "With changes in technology upon us, new leadership, and the pressure for IU to be mindful of its place in Indiana and our society in general, we're on the cusp of extraordinary opportunities that can define the character and purpose of our organization for years to come," he says. "I'm particularly excited to see the formation of IU Innovates, led by Julie Heath, that is quickly showing how it can become a catalyst for impactful and innovative projects by enhancing and supporting creative connections between units on the IU Bloomington campus."

Barker hopes that the pop-up summit encourages similar events and efforts across all disciplines within the university. "It's encouraging to know that the arts and humanities are folded into this larger ecosystem, enabling Indiana University to bring unique and important perspectives to innovation."

Watch the four Panel Discussions on Emerging Tools, Startups, Creativity in AI, and Changes in IP

PHOTOGRAPHY BY ELLA TORRES



PHOTOGRAPHY BY JAY GOLDZ

Dr. Richard DiMarchi

MBX BIOSCIENCES

Developing groundbreaking therapeutics to treat endocrine disorders

MBX Biosciences is pioneering a new era of peptide therapeutics to help people with endocrine disorders live fuller and healthier lives. Co-founded in 2019 by Dr. Richard DiMarchi, Kent Hawryluk, and Tim Knickerbocker, MBX Biosciences has received over $150 million in funding to research rare endocrine diseases. The company is built on the chemical technologies invented in the laboratory of Indiana University’s Distinguished Professor of Chemistry and Gill Chair Dr. Richard DiMarchi. No stranger to founding a company, he has founded or co-founded seven other successful biotech companies: Ambrx, Marcadia, Calibrium, MB2, Assembly, Ghrelco, and Bluewater. “These start-ups have been built upon the advances in macromolecular medicinal chemistry applied to novel drug targets that offer transformative advances in treating a variety of human diseases,” Dr. DiMarchi says. “My laboratory has been at the forefront of developing novel methods in peptide synthesis and their use in identifying novel drug candidates, some of which have evolved into breakthrough drugs.” Dr. DiMarchi’s research has broadened the understanding of glucagon physiology and the discovery of single-molecule multimode agonists for treating diabetes and obesity. His career contributions are numerous and renowned. He is a co-inventor on over one hundred U.S. patents and the co-author of more than 250 peer-reviewed publications. He is also a recipient of the 2024 AAAS Bhaumik Breakthrough of the Year Award for his pioneering research that laid the foundation for drugs that are transforming the treatment of obesity worldwide.

Precision Endocrine Peptides

MBX Biosciences is pioneering Precision Endocrine Peptides. These peptide therapeutics are engineered to have optimized pharmaceutical properties that Dr. DiMarchi believes will allow MBX to transform native peptides into innovative, groundbreaking therapeutics.

Some benefits to the Precision Endocrine Peptides are infrequent dosing, achievement of consistent drug concentrations, improved therapeutic index and enhanced exposure to target tissue, designed to achieve better treatment outcomes.

MBX’s products include treatments in clinical and pre-clinical stages for hypoparathyroidism, post-bariatric hypoglycemia, and obesity. With Precision Endocrine Peptides, MBX aims to deliver superior pharmaceutical properties and overcome the limitations of native peptide therapeutics.

The Century of Biology

Dr. DiMarchi’s career in the life sciences began before the medical application of cloning, which he believes turned the field on its head. “The emergence of biotechnology in the 1970s launched a transformation in biology that is now propelling our understanding of physiology, pathology, and pharmacology,” he explains.

“There are few things more important than health,” Dr. DiMarchi continues. “The advances in medicine of the last forty years have been turbocharged by this foundation in biomolecular science. To me, this is the century of biology as much as the last was a century of physics and engineering.”

The Future of Entrepreneurship at IU

Dr. DiMarchi would like to see Indiana University lean more into translational research, a form of research that aims to translate basic research into results that have a direct human impact. “This would return to society something tangible for the public financing of basic academic research,” Dr. DiMarchi says. “It also strengthens inventive research–the central ingredient that uniquely distinguishes the university’s capacity to contribute to society.”

Advice for Faculty Considering Entrepreneurship

Dr. DiMarchi encourages pursuing what excites you. “Everything I am working on thrills me or I would not be working on it,” he explains. “The most precious commodity in life is time–reject bureaucracy, as much like entropy, it is always increasing, hidden, and it zaps our creative spirit.”

“Like any field of professional endeavor, Entrepreneurship takes creativity, commitment, and the capacity to learn,” Dr. DiMarchi says. “Be realistic about what you wish to achieve, what is important to you, and what you are willing to sacrifice to make it happen–the essence of a successful strategy is as much about what will not be included, as what will be included.”

Dr. DiMarchi also recommends surrounding yourself with experienced individuals who you can turn to for advice. With creativity, commitment, and a network of experts, what you can accomplish is amazing. “It is possible to achieve the impossible; why aim for anything less?” he says. “Whether it is the discovery of stannous fluoride, cisplatin, burosumab, obesity peptides, or everything in between–discoveries at IU have touched a global community to transform health and instill prosperity.”

Elliot Androphy M.D.

KOVINA THERAPEUTICS

Developing antiviral therapeutics to treat HPV cancers and infections

While widely available and effective in prevention, the Human Papillomavirus (HPV) vaccine does nothing to treat existing HPV infections. Kovina Therapeutics, a preclinical-stage biotechnology company, aims to develop an antiviral treatment designed to stop HPV infections before they progress to cancers and to cure patients with HPV-induced malignancies. Elliot Androphy M.D., the founder of Kovina Therapeutics, is a Professor and former Chair of the Department of Dermatology at the Indiana University School of Medicine. After a postdoctorate fellowship at the National Cancer Institute and twenty-five years working at the Tufts Medical Center and the University of Massachusetts School of Medicine, Dr. Androphy's lab moved to IU, where he continued this research. Very quickly in his career, he discovered that small grants would not be enough for the work he wanted to accomplish. "Making new drugs is challenging and expensive. You need tens of millions of dollars to get from an idea to a clinical trial–that's a huge risk," Dr. Androphy explains. "Less than one percent of ideas become drugs. When you have that type of odds against you, you need investors willing to take that risk. And to get the investment, you need an infrastructure–you need a company."

Funding Innovation

Dr. Androphy is working through the hurdle of getting enough funding to reach the point of clinical trials. The unfortunate reality is that most investors want to support research that is ready for the clinic, but getting to those late stages will be very costly.

"I wish donors to the university would consider that even though these drugs are expensive, they have the real potential to save lives and make the lives of people who are afflicted with specific HPV-associated cancers or infections better," Dr. Androphy shares.

While Dr. Androphy has attained many small grants for the research, that is not enough to develop a drug from idea to reality–funding for this life-saving research is Kovina Therapeutics' biggest hurdle.

BrightEdge Entrepreneurs Program

The American Cancer Society has been sponsoring research for decades. Recognizing the incredible expenses involved with developing drugs, they started BrightEdge, a program dedicated to investing in startups doing cutting-edge work in cancer-focused therapeutics.

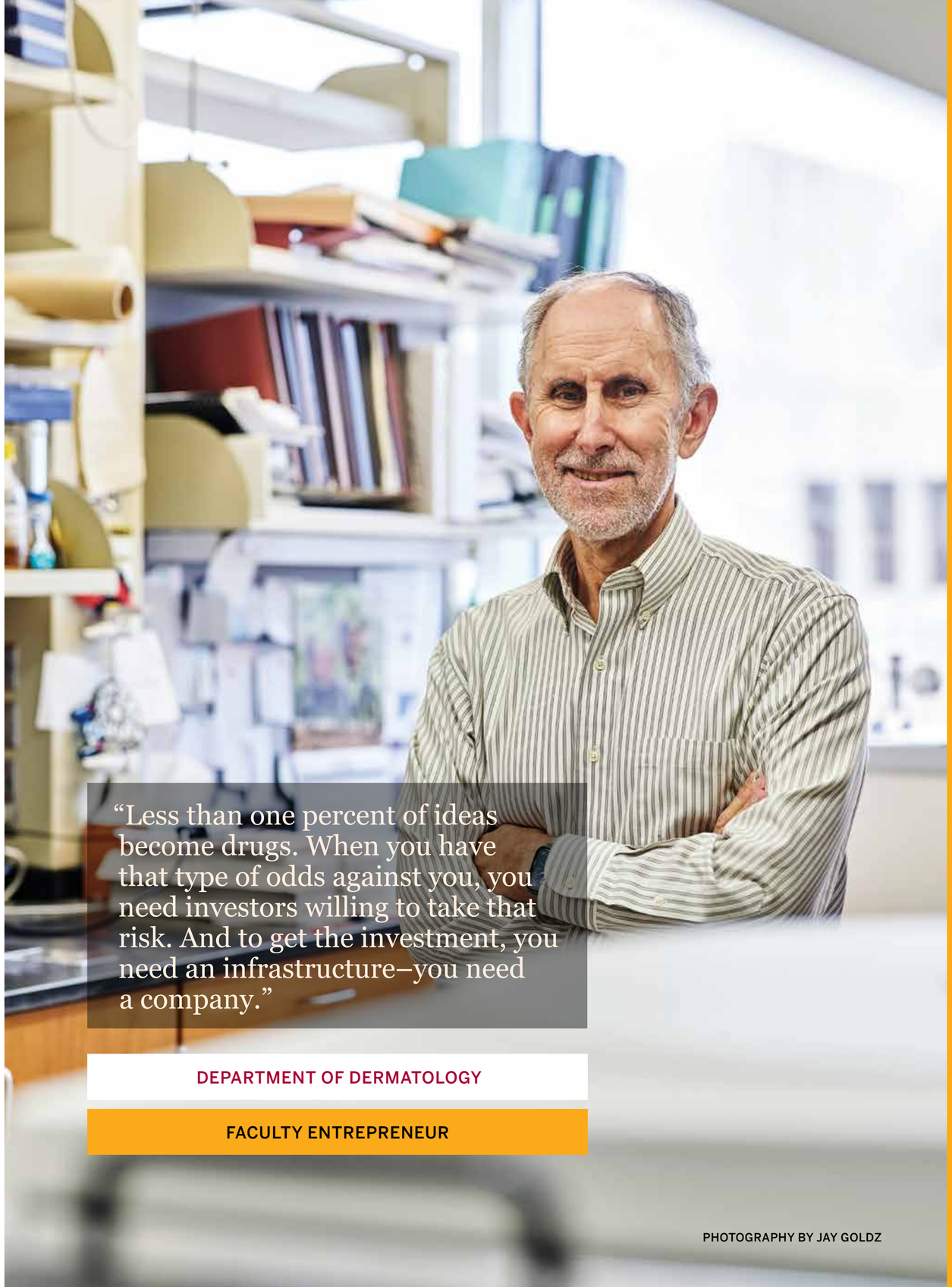
Dr. Androphy and the Kovina Therapeutics team competed nationally to be one of eight programs participating in the BrightEdge training. They were accepted with a grant into the program. "A two–or three-million-dollar National Institute of Heath (NIH) grant is just the tip of the iceberg for drug development," Dr. Androphy says. Along with the training, this program connects us to venture groups and potential investors, as well as the American Cancer Society's investment fund."

Advice for Faculty Pursuing Entrepreneurship

Dr. Androphy's primary advice for faculty pursuing entrepreneurship is to stay patient and persistent. "If you take it seriously and want to make it work, you have to be ready to devote a substantial amount of time to doing this," he says. "There are so many different aspects of running a business that you just don't have any clue about–especially if you're a scientist like me. It takes a lot of time, a lot of effort, and a lot of learning."

Dr. Androphy also recommends being very intentional about forming the leadership of your company. "I'm not a businessman, but when you're dealing with people's money, it is a business," he explains. "I spent a lot of time seeking the best leader–there's a lot of talent here in Indiana, which was very nice. Engaging those people is essential for forming a company. I can't do what our CEO does. Having those experienced connections early on is really essential for doing this."

Dr. Androphy's journey with Kovina Therapeutics began three years ago. "Our mission is to make life better for millions of people afflicted with the Human Papillomavirus infections and cancers." he says. "We've been developing and making progress–I wish it were faster. But we have really exciting data that prove our approach can be successful."



PHOTOGRAPHY BY JAY GOLDZ

"Prototyping and incubating are necessary pre-cursors to generating robust startup activity."

COLLABORATION: FACULTY PROTOTYPING

ENTREPRENEURIAL SUPPORT

PHOTOGRAPHY BY JAY GOLDZ

Ravi Bhatt, Robert Henschel, & Tony Armstrong

QUARRY AI

Turning IU's Artificial Intelligence research into tangible products

An initiative of IU Ventures, Quarry AI aims to accelerate the development of artificial intelligence and software projects to a minimal viable product (MVP). While IU Bloomington has a long history of interest and research in artificial intelligence, Quarry AI is relatively new to the scene–the brainchild of three IU alumni: Ravi Bhatt, Robert Henschel, and Tony Armstrong. Bhatt founded IU's AI Playground in 2023. Henschel serves as the Director of Quarry AI. Armstrong is the IU Ventures President/CEO. Together, their combined experience in artificial intelligence, technology, and entrepreneurship puts them in the perfect position to support AI researchers in the next steps of their product development.

The AI Playground

Quarry AI stems from the AI Playground, a gathering of people interested in AI and how it could be used in research, everyday life, and startups. "The proposal was grounded in a specific premise–prototyping and incubating are necessary pre-cursors to generating robust startup activity," Bhatt shares. "It appeared to me that there was a gap in this area in the Bloomington ecosystem, and I thought we could help."

Henschel became involved with the AI Playground because of his role in research computing at IU and his familiarity with IU's GPU-accelerated supercomputer. "The group held weekly meetings on Zoom and in person at The Mill and discussed ideas. It was a great venue for folks to get feedback on their ideas, both from AI experts and potential users," Henschel says. "I was hoping that we could utilize IU GPUs in some of those ideas."

Bridging the Research-Practice Gap

One specific project Quarry has been working on is SpeechCraft.ai. "SpeechCraft.ai is a project from the Department of Speech, Language, and Hearing Sciences and will bridge the research-practice gap in speech-language pathology by utilizing generative AI models to create evidence-based therapy materials," Henschel explains. "SpeechCraft.ai will generate individualized images and stories that help speech pathologists treat speech sound disorder in children, one of the most commonly diagnosed communication disorders in children."

While work has only just begun on this project, Quarry has already developed a shareable, web-based user interface for potential users. "We have taken the 'prompt engineering' expertise of the SpeechCraft.ai founders and have implemented it using a generative AI model running on IU's supercomputer," Henschel continues. "This makes it possible to rapidly evaluate different text and image generation strategies without relying on cloud providers or commercial large language models."

The Future of Quarry AI

Quarry is always working on and evaluating a number of projects. "We have developed infrastructure that can utilize the GPUs in IU's supercomputers for running generative AI models, like SpeechCraft.ai," says Henschel. "We would love to leverage this infrastructure for more projects."

"We're hopeful that Quarry AI can help us share and build upon the long history here at IU Bloomington in AI and the faculty research and work that has helped establish this discipline today," Armstrong shares. "We have so many alums around the world who are industry leaders in AI and have a deep desire to reconnect and give back to IU. We hope Quarry AI becomes another way for them to get engaged."

Though Quarry is in its early stages, the team is excited to see the progress and impact it will bring. Armstrong, Henschel, and Bhatt are particularly excited to build on the solid foundation of IU Ventures and the new momentum around IU Innovates. Henschel says, "If we can help researchers turn ideas into something tangible that can be shown to others and can be used to gather feedback and improve the idea, then we have succeeded."

"We tell everyone, we need each other to succeed."

ORGANIC CHEMISTRY & MOLECULAR BIOLOGY

FACULTY ENTREPRENEURS

PHOTOGRAPHY BY JAY GOLDZ

Dr. Laura Brown & Dr. Julia van Kessel

QUORNIX

Developing therapeutic technology to treat bacterial diseases

Laura Brown earned her Ph.D. in Organic Chemistry from Boston College and came to IU in 2011 with the goal of growing research opportunities for undergraduates. Julia van Kessel received her Ph.D. in Molecular, Cellular, and Developmental Biology from the University of Pittsburgh and came to IU in 2014. Neither of these soon-to-be founders set out to become entrepreneurs. But when van Kessel's research was ready for a chemist collaborator to design and synthesize molecules, she was introduced to Brown. Years and countless trials later, this science-powerhouse duo turned into Quornix. With the current focus on aquaculture farming and the treatment of vibriosis disease, Quornix works to develop innovative biotechnology to address bacterial diseases with antibiotic alternatives. Simultaneously, Quornix provides undergraduate educational research opportunities through IU's year-long student research program called ASURE. "I am very aware of the fact that the educational and research missions can be at odds, simply due to the pace at which projects progress when they are carried out by inexperienced researchers," Brown says. "Julia has never once pushed back on this goal and has instead embraced it." Since 2015, Quornix has flourished, publishing their research and pedagogy widely and providing hands-on research opportunities to undergraduates through IU's ASURE program. To support this progress, the team earned several small grants from IU and the Indiana Central and Translational Sciences Institute. Most recently, the team won $15,000 of funding for Quornix in IU's 2022 Idea to Startup Pitch Competition.

Collaborating Across Disciplines

Quornix is a marriage of two disciplines: Organic Chemistry and Molecular Biology. The two professors might exist in different academic spaces within IU, but their goals and values have proven to be extremely compatible. "What I really appreciate about Julia as a scientific collaborator is that she is fully invested in the pedagogical mission of our project," Brown explains. "I have always had undergraduate research as a focus, and this project is perfect for my goal of incorporating research into the curriculum."

"As we tell everyone, we need each other to succeed," van Kessel shares. "Laura is 'my chemist,' and I'm 'her biologist.' Without that pairing and interdependence, the research falls short of its potential."

Equalize

Recently, Brown and van Kessel were accepted into Equalize, a national program dedicated to supporting and empowering female entrepreneurs. Brown and van Kessel, along with a cohort of female entrepreneurs, will receive education, a field-specific mentor, access to a network of entrepreneurs, and the opportunity to pitch their idea to a board of industry professionals at the 2024 symposium. "The opportunity to learn in a room full of other women is remarkable and invigorating," the team says. "All of us have something to learn, and what better way than to learn from each other in a supportive and encouraging group?"

The Future of Entrepreneurship at Indiana University

Brown and van Kessel hope that entrepreneurship becomes more accessible to academics. At the start of their journey, it was difficult for them to find examples to look up to since so few people in academia were pursuing entrepreneurship.

"If entrepreneurship were a common goal, then there would be a community of people at different stages of company formation and development at any given time," the team elaborates. "Questions about the potential for entrepreneurship would be a common aspect of research presentations."

Both women can see that future growing here at IU. From pitch competitions to workspaces for community networking, the two have slowly but surely been enveloped by the entrepreneurship community and hope to continue that relationship. "The potential for building IU as an entrepreneur center is already visible," van Kessel shares. "We're excited to be a part of it."

Advice for Faculty Considering Entrepreneurship

Early on in their entrepreneurial journey, Brown and van Kessel struggled to navigate the world of entrepreneurship. The language and culture were so different from what they'd experienced in academia. "The key advantage for us was that we recruited two excellent advisors early on, Doug Dayhoff and Brad King, who know the business side of things and who are invested in us," the team explains. "They have guided us through the process, answered our questions, offered advice, and posed questions about how to navigate the academia-business bridge that we didn't know to ask."

The team also cites the connections made through IU's Idea to Startup Pitch Competition as vital to their growth. "There are lots of people here who want to help, so our advice is to take them up on it," the team says. "Get to know people, let them know what you need, and see where that leads."

"It never occurred to me to see myself as an entrepreneur, so it is so helpful when someone tells me that's what I am," Brown shares. "It sounds overly simple, but telling someone that they are an entrepreneur is incredibly empowering."

linkedin.com/company/quornix

Dr. Brandon Oberlin, Izzy Branam, & Andrew Nelson

RELATE XR

Harnessing virtual reality technology to treat substance use disorders

Following twenty years of research on addiction and recovery, Dr. Brandon Oberlin partnered with Andrew Nelson and founded Relate XR, a company that combines psychology with virtual reality technology to treat substance use disorders. Together, the two secured over $4.9 million from the National Institutes of Health and expanded their team to include Izzy Branam to support the company's entrepreneurial aspects. Dr. Oberlin, an Assistant Professor of Psychiatry, brings the psychology component. Andrew Nelson, a creative technologist and game developer, has more than twenty years of experience working with virtual reality. Second-year undergraduate Izzy Branam has launched multiple startups and is recognized as an innovation ambassador to the state of Indiana. The team of three's diverse expertise supports Relate XR's varied and nuanced needs as a startup. "Over the first year, we built a strong foundation of collaboration, and our co-founding of Relate XR became an obvious next step in pursuing research funding and continuing development," Nelson shares. "It's important to all of us that our work finds a path to the world beyond the lab and be of value to people." VR technology is becoming more common in treating a variety of mental health conditions. Dr. Oberlin and the Relate XR team see the possibilities for addiction recovery using VR and are determined to see their vision come to life. "Too many good ideas die in the lab—we want to bring this idea to life in the real world," Dr. Oberlin says. "And we can do that most effectively through a commercial vehicle."

Entrepreneurial Stage

Relate XR is at the clinical trial stage. Once they have finished testing efficacy and achieved FDA clearance, they will move on to launching the product.

"Following a highly successful feasibility study, where we observed a near-doubling in positive treatment outcomes with a thirty-day post-VR abstinence rate of eighty-six percent, our focus now shifts towards rigorously testing the efficacy and safety of our minimum viable product throughout our ongoing Small Business Technology Transfer (STTR)," Branam explains. "These crucial studies are designed not only to better our understanding of the intervention's performance but also to influence our regulatory strategy, including classification and labeling, as we work towards securing FDA clearance."

According to Nelson, Relate XR is making significant progress in market discovery and growing connections within the treatment industry.

Transformative Research

Substance use disorders cast a shadow across the United States. The issue only grows year after year. "Annually, more lives are lost to drug-related deaths than to car accidents, homicide, and HIV combined, making addiction a leading killer at all ages, and drug overdose the leading killer of young adults," Branam says. "This grim toll isn't merely a statistic; it represents a ceaseless flow of personal stories, each marked by profound sorrow and loss. Families nationwide grapple with the irreplaceable loss of mothers, fathers, sisters, and brothers due to this epidemic.

As Relate XR continues collecting data, the team's focus is on the real impact they're seeing in the tests. "I am grateful to be able to apply my experience in game and VR development to address a critical issue like addiction recovery," Nelson shares. "The stakes are high, and traditional treatment methods have limited success rates. If we can make even a small difference by developing new tools for the treatment 'toolbox,' it's a big achievement."

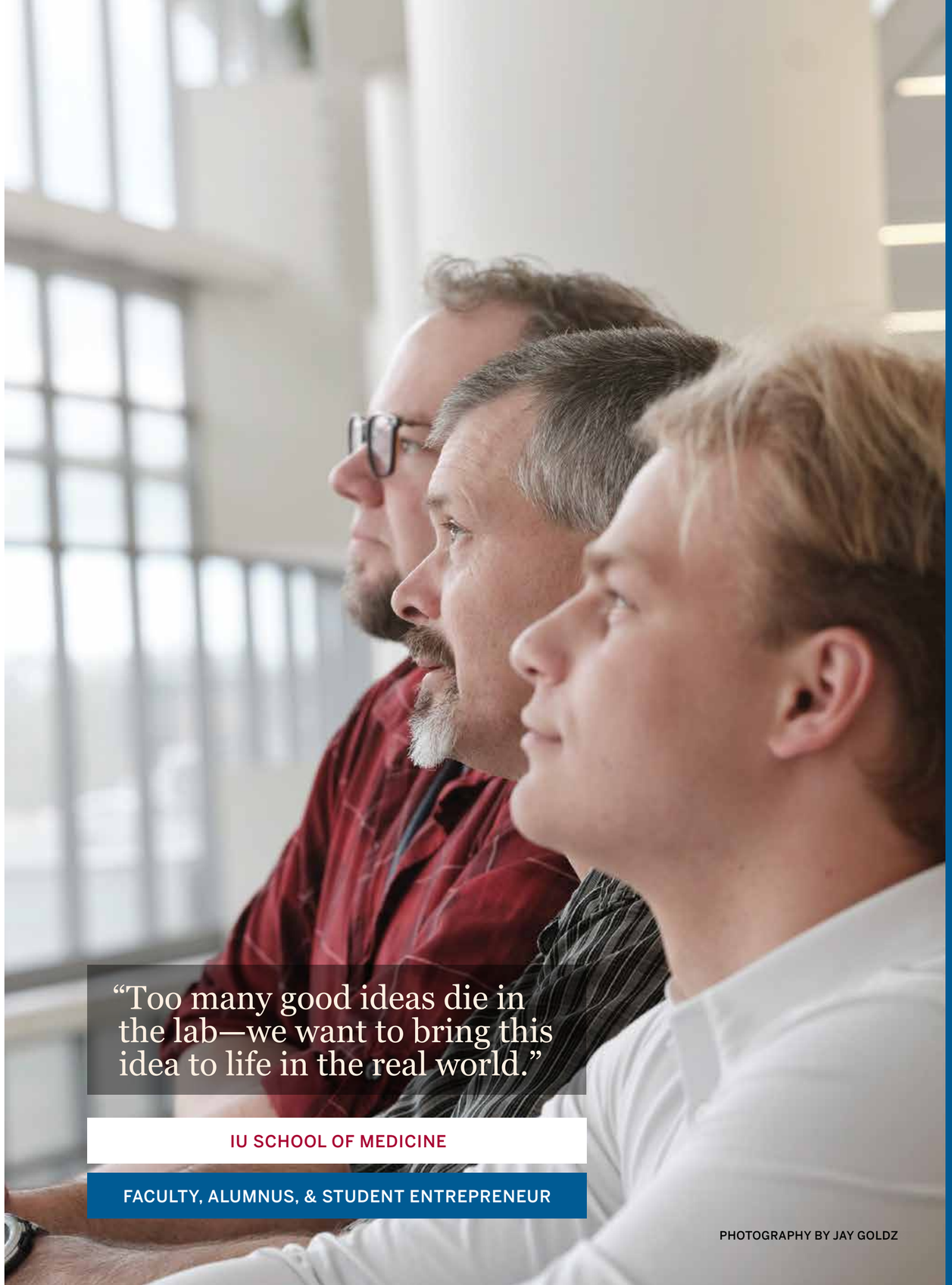
Dr. Oberlin believes that anything that can help people suffering from addiction regain their lives and happiness is worth doing. "A research participant in the feasibility study instructed me to 'bring this to the world.' It really touched me that he thought our efforts were that worthwhile," Dr. Oberlin shares.

Branam is very grateful to be able to work so closely with Nelson and Dr. Oberlin on this transformative work. "Their wisdom and experience is an incredible blessing–I often joke that this startup is akin to an unofficial MBA," he shares. "This opportunity falls directly in the intersection of my experience in technology startups and my ambition for making lasting change through innovation."

Supporting Entrepreneurship at IU

Branam came up through the state's high school entrepreneurship program, built a company, raised venture capital, and interned for IU's Innovation and Commercialization Office. His experience made him a perfect candidate to support Dr. Oberlin and Nelson through their entrepreneurial journey. Nurturing driven, innovation-focused students like Branam could provide considerable support for future entrepreneurs at the university who may not know where to start.

"Scientists are very busy conducting research and academic pursuits," Dr. Oberlin says. "We can really benefit from enthusiastic entrepreneurs who want to build something good outside and put it out into the world. I'm grateful to Indiana University and the Innovation and Commercialization Office for connecting Andrew and me with Izzy. I think many other faculty would similarly benefit. We could all use a little help building our 'dream team' of innovation."



Dr. Tom Hummer & Zebulun Wood

OPENMINDXR

Developing applications with Extended Reality for Mental Health

OPENMINDXR, formerly NeuroXR, is a cross-disciplinary company researching and leveraging Extended Reality (XR) technology for mental health treatment. Their projects use XR technologies along with electronic surveys, biometric recordings, and more to measure empathy, behavior, and social skills. Using realistic VR environments, they can closely control what can be heard and seen to modify thoughts and behaviors in ways that are impossible in real-world settings. Zebulun Wood, Lecturer in Media Arts and Science at the Luddy School of Informatics, Computing, and Engineering in Indianapolis, and Dr. Tom Hummer, former Assistant Research Professor of Psychiatry at the IU School of Medicine, are cofounders of OPENMINDXR. The company continues the work Dr. Hummer and Wood began at IU in 2015. While their disciplines are very different, they both saw a huge potential for the usage of XR technology in mental health treatment. That communal goal has made their partnership essential.

IU Startup to Idea Pitch Competition

In October 2023, OPENMINDXR won the IU Idea to Startup Pitch Competition including a $15,000 grant and a six-month part-time coworking membership at The Mill. “Regardless of whether we won or not, the experience of doing a pitch and learning what it’s like to develop a presentation aimed at people who maybe want to give you money was great,” Dr. Hummer shares. “We better understand the information that they’re seeking, and how to be succinct and more business and forward thinking rather than a presenting a scientific presentation or paper.”

Beyond the experience, winning the competition gave Wood and Dr. Hummer confidence that people saw value in their potential product. “It’s an added vote of confidence that we’re headed in the right direction,” Dr. Hummer continues. “The financial prize was great because we could officially incorporate ourselves as an LLC, and then we could start transitioning what has been a research tool into a consumer product.”

Cross-Discipline Collaboration

Dr. Hummer and Wood may speak different disciplinary languages, but their common mission keeps them together. “It takes more than one person or one type of expertise to do anything properly in this day and age,” Dr. Hummer says. “Even though collaboration is expected and key to the relationship, it’s the common mission that’s translatable, and everybody can get on board with it.”

Using VR and Games to Impact Beyond Entertainment

While OPENMINDXR focuses on mental health treatment, the technology they’re working with is rooted in entertainment–specifically video games. The company researches and develops new ways to implement virtual reality, augmented reality, and mixed reality programs to address mental health concerns like ADHD and ODD. OPENMINDXR’s technology looks like a video game, but talks like healthcare.

This kind of technology and research may conjure images of Silicon Valley and Hollywood, but Dr. Hummer and Wood are doing this work right here in Indiana. “What we do here really can improve people’s lives,” Dr. Hummer explains. “These virtual reality programs can help kids with their mental health and improve their lives on an everyday basis.”

Advice For Faculty Interested in Pursuing Entrepreneurship

Wood encourages faculty pursuing entrepreneurship not to get overwhelmed by how intimidating entrepreneurship can get. “It is scary, but in a way, you have to be a little bit fearless,” he shares. “If it weren’t a little scary, it probably wouldn’t be worth it. I am constantly learning. I love it.”

“There is no better reason to be at a university than to have expert peer groups in so many domains to reach out to,” Wood says. “You don’t have to know everything.”

The Future of Entrepreneurship at IU

According to the OPENMINDXR team, academics’ biggest obstacle to pursuing these ideas is not knowing how to bring them outside of academia. “That’s been part of our learning experience: How can we take this work and actually make it something for consumers that they can actually have?” Dr. Hummer shares.

Dr. Hummer and Wood hope that IU’s entrepreneurial network will grow and build clearer support systems for academics so that, when they do have an idea, they know exactly where to go for support.

Currently, OPENMINDXR is working on a project called Virtual Interaction Practice (VIP), a program aimed at assessing and improving social skills in children with ADHD. With this project, they hope to continue progressing at the forefront of XR research and development targeting mental health.

Jon Racek

THE COMPREHENSIVE DESIGN PROGRAM

Encouraging human-focused design solutions to real-world problems

The Eskenazi School of Art, Architecture, and Design's Comprehensive Design Program is a studio-intensive, interdisciplinary undergraduate program where students use human-centered design at the scale of objects, spaces, and systems. The design program ends with a capstone studio project where students choose an issue important to them and redefine the problem into an actionable, human-centered design solution. The "How might we..." (HMW) framework is an essential tool in the design program, encouraging students to approach design challenges with empathy, innovation, and a continuous focus on the human experience. Senior Lecturer and Program Director of the Comprehensive Design program Jon Racek is a multifaceted designer. His work spans architecture, furniture design, public art, sculpture, landscape design, and play spaces. He is also the program director of ServeDesign, a center at the Eskenazi school that uses design for social impact within communities. Racek's work focuses deeply on connecting design with real human experience and tailoring it to solve real problems.

The "How might we..." Process

The "How might we..." process is built on deeply understanding the people you are designing for. "This involves direct interaction, such as interviews, observations, and immersion in their environments, to gather insights into their experiences, needs, and challenges," Racek explains. "The next step is to synthesize these insights into a clear understanding of the core problem or opportunity."

Once the core problem is identified, students move on to crafting "How might we..." questions. "We craft questions that are broad enough to inspire creative thinking but focused enough to be actionable," Racek says. "These questions serve as a springboard for ideation, where students brainstorm a wide range of solutions without judgment. This phase values quantity and diversity of ideas, encouraging students to think beyond conventional solutions."

"How might we..." in Practice

"In a studio project with the city of Bloomington, the aim was to improve relationships between students living in neighborhoods around the Indiana University campus and the city residents," Racek shares. "The friction between these groups stemmed from misunderstandings and miscommunications regarding city rules and community expectations."

With the "How might we..." method, designers began conducting interviews with students and community members. "The studio uncovered a critical gap in knowledge and interaction: students were often unaware of the local ordinances and lacked opportunities to engage with their neighbors meaningfully," Racek continues, "This insight shifted the focus towards finding ways to bridge this knowledge gap and foster a sense of community. The city, armed with this new understanding, began to explore methods to better communicate city regulations to students."

Another major "How might we..." project was focused on promoting safe biking among students. "Initial research, including interviews and surveys, identified that the perceived danger of sharing roads with motor vehicles deterred students from biking," Racek says. "While the ideal solution seemed to be the creation of separated bike lanes, budget constraints made this impractical."

One student proposed a solution: affordable and easy-to-install dividers made from recycled tires. "This approach addressed the safety concerns within the city's budgetary limitations, demonstrating how understanding the root of the problem can lead to creative, practical solutions," Racek says.

Well-Validated Problems Enhance Prototype Success

A major takeaway from the "How might we..." process is the importance of thoroughly validating a problem before exploring solutions. In the example of bettering student-community relations in Bloomington, information gained through this process often became essential to creating effective solutions. "Understanding that the root issue was not just behavioral, but also informational allowed the team to prototype various communication strategies and community-building activities tailored to both students and residents," Racek explains.

Establishing connections with people in the community also allowed them to get clear feedback on prototypes. "By prototyping these solutions and testing them within the community, the team could iterate based on real feedback, refining approaches that effectively bridged the knowledge gap and fostered positive interactions," Racek says.

"This direct engagement ensured that the prototypes addressed the actual needs of the community, leading to more effective and sustainable solutions," Racek shares. "The process highlighted how a well-understood and validated problem or pain point can greatly enhance the potential for success in developing prototypes, ultimately leading to solutions that are both innovative and deeply resonant with the community's needs."

PHOTOGRAPHY BY JAY GOLDZ

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IU INNOVATES