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Entrepreneurs of all ages pitch their products at 9th annual Innovation Day

Crutches with cases. A bedsheet for patient transfer. A pencil grip for lefties.

These were some of the creative and useful products designed by innovators of all ages at the Innovation Day celebration at the College of Engineering and Applied Sciences in December.

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WMU partnership with Japanese corporation forged more than two decades ago

Western Michigan University is celebrating a more than 20-year partnership with the Japanese company Sinto Group, the world's largest manufacturer of foundry equipment and a leader in foundry technologies.

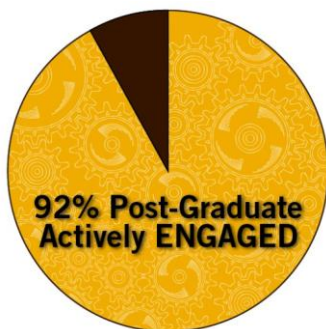
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Award to speed 3-D metal printer toward commercialization

While 3D printing technology has experienced exponential growth in recent years, most of the existing technology involves plastics. A WMU engineering professor and his former students have developed a unique 3D metal printer that they hope will go from invention to commercialization more quickly, thanks to a recent \$20,000 award from the WMU's Technology Development Fund.

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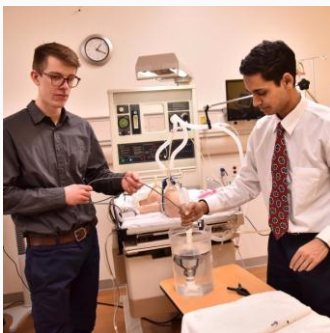


College Snapshot

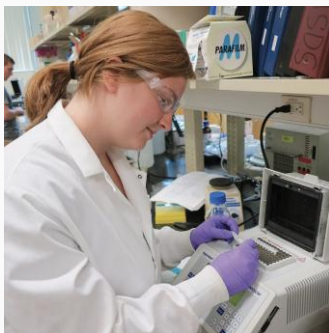
Post-Graduation Activity 2015-2016

92% of all Engineering and Applied Sciences graduates were **actively engaged**.

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Undergraduate
grants



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ALUMNI SPOTLIGHT:
Tim Porth

Upcoming Events

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Entrepreneurs of all ages pitch their products at 9th annual Innovation Day

Crutches with cases. A bedsheet for patient transfer. A pencil grip for lefties.

These were some of the creative and useful products designed by innovators of all ages at the Innovation Day celebration at the College of Engineering and Applied Sciences in December. Students pitched their products, models and prototypes and sought input from the public on their innovations and inventions. Some 75 K-12 students from area schools – along with 50 WMU engineering students – participated in the daylong event.

The annual event – now in its 9th year -- is hosted by the Department of Industrial and Entrepreneurial Engineering and Engineering Management and is the brainchild of four of the department's professors, Drs. Tycho Fredericks, Bob White, Azim Houshyar, and Steve Butt.

“We gave our visitors ‘innovation dollars’ so they could ‘invest’ in the products they saw as the most innovative,” said Dr. Steve Butt, professor and department chair. “The investors heard the students pitch their products and then decided where they wanted to spend their innovation dollars.” The winning student teams in various categories received medals.

“This is a great way for students of all ages to gain experience in presenting their ideas to engineering professionals, professors and community members,” Butt said. “It really is a celebration of our local entrepreneurial community and a chance to encourage budding entrepreneurs of the future. We are very lucky to have the support of our design community through MIX (<http://mixswmi.com/>). MIX continues to support our programs and expand our reach throughout southwest Michigan and beyond.”

Sponsors of the event were the Custer Office Environment Lecture Series, DENSO and the Society of Plastics Engineers. To see a video of the event, [click here](#).

The event also featured speaker Nik Kalyani an entrepreneur and technology educator from Mountain View, Calif., who received his bachelor's degree in computer science from WMU in 1992. He is the co-founder and CTO of WhenHub, Silicon Valley internet startup and is the creator of Walkstarter, a free fundraising platform for U.S. schools. Previously, Kalyani co-founded DNN Software, a venture-backed



software company behind the popular DotNetNuke Open Source software project that runs on hundreds of thousands of websites worldwide. During the dot-com growth era, he founded iWidgets, also a venture-backed internet startup. In addition, Kalyani helped create the Silicon Valley chapter of CoderDojo and has volunteered to teach coding to more than 1,200 kids in the San Francisco Bay Area. He has been recognized with Microsoft's "Most Valuable Professional" award for the past 10 years for his community contributions.

WMU partnership with Japanese corporation forged more than two decades ago



Dr. Sam Ramrattan (second from left) and Dr. Steve Butt (second from right) with senior management at Sintokogio.

Western Michigan University is celebrating a more than 20-year partnership with the Japanese company Sinto Group, the world's largest manufacturer of foundry equipment and a leader in foundry technologies.

Dr. Sam Ramrattan has a longtime working relationship with top leadership at the company's Sintokogio division. He and Dr. Steve Butt, WMU department chair of engineering design, manufacturing and management systems, visited the company's manufacturing facilities and forged stronger research ties with the company. They also met with Sintokogio president Atchi Nagai, spoke with company engineers and presented research at the 2016 World Foundry Congress held in Nagoya, Japan.

With the long partnership with Sinto – and its American subsidiary Roberts Sinto in Lansing, Mich. – WMU has received ongoing research and development commitments in metal casting and benefited from additional investment in the college's metal casting facilities. Roberts Sinto also has hired several WMU engineers after graduation.

“Our students in the metal casting curriculum enjoy 100 percent placement,” Butt said. “With continuing support from Sintokogio, we’ll be upgrading our metal casting facility and be able to accommodate even more students.”

WMU offers a unique metal casting lab equipped with machinery, tooling, hardware and software to help students design, produce and test a wide range of cast metals and cast metal matrix composites.

“This has been a very collaborative effort with our colleagues at Sinto,” Ramrattan said. “We really appreciate working with the Sinto Group and are looking forward to continuing and strengthening our affiliation with them.”

Dr. Hiroyasu Makino, from Sintokogio, said collaborating with WMU, sharing technical information and gaining connections to others in the U.S. metal casting industry has been very beneficial to the company as well.

Award to speed 3-D metal printer toward commercialization



Pavel Ikonov

While 3-D printing technology has experienced exponential growth in recent years, most of the existing technology involves plastics. A WMU engineering professor and his former students have developed a unique 3-D metal printer that they hope will go from invention to commercialization more quickly, thanks to a recent \$20,000 award from the WMU’s Technology Development Fund.

Associate Professor Pavel Ikonov of WMU’s Department of Engineering Design, Manufacturing and Management Systems, began working on the device in 2014 as part of a senior design project with students Jake Ives, Jim McQueen, Dan Ziemer and Matt Ziemer.

3-D metal printers that create metal objects are available, but can run as much as \$500,000. Ikonov and his team's machine – which combines CNC machining and welding with a 5-axis design -- may eventually be available for under \$5,000.

“We have developed an affordable metal rapid prototype machine designed for small job shops, manufacturing companies, repair facilities, and even do-it-yourselfers,” Ikonov. “These additional funds will allow us to purchase new components for the machine, test the performance with different materials, assess mechanical properties and optimize precision.” He said the award also will help provide support to graduate students working on the project.

He envisions a promising future for 3-D metal printing. “We believe 3-D printing will become as affordable and as routine as 2-D paper printing,” Ikonov said. “It will revolutionize the way we produce – making it simple and affordable to make complex, custom designed, unique products on demand.”

College Snapshot Post-Graduation Activity

Graduation Activity 2015-2016

92% of all Engineering and Applied Sciences graduates were **actively engaged**.

	All degrees		Undergraduate degrees		Graduate degrees	
	count	percent	count	percent	count	percent
Actively Engaged	397	92%	253	93%	144	91%
Employed full time	354	82%	226	83%	128	81%
Employed part time	4	1%	4	2%	0	0%
Continuing education	36	8%	20	7%	16	10%
Military service	3	1%	3	1%	0	0%
Volunteering full time	0	0%	0	0%	0	0%
Not Actively Engaged	35	8%	20	7%	15	9%
Unemployed and seeking employment	29	7%	18	7%	11	7%
Not immediately seeking employment	6	1%	2	0.7%	4	2%

A Post-Graduation Activity Survey was sent to all 518 students who earned a degree from the College of Engineering and Applied Sciences between August 2015 and June 2016. Responses were received by 432 – or 83% -- of students. Respondents included 273 undergraduates, 142 master's students and 17 doctoral students.

39 undergraduates receive research awards in 2015-2016



Congratulations to the following students who received Undergraduate Research Excellence Awards during 2015-2016. Of the 51 awards university-wide, 40 were presented to students from the College of Engineering and Applied Sciences.

AJOKU, DAVID

Aerospace Engineering

Faculty Mentor: Dr. Pnina Ari-Gur *

BAINES, TYLER

Aerospace Engineering

Faculty Mentor: Dr. Jennifer Hudson

BAIRD, MATTHEW

Mechanical Engineering

Faculty Mentor: Dr. Kristina Lemmer

BEUERLE, STEVEN

Mechanical Engineering

Faculty Mentor: Dr. Jun-Seok Oh

BLAIS, PAUL

Aerospace Engineering

Faculty Mentor: Dr. Jun-Seok Oh

BRUINSMA, MATTHEW

Mechanical Engineering

Faculty Mentor: Dr. Muralidhar Ghantasala

BUCK, JARED

Engineering Design Technology

Faculty Mentor: Dr. Pavel Ikonov

CARSON, CAMERON

Mechanical Engineering

Faculty Mentor: Dr. Kristina Lemmer

CONIGLIARO, ANTHONY

Civil Engineering

Faculty Mentor: Dr. Upul Attanayake

CURRAN, CHRISTOPHER

Mechanical Engineering

Faculty Mentor: Dr. Muralidhar Ghantasala

FARHAD, MUQEET

Aerospace Engineering

Faculty Mentor: Dr. Kristina Lemmer

FOSTER, MICHAEL

Manufacturing Engineering Technology

Faculty Mentor: Dr. Pavel Ikonov

GENOVESE, WESTON

Mechanical Engineering

Faculty Mentor: Dr. Muralidhar Ghantasala

HAJI, MAGRETH

Aerospace Engineering

Faculty Mentor: Dr. Pnina Ari-Gur

HARMON, JOHN

Aerospace Engineering

Faculty Mentor: Dr. William Liou

HARVEY, PAUL

Civil Engineering

Faculty Mentor: Dr. Upul Attanayake

HOIN, SPENCER

Engineering Design Technology

Faculty Mentor: Dr. Pavel Ikonov

JONES, JOSHUA

Manufacturing Engineering Technology

Faculty Mentor: Dr. Pavel Ikonov

KAWKA, JOSEPH

Aerospace Engineering

Faculty Mentor: Dr. William Liou

KOSTICH, BRENT

Mechanical Engineering

Faculty Mentor: Dr. Jun-Seok Oh

LLOYD, NATHAN

Construction Engineering

Faculty Mentor: Dr. Upul Attanayake

MEHDI, SYED

Aerospace Engineering

Faculty Mentor: Dr. Kristina Lemmer

MURAWSKI, ANTHONY

Aerospace Engineering

Faculty Mentor: Dr. Jennifer Hudson

PIETROWICZ, ERIC

Electrical Engineering

Faculty Mentor: Dr. Pnina Ari-Gur

PLEASANT, CHRISTOPHER

Aerospace Engineering

Faculty Mentor: Dr. Jun-Seok Oh

PROCTOR, CHRISTOPHER

Aerospace Engineering

Faculty Mentor: Dr. Jennifer Hudson

REINKE, ZACHARY

Mechanical Engineering

Faculty Mentor: Dr. Pnina Ari-Gur

RUDEL, JEFF

Engineering Design, Manufacturing, and Management

Faculty Mentor: Dr. Pavel Ikonov

SIMMONS, NAGUAL

Mechanical Engineering

Faculty Mentor: Dr. Kristina Lemmer

SOLTERMAN, TURNER

Civil Engineering

Faculty Mentor: Dr. Upul Attanayake

TAYLOR, TIMOTHY

Mechanical Engineering

Faculty Mentor: Dr. Kristina Lemmer

THOMPSON, JOEL

Mechanical Engineering

Faculty Mentor: Dr. Kristina Lemmer

UPDEGRAFF, ALEX

Manufacturing Engineering Technology

Faculty Mentor: Dr. Pavel Ikonov

VANDESTREEK, BENSON

Manufacturing Engineering Technology

Faculty Mentor: Dr. Pavel Ikonov

VILLALOBOS, COLE

Civil Engineering

Faculty Mentor: Dr. Upul Attanayake

WALL, TYLER

Aerospace Engineering

Faculty Mentor: Dr. Jun-Seok Oh

WATZA, SPENCER

Aerospace Engineering

Faculty Mentor: Dr. Jennifer Hudson

WELTON, TRAVIS

Mechanical Engineering

Faculty Mentor: Dr. Muralidhar Ghantasala

WEWENGKANG, PATRICK

Aerospace Engineering

Faculty Mentor: Dr. William Liou

*Received 2 awards

Alumni Spotlight: Tim Porth



Tim Porth

Tim Porth found his fit in fitness. After 11 years working in a number of product development consulting firms and serving as an industrial designer and senior business director for a global manufacturer of fitness equipment, he co-founded Minnesota-based Octane Fitness in 2001. Porth is a 1990 graduate of WMU's industrial design program, which was part of the College of Engineering and Applied Sciences at the time. Octane Fitness designs and manufactures high-end exercise equipment such as lateral and recumbent ellipticals. Porth and co-founder Dennis Lee sold the company in 2005 to a private equity firm, stayed on to run it and sold it for \$115 million to Nautilus Inc. in 2015. Both are still active in the company. Porth currently is vice president of product development and marketing for commercial and specialty products at Octane, which had sales of \$65 million in 2015. He can be reached at tporth@octanefitness.com.

What has your career path been like since graduating from WMU's College of Engineering and Applied Sciences? Have there been any surprises along the way?

I started working for a few different product development consulting firms. It was a great way to get exposure to a variety of businesses and understand how different companies worked. After about 4 years of consulting, I started working in corporate jobs where I really enjoyed getting involved in a deeper understanding of how the business worked. The biggest surprise was how quickly corporate jobs can change. Your job can always be at risk depending on how the

company was performing and the strategic direction of the management team. Fortunately I survived all the 'black Fridays'.

What are you passionate about in your work?

I am passionate about building a great company and culture that everyone can get behind. In so many companies today people are just doing their job instead of helping to develop the company. Having a team that is 'Rowing the Boat' in the same direction can create an unstoppable company.

Industrial design programs typically build on an art base, rather than an engineering base. How did your experience at WMU's College of Engineering and Applied Sciences -and the industrial design program at the time -- shape your success?

This turned about to be a challenge early in my career but a huge benefit later. It was a challenge because many designers from art-based schools were much faster and created better concepts through sketching (you have to remember that when I was in school 95 percent of my work was hand drawing and not computer based). The engineering base I developed at WMU allowed -- actually, forced me -- to think at a deeper level than most other industrial designers. The engineering background also gave me a deeper understanding of engineering and manufacturing principles. With this background I was later able to manage all product development, manufacturing and quality for our company.

What is the most incredible thing that has happened to you since graduating?

The most incredible professional moment in my career was the first sale of Octane Fitness. We sold Octane to a private equity group that allowed us to take some equity out of the business but still run it the same way we had pre-investment. It was an amazing feeling to be financially independent but still have a piece of the company we started.

Describe your favorite Bronco moment.

It had to be winning the soap box derby with the IDSA (Industrial Designers Society of America) team. There were many late nights and the fact that we didn't crash -- and taking first place -- was a moment to remember.