Spring 2022

MESSENGER

MECHANICAL ENGINEERING | UNIVERSITY of WASHINGTON

Artificial intelligence for engineering, pages 6-7

CHAIR'S MESSAGE

A spring revival

2022 has been challenging but rewarding so far. Winter quarter began remotely due to the Omicron wave then quickly pivoted to in-person instruction. This spring we returned fully to campus and have welcomed new staff, including a Diversity Equity & Inclusion (DEI) Specialist. ME pioneered this newly created role, which is held by Corey Clay, to ensure we make the department a more diverse and equitable place to work and learn and a more inclusive environment for all.

Our student body is rapidly growing as ME is recognized as a versatile and multifaceted degree, and next year's incoming class will be the largest and most diverse yet for ME. Our faculty, having weathered the global pandemic with resilience and ingenuity, is also growing as the state supports more engineering degrees and the College of Engineering starts to build and remodel critical buildings to house our educational and research efforts.

In this issue, you'll read about one of our newest research endeavors, the AI Institute in Dynamic Systems. This NSF-funded Institute is leading the world in using AI to model and control physical systems, laying groundwork to transform engineering education and, ultimately, the future of engineering and the economy. We're thrilled to serve as the hub for this important work. I hope you feel inspired and elevated by the level of excellence in everything our researchers and students do, on campus and around the world.

Alberto Aliseda

Mechanical Engineering Chair
PACCAR Endowed Professor

DEPARTMENT NEWS

Washington Research Foundation Innovation Professor in Clean Energy **Corie L. Cobb** has been selected as recipient of the Defense Advanced Research Projects Agency (DARPA) Director's Fellowship Award.

Assistant Professor **Mehmet Kurt** has received a National Science Foundation (NSF) Faculty Early Career Development Program (CAREER) Award for his research on nonlinear resonances of highly damped, soft materials.

The UW and Amazon's new Science Hub collaboration will focus on advancing innovation in core robotics, and AI technologies and their applications. Associate Professor **Ashis Banerjee** is part of the joint advisory committee.

With NSF funding, a UW research team including ME faculty **Eric Seibel** and **Steve Brunton** aims to develop a dramatically smaller endoscope to image previously inaccessible areas of the heart and brain.

A new NSF grant supports planning for an Industry-University Cooperative Research Center on data-driven composites manufacturing and high-performance, lightweight materials. The work is led by ME faculty **Junlan Wang, Xu Chen** and **Santosh Devasia,** as well as **Navid Zobeiry** (materials science and engineering) and **Marco Salviato** (aeronautics and astronautics).

Professor **Juan Carlos del Alamo** and partners at Seattle Children's have received a National Institutes of Health grant to examine how mechanical forces experienced by circulating white blood cells activate inflammation and failure in surgical patients undergoing cardiopulmonary bypass — a problem particularly severe in infants born with cardiac defects who undergo surgery.

Associate Professor **Xu Chen** has received a 2022 Sandra L. Bouckley Outstanding Young Manufacturing Engineers Award from the Society of Manufacturing Engineers (SME).

ME undergrad competes on 'Wheel of Fortune'

Abby Simcox represented the UW in March for College Week 2022 on the word puzzle game show.

"I watched 'Wheel of Fortune' with my dad pretty much every night while growing up," ME senior Abby Simcox recalls. On a whim last June, she decided to apply and was shocked when she was contacted for a virtual audition. Not long after, she was invited to be on the show.

To prepare, Simcox practiced word puzzles and watched old "Wheel of Fortune" episodes. She also hit the gym. "The wheel is surprisingly heavy, and so I wanted to get in shape to prepare," she says.

Taping day started with a tour of the "Jeopardy!" game show stage, which is across the hall from the "Wheel of Fortune" studio. After a trip to hair and makeup, Simcox and other contestants practiced projecting their voices and spinning the wheel on the "Wheel of Fortune" set.

"The most surreal moment was when the opening music began to play in the studio at the start of the show," she recalls. "My nerves were running wild!"

Simcox's episode was broadcast on Mar. 24. She watched it three times that day. "The first time was with my dad and my roommate. Then Dad drove me to my grandparents' house. They regularly watch the show but didn't know I was going to be on it that night so it was a fun surprise. And I watched it later with my mom, sister and best friend from high school," she says.

Though she didn't win, Simcox says she's pleased with her performance. "I went in hoping to solve one toss-up and one puzzle, and I ended up solving two toss-ups and two puzzles," she says. She finished the game with $12,400, which she plans to put toward graduate school.

Carol Kaelson/Wheel of Fortune®/© 2022 Califon Productions, Inc. ARR.

Next fall Simcox will begin her mechanical engineering graduate studies at UCLA. She hopes to become an amusement park ride designer — specifically, a roller coaster engineer.

"In ME, I've focused on developing a solid foundation in mechatronics, mechanics and structures to prepare," she says. "But really, I just want to use my engineering skills to make people smile."

Students win big

ME and Engineering Innovation in Health student teams swept this spring's Holloman Health Innovation Challenge hosted by the UW's Buerk Center for Entrepreneurship.

Team **inSTENT Connection** won the grand prize for its medical device idea that lowers the chance of complications and mortality for patients needing surgery in their gastrointestinal tract. The ME, biochemistry and chemical engineering team is developing a stent they hope will be used in hospitals and surgical clinics soon.

Second place went to **CathConnect** for its breakaway catheter mechanism that improves upon a commonly used tool. The ME team hopes to reduce trauma risk for patients being treated for urinary retention.

EquinOx won third place for its pulse oximeter sensor that corrects skin-tone inaccuracies in real-time. The ME and electrical and computer engineering team seeks to make health care more equitable and ethical by solving a problem that affects patients with darker skin tones and statistically leads to a greater number of medical mistakes.

Bubbles for toughness

UW researchers collaborate to investigate and advance nanofoams, a tiny but mighty new material.

By Amy Sprague

ME Professor Vipin Kumar developed a curious material in the early 2000s. He injected gas into a polymer, much like making carbonated water. When this polymer was heated, tiny bubbles expanded, making a thin "nanofoam" which had remarkably low thermal conductivity. Conventional foams that provide such insulation have bubbles too large for a thin material, so this new material was noteworthy.

He teamed up with former students to start a company to commercialize the technology, and their first application was a well-insulated disposable cup. Kumar remembers, "Our sales people were trying to get customer feedback, so they gave free cups to bars and restaurants, and the customers said, 'You know, this cup does not crack.'"

Kumar hadn't focused on the toughness of this material before. "So we pressed the cup, smashed it and jumped on it. It would bend, but we would just bend it back, and it remained completely intact," he says.

Surprising strength

Kumar recently told his colleagues ME Assistant Professor Lucas Meza and Aeronautics & Astronautics Associate Professor Marco Salviato about the unbreakable cup and the nanofoams.

In the first iteration of the cup, Kumar was injecting bubbles approximately 1/10th the size of a human hair. Now, with further advances, the bubble "pore size" has been reduced so that 5,000 could fit in the width of a human hair. The new nanofoams are 27 times tougher than the original polymer.

"Introducing bubbles into a material naturally creates defects," explains Meza. "If you think of a piece of paper, if you have a tear, the paper breaks apart easily. But what we're seeing with these nanofoams is the opposite: an increase in toughness, which is unexpected."

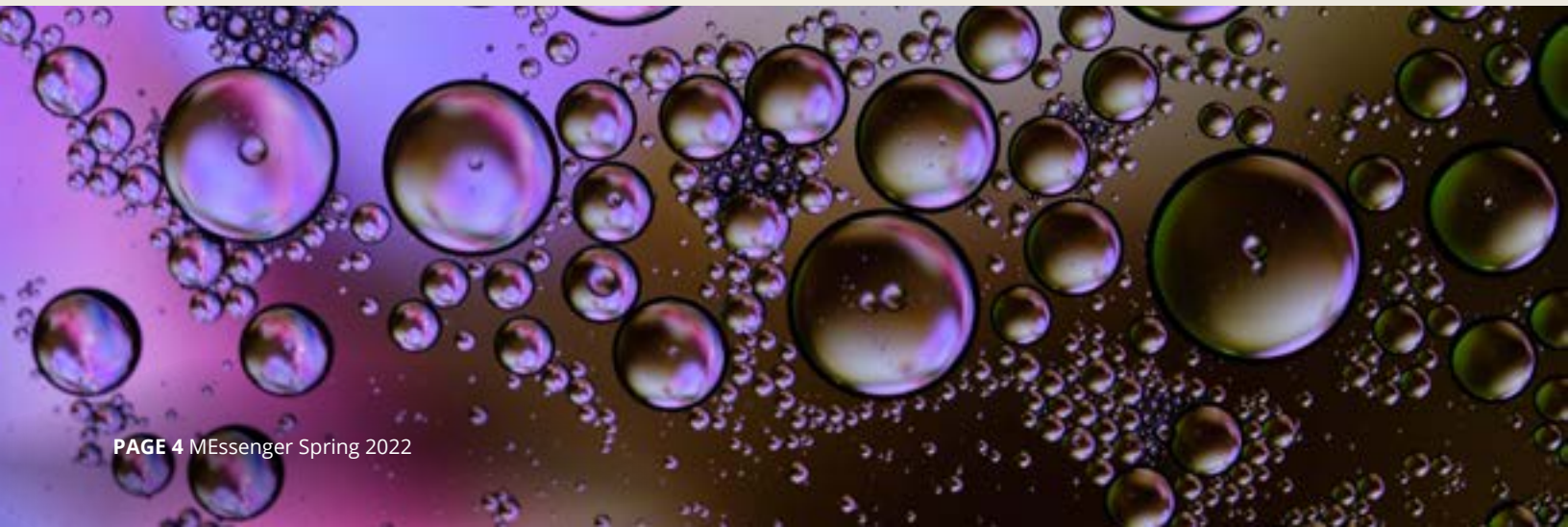
Teaming up to solve the riddle

The researchers realized they had complementary skills to investigate why Kumar's nanofoam was so tough.

"It's detective work," says Salviato. "You have some evidence which you collect and then use a computer to guide you to look at exactly what is going on. It's like CSI and you're finding the DNA match."

The National Science Foundation recently awarded the researchers over $850,000 for their work. They are aiming to advance commercial thermoplastics and new nanocomposite blends.

Nanofoams can be porous or non-porous, so their research has far-reaching applications. Porous nanofoams can be used for advanced filtration systems that need to allow nutrients, air and water to flow, such as medical meshes, agricultural weed barriers, or protective clothing and gear. Non-porous applications include lighter, tougher materials. A lot of plastics currently in use could be swapped out with nanofoams. Down the road, the researchers may consider adding other elements, such as carbon fibers, to the nanofoam system for even more strength.



Folding space structures

ME and Carnegie Mellon researchers are advancing foldable structures that fit into a tiny compartment for launch before expanding in space.

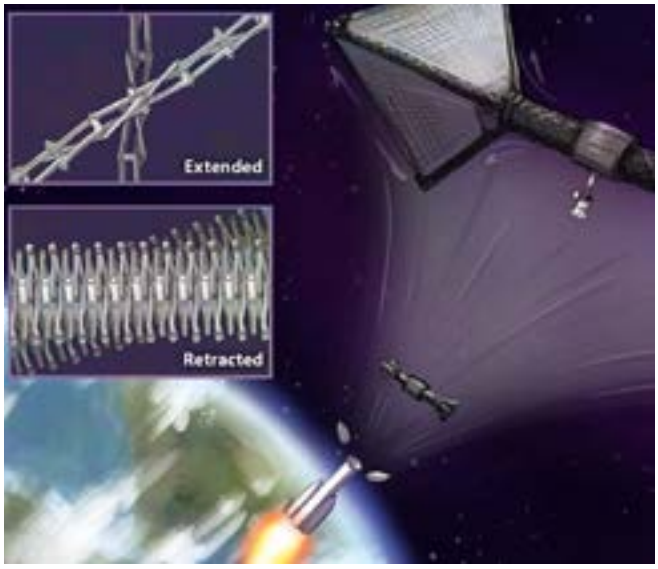
By Aaron Aupperlee

Research aimed at creating the spinning space stations common in science fiction received a recent boost from NASA. The space agency is funding research led by ME Assistant Professor Jeff Lipton and Zac Manchester, an assistant professor in Carnegie Mellon University's Robotics Institute, to design and build foldable structures that fit into a tiny compartment for launch and then expand into massive super-structures once in outer space.

Spinning structures will likely need to be near a kilometer in length to mimic the Earth's gravity, while rotating slowly enough to avoid making people ill. Yet whatever launches into space has to fit in the nose cone of a rocket, so the researchers are creating a structure that folds compactly enough to fit into a five-meter container as part of their Kilometer-Scale Space Structures From a Single Launch project, which uses mechanical metamaterials.

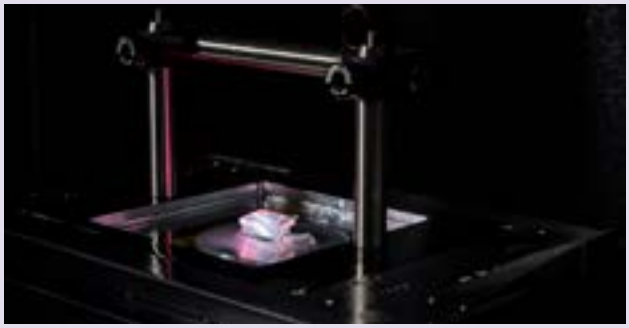
NASA selected the project for its Innovative Advanced Concepts (NIAC) program. During phase one of their NIAC funding, which began early in 2021, the researchers demonstrated the viability of their proposal. NASA recently approved the project for phase two, providing an additional $500,000 over two years. The funding will allow the researchers to develop working prototypes of their structure.

Once prototypes are in place, the researchers hope to test them during parabolic flights that produce zero-gravity conditions. With their constant ups and downs, these flights are often referred to as "vomit comets," an interesting way to test technology designed to keep people from getting sick.



CANCER DIAGNOSIS ADVANCEMENTS

A new method that images entire 3D biopsies could improve the diagnosis of prostate cancer aggressiveness.



By Sarah McQuate | Photo by Mark Stone

Prostate cancer is the most common cancer for men and, for men in the United States, it's the second leading cause of death. To determine how aggressive someone's prostate cancer is, doctors look for abnormalities in slices of biopsied tissue on a slide. But this 2D method makes it hard to properly diagnose borderline cases.

Now, a UW-led team has developed a non-destructive method that images entire 3D biopsies instead of just a slice. The researchers imaged 300 3D biopsies taken from 50 patients and had a computer use 3D and 2D results to predict the likelihood that a patient had aggressive cancer. They also incorporated new AI methods, including deep-learning image transformation techniques, to help manage and interpret the large datasets this project generated. The researchers found that the 3D features made it easier for the computer to identify the cases that were more likely to recur within five years.

"We show for the first time that compared to traditional pathology — where a small fraction of each biopsy is examined in 2D on microscope slides — the ability to examine 100% of a biopsy in 3D is more informative and accurate," says ME Professor Jonathan Liu. "This is exciting because it is the first of hopefully many clinical studies that will demonstrate the value of non-destructive 3D pathology for clinical decision-making, such as determining which patients require aggressive treatments or which subsets of patients would respond best to certain drugs."

Above: Developed by ME researchers, this benchtop microscope can be used to image samples in 3D.

AI FOR ENGINEERING

The AI Institute in Dynamic Systems isn't quite a year old, but its directors are already laying the groundwork to transform engineering education and, ultimately, the field.

By Chelsea Yates

Engineering is on the brink of a major revolution being driven by artificial intelligence (AI) and machine learning (ML). "Where engineering's at now is similar to what the field experienced in the 1980s — computing changed every engineering discipline then in a similar way to how AI and ML are changing them today," says J. Nathan Kutz, a professor of applied mathematics and of electrical and computer engineering.

With ME Professor Steve Brunton, Kutz co-directs the AI Institute in Dynamic Systems at the UW, which is working to integrate AI into all types of engineering, especially traditional disciplines. Launched in October 2021 with National Science Foundation (NSF) funding, the Institute focuses on three key areas: developing fundamental technology in AI and ML for dynamic systems; applying that technology to real-world problems; and shaping educational and workforce development pathways.

Researchers understand the basic physics principles behind dynamic systems — chaotic situations where conditions are constantly shifting and hard to predict. Examples include blood flow in the human body, flight turbulence, manufacturing processes involving several moving parts, and natural phenomena such as water and wind currents. Even the evolution of a disease across a planet, like COVID-19, is a dynamic system.

Nathan Kutz

Krithika Manohar

Steve Brunton

"Dynamic systems present rich, complex problems and are found everywhere in engineering," says ME Assistant Professor Krithika Manohar, who rounds out the Institute's UW leadership team.

These scenarios often happen on multiple timescales at once and can be a combination of many types of physics, making it difficult to understand exactly what's going on. Integrating physics-based models with AI and ML will allow engineers to develop efficient, data-enabled solutions.

A shared vision for accessibility

The UW's institute is one of ten NSF-supported AI research institutes announced last year, each receiving about $20 million over five years. The UW is partnering with several regional institutions — the University of Hawaii at Mānoa, Montana State University, the University of Nevada Reno, Boise State University, the University of Alaska Anchorage and Portland State University — as well as with Harvard University and Columbia University. Together they are committed to advancing research and education as well as equity and accessibility.

"We are so excited to bring together amazing and innovative researchers from across the U.S.," says Brunton. "We'll be developing a set of benchmark problems in engineering sciences that can be used

and shared broadly to help standardize education and workforce training."

Because it's located in Seattle, the UW's institute is uniquely positioned to serve as a hub to industry, including tech companies and aerospace and manufacturing giants like The Boeing Company. The team already has strong relationships in place with Boeing — in addition to several research projects, they are developing an employee training program for engineering and AI — and look forward to expanding it.

"Offering open source tools is necessary for industry partners so they can adapt to their unique needs," explains Manohar. "That's one of the many reasons the AI Institute is committed to open access."

Another reason is equity. The NSF hopes to eventually have colleges and universities in all 50 states connected with at least one NSF-funded institute.

"It's important to reach and share resources as broadly as possible," says Kutz. "Figuring out how we reshape engineering with AI will not happen in one lab or even at one university. It needs to be a collaborative and dynamic exchange across institutions — from those thought of as engineering and tech powerhouses to those more isolated geographically or that haven't had access to resources to build out programs."

Additionally, the leaders are committed to expanding diversity and inclusion efforts. Many of the team's partner institutions have deep roots working with communities traditionally underrepresented in engineering and tech. The UW leads say they are eager for guidance from their partners in the development of programs and tools.

Building a flexible curriculum

Manohar leads one of the AI Institute's research areas — AI and optimal sensing — and she's especially looking forward to the team's plans for curriculum development.

"Engineers today need skills in data science, AI and ML. That's true for students just starting out as well as for professionals already working in industry. How do you design a curriculum that meets engineers where they are? That's one of the Institute's primary objectives," she says.

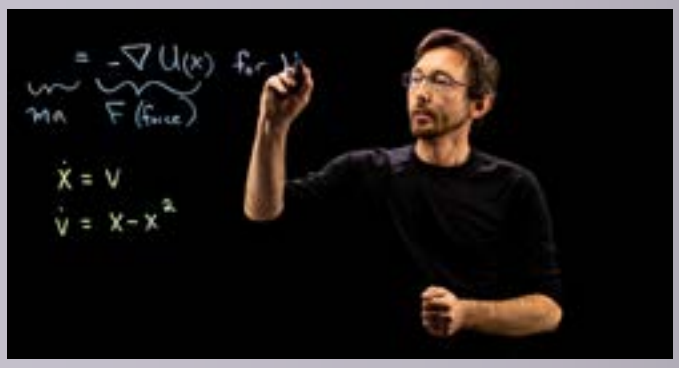
Transforming engineering education doesn't happen overnight. "Right now we're working with colleagues at the UW and at our partner institutions to develop a flexible 'AI for engineering' curriculum for students, from first-year undergraduates to those in advanced graduate studies, which will be modular by design to meet students where they are," Brunton says.

On campus, much of this work will take place through the AI Education Institute. Headquartered in the forthcoming Interdisciplinary Engineering Building, it will give UW students the opportunity to develop and apply fundamental technology in AI for dynamic systems.

Online, the team is creating a repository of free information: TED-style talks by experts in the field, lightboard tutorials and lessons available via YouTube. As standard sets of algorithms are defined and established, the team plans to provide workshops and tools to introduce and implement them.

"Online education is more relevant now than ever because of COVID," Brunton says. "We plan to share a world-class education broadly."

"The goal is that anyone anywhere interested in AI for engineering can self-educate," adds Kutz. "There's no barrier to entry for those who want to learn."



As part of the Institute's educational component, the team will make lightboard tutorials that focus on key aspects of AI and machine learning available online for free. The top photo shows Brunton demoing a lightboard lesson, while the bottom shows how the lesson appears online to viewers. Photos by Dennis Wise

Learn more and connect at **dynamicsai.org**

ON A PATH TO HEALTH INNOVATION

From ME student to teacher, Shayla Payne shares the path that has led her toward a career in engineering for human health.

Shayla Payne talks with fellow EIH teaching assistant Kathleen Kearney. Photo by Mark Stone

By Andy Freeberg

Shayla Payne became interested in prosthetics and medical devices as a high school distance runner and skier. “I knew I didn’t want to be a doctor or a surgeon,” she says. “But I wanted to help people continue living their lives and participating in their hobbies even after an injury or other health issue.”

Five years later, Payne — now an ME graduate and teaching assistant (TA) for the Engineering Innovation in Health (EIH) program — is still on track. Her time at the UW has included competing in health innovation competitions, adapting her EIH senior project — and the EIH program itself — to be fully virtual during the pandemic, and interning with industry giant Novo Nordisk. Her experiences demonstrate the many opportunities available to UW engineering students who want to work in health innovation.

Engineering and health

Payne was drawn to engineering at the UW so she could live in Seattle, work with her hands and creatively solve problems. In her first year on campus, she joined Bioengineers without Borders and worked on Insulin Anywhere, a project aimed at improving insulin delivery in areas that are under-resourced or recovering from natural disasters. This was her first project focused on diabetes — a topic that has been a theme in her work since then — and her team won a prize at the 2019 Hollomon Health Innovation Challenge, hosted by the UW Foster School’s Buerk Center for Entrepreneurship.

When it came time to choose a major, Payne selected ME. “I picked mechanical engineering because it’s broad and you get to learn a little bit of everything,” she explains. “No matter what major you choose, the UW is so strong in health and medicine that there’s a lot of opportunity to apply your skillsets.”

During her senior year, Payne enrolled in EIH. The program pairs health professionals with teams of UW students to address unmet needs in health care through a year of intensive study that culminates with a functional prototype device. Payne's team partnered with Novo Nordisk, a world leader in diabetes care, on a project called InsuCon. The team's goal was to develop and test an insulin injection device that could measure the pressure on the needle so a user can be sure they're taking the correct dose.

An InsuCon prototype presented at the 2020 Hollomon Health Innovation Challenge. Photo by Matt Hagen

By spring 2020, the team had finished months of background work and was a finalist in that year's Hollomon Health Innovation Challenge. Right as they should've been building and perfecting their device, the COVID-19 pandemic shut down campus.

But Payne proved to be a capable pivoter. Using the 3D printer in her apartment, she continued designing and fabricating the InsuCon prototype while her teammates worked on data collection, processing and legal components. Novo Nordisk was pleased with the progress the students made and so was ME and Chemical Engineering Professor Jonathan Posner, who directs the EIH program.

"2020 was a difficult year, but Shayla's enthusiasm and resilience were very impressive," says Posner. "When she chose to continue toward her master's degree in ME, the EIH program was happy to be able to have her as a TA. She's played a big role in EIH's success for the last year and a half."

Student, teacher and intern

As a TA for EIH, Payne not only became part of the team teaching the EIH curriculum, but also became partly responsible for the program's operations — including nurturing a web of relationships with clinicians, industry experts and other partners.

"In many ways it was exciting because in a virtual setting we had room to try new ways to collaborate and do work. We could bring members of the EIH community into the classroom who would have been geographically inaccessible otherwise," Payne says. "It's incredible how passionate everyone involved with the program is and the depth of the resources it gives students access to — experts in multiple areas of engineering, regulatory issues, intellectual property and so on. EIH has connections with all kinds of people who are part of Seattle's world-class health care ecosystem."

This past summer, Payne was one of three UW students offered an internship at the Novo Nordisk Research Center in Seattle where she got to see even more health innovation on display. At Novo Nordisk, she worked with the medical device team, started an internal podcast with her fellow interns and helped organize a new virtual speaker series called "Intent to Prevent: The Future of Innovative Healthcare," with the goal of building conversation around health equity and preventative care.

Payne recently finished her ME master's degree, and she's optimistic about the prospects of a career in the health industry. For students just getting started in health innovation and engineering, her advice is to keep an open mind and explore ways to participate.

"I'd encourage new students to check out clubs like Bioengineers without Borders, connect with programs like EIH and the Hollomon Challenge, and get internships as early on as you can," she says. "There are a lot of existing project teams that need more members, so don't be afraid to ask for a spot, it's a great way to get started."

Payne, right, and fellow Novo Nordisk intern and ME graduate student Audrey Shin before a visit to one of the research center's lab areas. Photo courtesy of Shayla Payne

Engineering Innovation in Health

EIH's mission is to develop innovative and accessible solutions to challenges in human health by training the next generation of health innovators. Learn more at **eih.uw.edu**

Mechanical engineers in tech

By Andy Freeberg

What do mechanical engineers do in the world of tech? ME alumni at Microsoft, Amazon and Oracle share their career stories and advice.

Leila Asfari

(B.S. '16)

Mechanical Engineer, Microsoft

What do you do at Microsoft?

When I tell people I'm a mechanical engineer at Microsoft, they often say, "Microsoft has mechanical engineers?" But when you bring up products like Surface and Xbox, our role becomes more obvious. All of the enclosures, controllers and buttons are designed and tested by mechanical engineers.

I work on the Surface Laptop team. The Surface Laptop Studio came out last September, and I worked as an engineering lead on the cameras, the sensors for Windows Hello, the microphones, and the circuit board for the wifi and the antennas.

What was your path to Microsoft?

After graduating, I accepted an offer from Hitachi Consulting even though I didn't really know what being a consultant meant. It turned out to be an amazing way to learn project management, communications, how to work with clients and other skills I hadn't learned in engineering classes. I also taught myself some programming and software skills, but after a year or so I realized how much I missed working on hardware.

I got hired as a contractor for Microsoft's Advanced Prototyping Center. They have a huge machine shop, with everything you could want for prototyping — it's like an ME's dream. I interacted with MEs from different device teams and helped them with prototyping and testing. After a year and a half, I was hired as a full-time engineer, where I am now.

Do you have advice for MEs interested in the tech industry?

Many of the skills I learned in ME like computer-aided design and geometric dimensioning and tolerancing as well as fundamentals in thermals and problem solving are all skills I use at work. However, I didn't appreciate how important non-technical skills like communications, writing and public speaking would be. Take those classes seriously, build your network and find opportunities to co-own projects so you learn to work collaboratively.

Ken Latimer

(B.S. Mechatronics '16, M.S. '19)

Software Engineer, Oracle

What's your role at Oracle?

I work on Oracle's cloud product, Oracle Cloud Infrastructure. It offers lots of the standard cloud computing needs. I'm on a team called OKE, which stands for Oracle Kubernetes Engine. Kubernetes is a system for orchestrating containers, or packaged applications, to run across different computers in the cloud.

How did you shift from ME to software?

I picked ME because I wanted to know how cars work. I didn't like programming at first. That started to change in mechatronics class when we tinkered with Linux computers by writing code and watching it work. After finishing my undergraduate degree, I returned for my master's to learn more about flight controls and mechatronics. I got involved with the Boeing Advanced Research Center (BARC) and for my thesis built a robot that inspected aircraft wings. From that project I learned more programming, plus it introduced me to people at Boeing and helped me get an internship there.

By the end of grad school, I'd decided I wanted to work in software. I took an online course in web development then applied for software engineering jobs at Boeing, where I eventually got an offer to work on a flight test data systems team. I got introduced to containers working with a software platform called Docker. That led me to my current role developing container features for OKE.

What tips would you give MEs interested in tech?

Develop an understanding of data structures and algorithms. Then get programming experience any way you can. I took some computer science electives, but there are tons of programming courses online. Consider taking on a passion project — if it's something you really care about, you'll put in the time to learn what you need to and take it to the finish. It also helps to be involved in a club, lab or research center like BARC where you'll be around experienced people to learn from.

Karen Harban

(B.S. '14, M.S. '15, Ph.D. '19)

Research Scientist, Amazon

Tell us about your work.

I'm a research scientist on Amazon's Prime Air team.

We're working on an unmanned aerial vehicle system for package delivery. Our group has different business and engineering aspects working on how we can make custom deliveries by drone. My role is developing numerical models to assess structural integrity. That feeds design and manufacturing changes of the drone's primary structures.

How did ME lead you to your job?

I got involved in research during my senior year and received a funded research opportunity for my master's degree. It involved studying composites for aerospace applications with ME Professor Mark Tuttle and the Center of Excellence for Advanced Materials in Transport Aircraft Structures.

When I finished my master's I had another research opportunity to work on my Ph.D. with Bridgestone. My dissertation on structural analysis of discontinuous fiber composites translated well to what Amazon was looking for in structural engineering. My first role at Amazon as a product design engineer involved validating analysis with component and material test data, very similar to what I worked on in graduate school. Eventually that evolved into my current role.

Any advice for MEs interested in tech jobs?

Tech companies look for critical thinking skills. While some of those are skills you'll get in the classroom, many are easier to get from outside interests. Internships focused on research and academics are valuable, and they can expose you to different kinds of jobs.

At a big company like Amazon, there are opportunities to switch roles once you're there. Some people gravitate toward information technology, some into business and others toward science, like I did. You don't necessarily need to end up doing the same thing you start with.

Alumni connections

Alumni are an essential part of ME. Learn more about opportunities to get involved at **me.uw.edu/alumni**

MECHANICAL ENGINEERING
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2022 GRADUATION

This year ME awarded nearly 170 bachelor's, 130 master's and 30 doctoral degrees to the class of 2022. The graduation ceremony was held in-person for the first time since 2019.

A special thank you to this year's graduation speaker, Billy Price, BSME '02, who shared his story of resilience in the face of adversity.

During his freshman year at the UW, Price sustained a traumatic spinal cord injury and paralysis from the chest down. Instantly, his life changed. But he leaned in, relearning everyday tasks and coming up with solutions to challenges he faced. Along his journey he re-entered the UW, completed his ME degree and began working for the Federal Aviation Administration. He also started BILLY Footwear, a shoe company that embodies universal design. And business continues to grow, allowing Price and his company to make a measurable difference in the world, one foot at a time.

Thank you, speakers

Chair's Distinguished Industry Lecture Series:

Jose Gutierrez, Microsoft; Ruth Branch, Pacific Northwest National Laboratory

Boeing Advanced Research Center Seminar:

Jill E. Seebergh, Boeing

Leadership Seminar Series:

Angela Templin (BSME '99), Glumac; Michelle Carey (BSME '01), Boeing; Mekonnen Kassa (BSME '94), Microsoft; Ayo Olanrewaju, UW Mechanical Engineering; Paul Edwards (BSME '05, MSME '06, PhD ME '10), Tesla; Michelle DiBenedetto, UW Mechanical Engineering; Allison Headlee (BSME '04, MSME '09), LMI Aerospace; Jason Johnson (BSME '98), PACCAR; Darin Klemchuk (BSME '90), Klemchuk LLP; Billy Price (BSME '02), BILLY Footwear

Department Seminar Series:

Jeff Moehlis, UC Santa Barbara; Taeyoon Kim, Purdue University; Victor Barocas, University of Minnesota; Oscar Flores, Universidad Carlos III de Madrid; Nikhil Koratkar, Rensselaer Polytechnic Institute; Michael McAlpine, University of Minnesota; Sarah Bergbreiter, Carnegie Mellon; Harry Dankowicz, University of Illinois Urbana-Champaign; Ellen Arruda, University of Michigan