

COLLEGE OF ENGINEERING

*The 25th
Anniversary*

**OREGON STATER
AWARDS**



**Oregon State
University**

FROM THE DEAN

Empowering the next generation of problem-solvers

To change the world, you've got to do the unusual.

At the College of Engineering at Oregon State University, our fantastic education, research excellence, and passion for making things better get us far. But what sets Oregon State Engineers apart is the ability to approach a challenge with a mindset that moves beyond what just one person or one discipline can do.

This year, I look forward to continuing our effort to create a better future for Oregonians through creative problem-solving. We're bringing that approach to Oregon's economic development with our National Science Foundation-supported Regional Innovation Engine, "Advancing Semiconductor Technologies in the Northwest."

Our mission — to make a great engineering education possible for any Oregonian who wants it — is made possible by clever, well-designed and well-delivered online programs, like our new ones in construction engineering management and mechanical engineering.

We're building a better home for our work in Corvallis through a master plan that leverages our existing resources to benefit our mission and the faculty, staff, and students who make it happen.

And, of course, we're educating the next generation of creative problem-solvers, as we have since the beginning. Students are at the heart of what we do, and when they graduate, they



go and do the incredible across the world. And, if we're lucky, they come back to us to share their experience and wisdom and to let us celebrate their achievements.

Our 2023 Engineering Hall of Fame honoree, Dennis Fritz, B.S., mechanical engineering '64, M.S. '67, has spent his career thinking outside the box. Dennis' curiosity and love of a good challenge led DWFritz Automation to create customized manufacturing solutions for a vast number of industries. His eye for what's next and ability to pivot toward the cutting-edge inspires me as we move into a rapidly shifting future powered by artificial intelligence.

And at the center of it all is Dennis' love for people, especially his fellow engineers and problem-solvers. I wish all our engineering students could sit down and have a conversation with Dennis — they would surely leave with a piece of his wisdom, a fire in their bellies, and a good laugh or two.

Please join me in congratulating this year's Oregon Staters as we

celebrate their achievements and anticipate more great things to come.

Go Beavs!

Scott A. Ashford, Ph.D., P.E. (California)
Kearney Dean of Engineering

TABLE OF CONTENTS

- 4 ABOUT THE AWARDS**
- 5 ENGINEERING HALL OF FAME**
Dennis W. Fritz
- 6 ACADEMY OF DISTINGUISHED ENGINEERS**
Modjtaba Ghodoussi, Pavan Kumar Hanumolu, Carl Haynes, Jay McRae, Tsai-Chen Wang
- 9 CLEAN WATER INITIATIVES AT OSU**
- 10 EFFORTS TO BUILD SUSTAINABLE SEMICONDUCTOR ECOSYSTEM**
- 12 THE VALUE OF EDUCATION AT OSU**
- 13 COUNCIL OF OUTSTANDING EARLY CAREER ENGINEERS**
Elizabeth Crain, Wesley Deason, Brian Jackson, Sarah Jones, Kevin Kemper, Michael Levy, Paige Molzahn, Alison Tanaka, Anh B. Tong, David Zier

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Welcome to the Oregon Stater Awards

In the world of engineering, where ingenuity and impact intersect, the Oregon Stater Awards shine a spotlight on the extraordinary minds shaping our innovation landscape. This year's distinguished honorees are pioneers in their respective fields, architects of transformation, and builders of legacies that reverberate far beyond academia.

With great pleasure, Oregonian Media Group presents this special program to showcase the brilliance encapsulated by the 2023 Oregon Stater Award recipients.

Beyond the individual accolades lies a profound narrative of collaboration's potency and the critical significance of nurturing engineering education and research. The Oregon Stater Awards, in essence, transcend mere recognition, but demonstrate how investing in engineers is an investment in the future itself.

Congratulations to the 2023 Oregon Stater Award recipients! Your work is inspiring and shows us what the future holds.

John Maher
President
Oregonian Media Group



About The Awards

In 1998, THE COLLEGE OF ENGINEERING introduced the annual Oregon Stater Awards to honor outstanding alumni for their contributions to the engineering profession and to Oregon State University. Three categories recognize outstanding achievement at different stages of an Oregon Stater's career:

ENGINEERING HALL OF FAME

Presented to a distinguished leader in recognition of their sustained, meritorious professional accomplishments and leadership contributions in the field of engineering. This award celebrates both the professional and the personal achievements of the honoree. Hall of Fame inductees must be alumni of Oregon State University.

ACADEMY OF DISTINGUISHED ENGINEERS

Presented to mid-career engineers who have made sustained, distinguished contributions to their profession, their field, Oregon State University, or society at large. Awardees must be Oregon State Engineering alumni, currently active in the engineering profession, with a minimum of 20 years of experience beyond their bachelor's degree.

COUNCIL OF OUTSTANDING EARLY CAREER ENGINEERS

Presented to engineers who have distinguished themselves through their professional accomplishments, service to Oregon State University, the engineering profession, or society at large. These individuals have made early career contributions that identify them as rising leaders in their profession or field. Awardees must be Oregon State Engineering alumni with less than 20 years of professional experience beyond their bachelor's degree.



CONGRATULATIONS

Sarah Jones

on being inducted into the

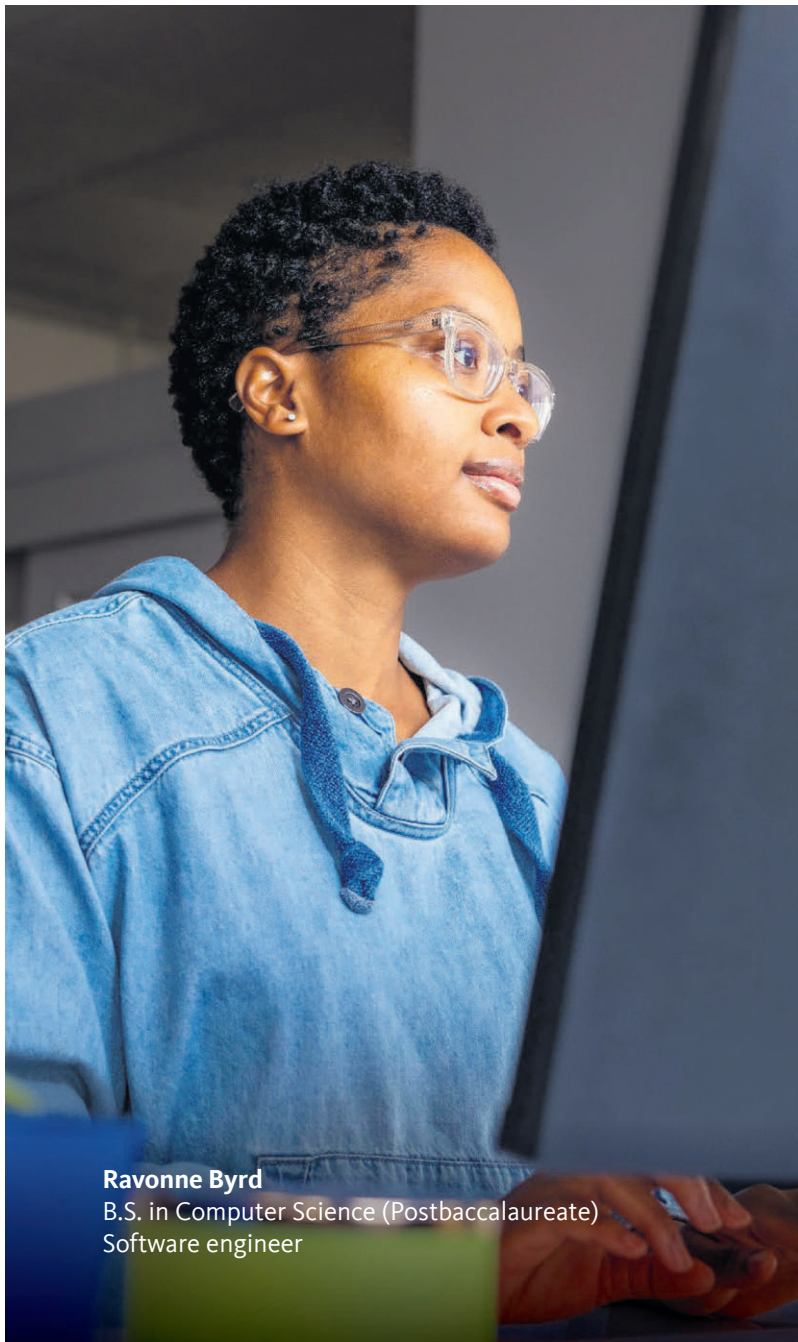
OSU Council of Outstanding Early Career Engineers

Continue to lead the way with excellence!

www.deainc.com



O10764328-01



Ravonne Byrd
B.S. in Computer Science (Postbaccalaureate)
Software engineer

THE FUTURE OF ENGINEERING ONLINE

Fact 1: The demand for skilled engineers continues to rise.

Fact 2: Oregon State University is educating tomorrow's engineers and computer scientists to meet this demand and accelerate growth in Oregon and beyond.

OSU delivers a variety of high-quality engineering degrees and programs online, preparing learners to make an impact in fields ranging from semiconductors to robotics to clean energy — and helping to secure Oregon's future as a hub of innovation.

ecampus.oregonstate.edu/engineering



O10752109-01

AWARD

Engineering Hall of Fame

Dennis Fritz will tell you there was never a time when he wasn't an engineer. From his childhood, growing up in Roseburg, Oregon, Fritz began tinkering with door hinges and grabbing screwdrivers to discover how things work. He has always loved working with his hands, and becoming

an engineer seemed to be his destiny. He says the College of Engineering at Oregon State University was "the obvious only option" for his education.

"Engineering at Oregon State is no small matter," Fritz said. "You have to take it seriously, and I did." The road to his degree wasn't easy. Fritz had the determination and inquisitive spirit the college expects from students. What he didn't always have was time. "I was consistently driving back and forth from Corvallis to Roseburg," Fritz said, recalling the time when he was attending classes at Oregon State while dating his high school sweetheart long

distance. Eventually, the two decided to get married. Fritz's career path became clearer, with better grades and support from his wife, Susan. He not only completed his bachelor's degree at Oregon State, but went on to earn a master's degree three years later. With his degrees and his lifelong curiosity for machinery, Fritz founded DWFritz Automation in 1973. The business charted a course within the lumber industry but soon pivoted into precision manufacturing, working with some of the most innovative and

advanced technology companies of the time, such as Oregon Saw Chain, Hewlett-Packard, and Boeing. When Fritz started out in the engineering world, just about everything was mechanical "with some electrical mixed in," he says. But technology moves fast, and part of his job as head of the company was to keep up. "We had to invent these machines as we went. It felt like we were doing something really significant," Fritz said. "We were enabling manufac-

turers to make their products and stay competitive. We felt like we were all part of a larger team." While DWFritz and its employees thrived as engineers, Fritz noticed a gap on the business side of the operation. His wife, Susan, stepped up to take a leadership role.

"She was a big part of the company and did a lot to keep us out of trouble," Fritz said of his late wife. "She had a no-nonsense business brain." Fritz praised Susan for her ability to keep the company afloat in even the hardest of times, making sure everyone got paid and was properly taken care of as employees. In 1999, Fritz brought his son into the company. Mike Fritz also went to Oregon State University, where he earned a degree in business. When he started working for his dad's company, his goal was to elevate creative strategy and marketing. With the talents of Dennis, Susan, and Mike Fritz all firmly in place, DWFritz was steadily growing into the powerhouse of highly precise automated systems it is known as today. Over the years, DWFritz has broken into a wide variety of industries, including aerospace, energy, medical devices, and semiconductors.

"One of our core values within our company is to build machines that we can be proud of. We build machines that our whole staff can get behind," Fritz said. Fritz says it's satisfying to work on a machine — for six months or maybe longer, depending on the complexity of the project — and end up producing something the client is really happy with. "The machines are all kind of like children. They grow up and you send them off to have their own lifetime," he added. Fritz started his work in a small room with a drafting board, a hollow-core door on two sawhorses for a reference table, and a never-ending curiosity. He is immensely proud of what his passion has grown into. "The people that have contributed — my wife, my son,

all of our engineers and employees we had along the way — they put their hearts into these projects, and I am pretty proud of that," Fritz said. At Oregon State, students interact to solve engineering problems in class, in teams, in projects, and with each other. Fritz emphasizes that this collabora-

tion skill combined with the rigor of fundamentals builds great engineers.

Fritz retired in 2018, remaining the company's founder and chairman while son Mike took over day-to-day operations as CEO until they sold the company to Sandvik in 2021. These days, you can find Fritz working on personal projects and relaxing with former colleagues and friends — including an annual 'DWFritz Oldtimers' dinner.



Dennis W. Fritz

B.S., Mechanical Engineering, 1964

M.S., Mechanical Engineering, 1967

Founder/CEO (ret.), DWFritz

At Oregon State, students interact to solve engineering problems in class, in teams, in projects, and with each other. Fritz emphasizes that this collaboration skill combined with the rigor of fundamentals builds great engineers.

"In my experience, the key to engineering is collaboration, and not just mastering the engineering fundamentals. Rarely can even a master engineer succeed alone."

AWARD

Academy of Distinguished Engineers



Modjtaba Ghodoussi

M.S., Mechanical Engineering, 1985

Vice President for Business Innovation and Partnerships

Teladoc Health

Modjtaba “Moji” Ghodoussi has had a remarkable career spanning the fields of robotics and health care. After concentrating in robotics at Oregon State University, Ghodoussi earned his Ph.D. in engineering robotics from the University of California, Santa Barbara. In 1993, he joined Computer Motion (now Intuitive Surgical), a startup that played a pioneering role in the emerging field of surgical robotics, with his work leading to over 60 patents issued in the field.

On Sept. 7, 2001, Ghodoussi’s contributions culminated in the historic telesurgery event known as the Lindbergh operation, in which two surgeons in New York successfully operated on a patient in Strasbourg, France. Ghodoussi takes considerable pride in his part in that achievement, which pushed the boundaries of technology and teamwork.

After leaving Intuitive Surgical in 2004, Ghodoussi continued to develop innovative technologies and cultivate expertise in operations and business development for various startups. He is currently vice president for business innovation and partnerships at Teladoc Health.

Reflecting on his time at Oregon State, Ghodoussi acknowledges the profound impact of the institution on his life and career. He speaks highly of the College of Engineering’s combination of rigorous education and a nurturing, supportive environment, which played a pivotal role in both his personal and professional journeys.

“Enjoy the unique offerings of Oregon State, from the amazing community it has; to its amazing professors, staff, and campus; to its amazing environment of nature, ocean, lakes, and mountains.”

Ghodoussi’s career has had lasting impacts on the health care industry, particularly in the field of surgery and the broader digitization of healthcare delivery. He envisions a future where engineering, including the integration of artificial intelligence and digital tools, will continue to transform health care, aiming for individualized, whole-person care.



Pavan Hanumolu

Ph.D., Electrical and Computer Engineering, 2006

Professor

University of Illinois, Urbana-Champaign

Pavan Kumar Hanumolu is the Seendripu Family Professor in Electrical and Computer Engineering at the University of Illinois, Urbana-Champaign. Prior to his appointment at UIUC in 2013, he served on the faculty at Oregon State University.

“My experience at Oregon State and the College of Engineering was personally and professionally transformative,” Hanumolu said. “When I first arrived, I had little knowledge and experience in my field. My time there was crucial in shaping the person and researcher I am today.”

Hanumolu’s research areas include energy-efficient integrated circuit design for wireline communication systems, analog and digital signal processing, sensor interfaces, and power conversion. His noteworthy achievements encompass pioneering work in ultralow-jitter clock generation, high-speed electrical and optical communication links, high-sensitivity transimpedance amplifiers, and power management circuits. He has published over 200 peer-reviewed articles.

As an educator, Hanumolu has mentored and guided more than 60 graduate students, many of whom now excel as academic faculty and industry leaders. He has overseen the completion of more than 30 doctoral theses. He also delivers invited lectures at various universities and conducts short courses for practicing engineers.

Hanumolu works closely with industry partners to ensure that his students’ training aligns with real-world, industry-relevant problems. His students graduate well-prepared, possessing the knowledge and skills to make immediate and significant impacts in industry.

“Oregon State provided the foundation for my career and the enduring friendships I cherish today. I advise current students embrace the welcoming atmosphere, tap into the abundant intellectual resources, and forge connections that will last a lifetime. Your time here will shape your education, future success, and personal growth.”

As a student at Oregon State, Hanumolu cherished the College of Engineering’s welcoming and enriching environment, where students from various backgrounds thrive, form lasting connections, and acquire skills that serve them well. He applies that experience to his work as an engineer and educator today.

AWARD

Academy of Distinguished Engineers



Carl "Brady" Haynes

B.S., Nuclear Engineering, 2001

Director of Reactor Engineering

National Nuclear Security Administration

Carl "Brady" Haynes is director of reactor engineering for the Naval Nuclear Propulsion Program reporting to the deputy administrator for naval reactors within the National Nuclear Security Administration. Haynes is responsible for research and development, design, and manufacturing of all Navy nuclear reactor cores and associated reactor plant heavy equipment.

Haynes holds a master's degree in mechanical engineering from the Naval Post Graduate School and a bachelor's degree in nuclear engineering from Oregon State University. His time at Oregon State has had lasting impacts, both personally and professionally, from opportunities available through the School of Nuclear Science and Engineering and the professional contacts he made and continues to enjoy today.

"Access to a nuclear reactor was an amazing opportunity for me as a student," Haynes said. "Running experiments with a real reactor, giving tours on Family Weekend, and getting to stand over the reactor during a pulse enthralled me as an engineering student and cemented my desire to work in the nuclear field for my career."

Today, Haynes is responsible for NNPP's delivery of nuclear reactors and reactor heavy equipment for Virginia class

submarines, Ford class aircraft carriers and Columbia class ballistic missile submarines. He is also responsible for supporting safe operations and maintenance for 99 operating reactors.

"People, not organizations, get things done. So, seek out great people, surround yourself with them, and there will be no limit to what you can accomplish."

Haynes says the industrial base is growing to meet demand, and the pace of innovation is accelerating to not only improve the products of today, but to enable the advancements of the future. It is an exciting time to be a part of the nuclear industry and the U.S. Navy continues to lead in delivering safe and effective nuclear power. Haynes appreciates the College of Engineering's vast array of specialties that deliver practical solutions to real-world problems. Haynes notes that no matter what your engineering interests are, you can find a way to pursue your passion at Oregon State.



Jay D. McRae

B.S., Civil Engineering, 1983

Founder

The McRae Group, LLC

Jay D. McRae first thought about enrolling in the civil engineering program at Oregon State University while observing road construction jobs with his older brothers. As the youngest of seven siblings, McRae believed Oregon State was the best choice for an engineering degree. Because he lived at home while attending classes, he was able to afford tuition and became the first in his family to earn a four-year degree.

While his backup plan was to be an art teacher and an athletic coach, McRae received his bachelor's degree in 1983. He still loves art and applies the creative process to the engineering work he does today.

Jobs were hard to come by when he graduated, but OSU prepared McRae well to find employment after he finished school. Once established in his field, he quickly learned he was better suited to working with and leading teams rather than hands-on equipment operation. He has experience in planning, design, construction, and maintenance for both private and public sectors.

Thinking about the future of his field, McRae knows there will always be a demand for civil engineers to support community livability and economic vitality.

"The first third of my career was about developing leadership and management skills to build and lead teams, completing projects on time with high client satisfaction," McRae said. "Now I live at the intersection of strategy and execution. I really enjoy coaching executives, developing growth strategies, and supporting small- to medium-sized businesses in outperforming their goals while retaining their people and pursuing cultural excellence."

"Grit and curiosity are essential ingredients of success in a people business like engineering."

McRae attributes his adaptability to his time at the College of Engineering. The college has placed itself on the forefront of research in resiliency while maintaining a flexible learning environment for students from diverse backgrounds. McRae appreciated the opportunity to excel individually while also a significant member of a team. He cherishes the skills he acquired in college, which remain essential for performing in his industry.

AWARD

Academy of Distinguished Engineers



Tsai-Chen Wang

M.S., Chemical Engineering, 1992
 Ph.D., Chemical Engineering, 1996
 Engineering Director
 WaferTech

Tsai-Chen Wang is a distinguished figure in the field of semiconductor manufacturing, with an illustrious career spanning over 25 years at WaferTech, a subsidiary of TSMC and a pivotal player in the semiconductor industry.

Throughout his tenure at WaferTech, Wang has held various key positions within the engineering group, focusing on technology transfer and development, and the establishment of rigorous quality systems.

Wang’s contributions have had a positive impact on WaferTech’s reputation as a leader in reshoring semiconductor manufacturing to the United States. He has worked extensively to improve the manufacturing process, organizational efficiency and eliminating defects in the final product.

Wang’s proudest career moment is tied to the establishment of a robust quality system that underscores engineers’ accountability while providing a clear path for management intervention or escalation when faced with unresolved issues.

Wang also serves on the industry advisory board for the School of Chemical, Biological, and Environmental Engineering. When asked about the influence of Oregon State University and the College of Engineering on his life, Wang emphasized the role education has played in advancing his career and personal growth. Also, he acknowledges that OSU helped to develop a strong work ethic and sense of discipline.

“Belief in oneself, hard work, and the courage to learn from failures will lead to a rewarding and accelerated career path.”

Wang adds that the solid training he received has helped him to apply critical thinking and problem-solving skills to daily life situations. He also met his wife at Oregon State, making his time there an even more cherished aspect of his personal journey.



SANDY, '67, AND AL HANSEN, '68, have long known the joy and laughter that pets provide us every day. So after losing four dogs to cancer over the years, they decided to plan an estate gift that will one day establish an endowed chair in cancer research as well as an oncology equipment fund at OSU’s Carlson College of Veterinary Medicine.

“The amount of joy a pet brings to a family is immeasurable,” they say. “We’re hoping our gift will allow future pet owners to spend a little more time — whether it be another year, month or week — with their pets.”

You, too, can make a meaningful difference at OSU through your will or trust. Contact me to learn more.

Jennifer Milburn
 OSU Foundation | Office of Gift Planning
 Gift.Planning@osufoundation.org
 541-231-7247



Clean water initiatives get a boost

The College of Engineering at Oregon State University is poised to strengthen its already substantial efforts in ensuring communities in Oregon and beyond have access to clean water, thanks to two new faculty appointments made possible by support from the college's wider community.

First is the appointment of Dorthe Wildenschild as the Jon and Stephanie DeVaan Chair and Executive Director for Clean Water Initiatives. This position builds on the efforts of the Clean and Sustainable Water Technology Initiative, launched with investment from Jon and Stephanie DeVaan in 2018.

"Investing in clean water is a hopeful effort for humanity's future. We believe Oregon State is a leader in solving clean water problems for the world," Jon DeVaan said. "We are excited to see Dr. Wildenschild appointed to be the executive director as her unique combination of research, collaborative, and administrative skills will lead Oregon State's efforts to the next level of effectiveness and prominence."

Wildenschild's experiences as an educator, collaborator, and leader make her the ideal incumbent for this position. As a researcher, Wildenschild, who is a Henry Darcy Distinguished Lecturer in Groundwater Science, focuses on flow and transport in porous media to answer questions about subsurface water pollution and energy-related storage challenges. Her recent work includes investigations in support of more effective groundwater remediation techniques, including a better understanding of how bacterial biofilms can help us clean groundwater.



Dorthe Wildenschild

"I am thrilled to lead the future efforts of the Clean Water Initiative, efforts that will be facilitated by generous financial support from the DeVaan," Wildenschild said. "Our shared vision is to raise the profile of clean water research at Oregon State — aligning with clean water's importance to the university's new strategic plan — thereby increasing the impact we can have on the world. Access to clean water and sanitation is a basic human right, and both our college and the wider Oregon State water community have the tools, expertise, and resources to make a difference. I look forward to being part of the journey."

Second is the appointment of Meghna Babbar-Sebens as the Evans Family Professor in Clean Water. Richard and Gretchen Evans have long been interested in improving lives through engineering and science. With a successful 2015 investment in one of the few endowed professorships in humanitarian engineering nationwide, Richard and Gretchen are now supporting the development of clean water solutions here and abroad through this position.



Meghna Babbar-Sebens

"Growing up in rural Western Oregon in the 1960s, Gretchen and I never thought about clean water as a scarce commodity," Richard Evans said. "However, after traveling and working in Africa, India, Europe, South America — and even California — for five decades, we have come to appreciate that it is an increasingly scarce and precious resource — one with immense health and economic consequences. In the United States, we seem to be better at responding heroically to catastrophes such as fires, floods, and earthquakes than we are at dealing with longer-term structural issues like water availability. We are delighted to support someone of Meghna's expertise and commitment to build the needed knowledge base in this critical area."

Babbar-Sebens's vision of systems-based water solutions is exactly the kind of work the Evans family wishes to support. Her research interests include hydroinformatics, which employs simulation modeling, information, and communication technologies to solve problems in hydraulics, hydrology, and environmental engineering. Her lab's multidisciplinary project on the re-naturalization of degraded watersheds includes web-based tools to help stakeholders visualize possible solutions for watershed problems and select the best way forward.

"I am so grateful for the support of Jon and Stephanie DeVaan and the Evans family," said Scott Ashford, Kearney Dean of Engineering at Oregon State University. "Their investment in the College of Engineering will bolster and build upon the efforts of over 150 faculty across Oregon State University working on clean water solutions. Collaborative research and education to solve big challenges is a strength of Oregon State and a key pathway to ignite prosperity across Oregon and beyond."

New growth in the Silicon Forest

Oregon State leads efforts to build sustainable semiconductor ecosystem in Pacific Northwest

Oregon State University's College of Engineering has been at the heart of the Silicon Forest for decades. That hub of microchip manufacturing and innovation has grown up and outward from its corner of Oregon to become a vital part of the semiconductor industry, with significant impacts throughout the Pacific Northwest.

Today, the College of Engineering is poised to take advantage of new opportunities to create a robust regional ecosystem for sustainable semiconductor technology, with Oregon State at its core.

This spring, the college was awarded a \$1 million federal grant for just that purpose, and Oregon State joined forces with a dozen other northwestern universities in an industry-academic collaboration to build up the region's semiconductor workforce. These developments come on the heels of last fall's announcement of the \$213 million Jen-Hsun and Lori Huang Collaborative Innovation Complex, planned for 2025, which will bring new capabilities for advanced semiconductor research to Oregon State.

The college's semiconductor strategy focuses on recruiting talented and ambitious faculty, investing in new research facilities, upgrading existing infrastructure, forging deeper and longer-lasting partnerships with industry, and competing for federal and industry-sponsored research funding — along with developing new curriculum to train the next generation of engineers for a growing number of industry jobs.

Partner of choice

Long a partner of choice for the semiconductor industry, the College of Engineering has grown up alongside it, evolving expertise in integrated circuit design, electronic materials and devices, process technology, packaging and integration, hardware security, artificial intelligence, and numerous sub-specializations. Together, these areas account for more than \$12 million in annual research expenditures on projects involving some 45 faculty members and 200 graduate students.

The college has built long-lasting and mutually beneficial relationships with many leading tech companies in the region, including HP, Silicon Forest's first towering giants; Inpria, an Oregon State spinout acquired by the Japan-based multinational JSR Corp. for \$514 million in 2021; Analog Devices; and Lam Research, among others.

Increasingly, the semiconductor industry has looked to the College of Engineering to educate and train its growing workforce. The Pacific Northwest accounts for 15% of



semiconductor jobs in the U.S., and big tech companies now rank among Oregon's top employers statewide. Industry demand for skilled workers has already begun to outpace supply. By the year 2030, U.S. chipmakers will face an estimated shortfall of 67,000 workers, according to a study published in July by the Semiconductor Industry Association.

Oregon State has made contributing to the stability and growth of the semiconductor industry a university priority, leading to the creation of a Semiconductor Strategy Advisory Committee, co-led by Tom Weller, school head and the Michael and Judith Gaulke Chair in Electrical Engineering and Computer Science.

"People are starting to think in a whole-systems way, not only in research and development, but also in education and training," Weller said. "The way these issues have traditionally been approached often involves transactional or one-off relationships between a company and a university, or a couple of universities working together. Much more comprehensive models are needed to meet the current challenges. The relationships we have with industry in Oregon are exceptional, if not unique. We really have strong, close ties with our industry partners."

A generational opportunity

"There's a generational opportunity for federal funding, and we're trying to position the university and the region in general to be as competitive as possible," Weller said.



That opportunity announced itself last August, when President Joe Biden signed the bipartisan CHIPS and Science Act of 2022, a \$52.7 billion package to accelerate domestic production of semiconductors, including \$13 billion for research and workforce training.

Oregon leaders have responded in kind. In April of this year, Oregon Gov. Tina Kotek signed the Oregon Semiconductor and CHIPS Act. The Oregon spending bill leverages potential federal investment in Oregon's semiconductor industry with an additional \$210 million in state funds, including \$10 million to help public universities secure federal research grants. In June, the Oregon Legislature approved \$72 million in state bonds to assist in the construction of the Collaborative Innovation Complex.

Regional Innovation Engine

In May, Oregon State was selected to spearhead a \$1 million project, called Advancing Semiconductor Technologies in the Northwest, part of the NSF's Regional Innovation Engines program. The effort is led by Pallavi Dhagat, professor of electrical and computer engineering.

"The engine aims to partner with stakeholders in the region — industry, academic institutions, government laboratories, community outreach, and business development organizations and philanthropists — to develop a vibrant, inclusive, and sustainable ecosystem for education, research, and innovation in semiconductor technologies in the Pacific Northwest," Dhagat said.

Oregon State will work with more than two dozen partners over the next two years, including the University of Washington,

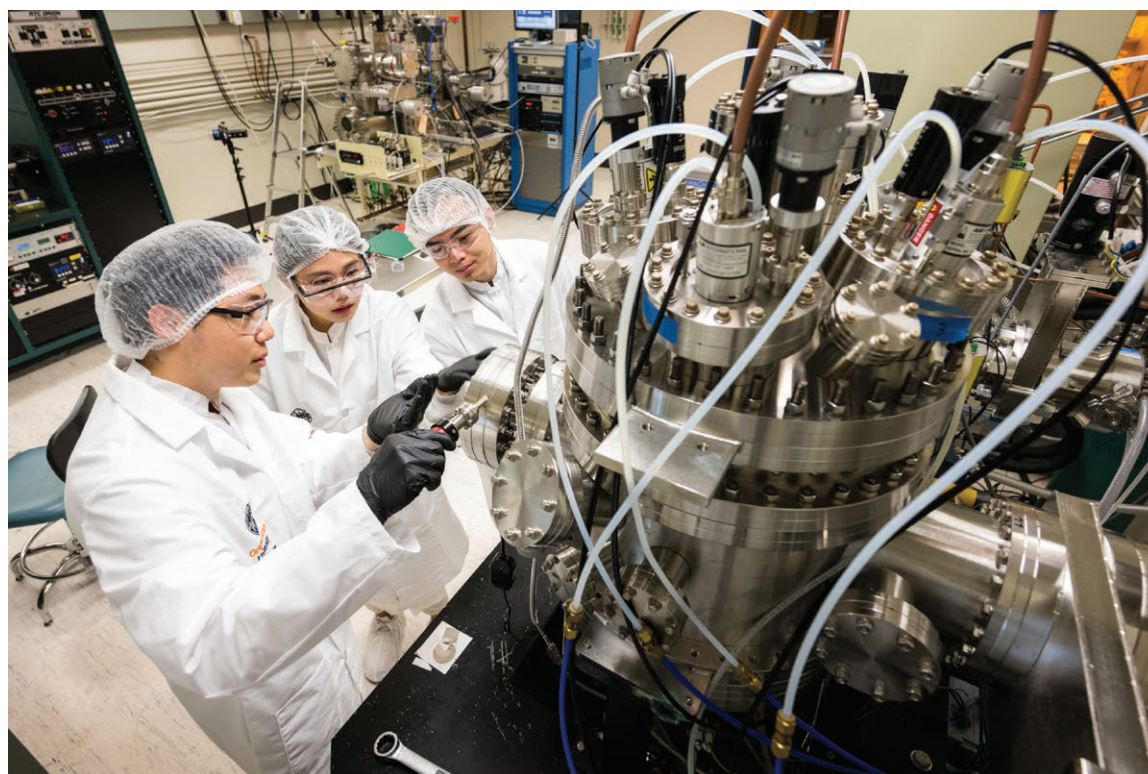
Boise State University, the Oregon Business Council, and the city of Hillsboro. At the conclusion of the project, the partners will be eligible for up to \$160 million in additional funding over the succeeding 10 years.

Northwest semiconductor network

In June, Oregon State became a founding member of a university-industry collective tasked with developing the next generation of semiconductor workers. The Northwest University Semiconductor Network, led by Micron Technology Inc., will support research and experiential learning opportunities in the computer chip industry.

Micron and the universities in the network plan to align with a pair of industry groups, the American Semiconductor Academy and the SEMI Foundation, that are partnering on an initiative to build a comprehensive workforce development program through the combined efforts of universities, community colleges, and companies.

Oregon State and the other 12 founding partners were identified based on strong undergraduate and graduate programs in engineering and other STEM fields, their research and development expertise and the hands-on learning opportunities they provide.



What is the value of an Oregon State Engineering degree?

If you've already decided to study engineering at Oregon State University: Congratulations! An engineering education is a great investment in your future, and Oregon State's College of Engineering is a great place to begin creating a better future for yourself.

Chances are, though, you're not entirely sure. That's understandable. Perhaps you've never given serious consideration to engineering. Or maybe you haven't figured out where you want to spend the next four or five years. If that sounds like you, consider spending the next four or five minutes learning about the value of an Oregon State Engineering degree.

The cost of attendance at Oregon State is right around the national average for four-year public universities. And yet Oregon State graduates earn, on average, \$20,000 more per year than the average annual salary for all U.S. university graduates. That's how Oregon State earned the distinction of offering "the West Coast's most valuable degree."

Just about any undergraduate degree can unlock the potential for increased earnings that will far outweigh the cost of attendance, over the lifetime of a career. The median 40-year return on investment for U.S. bachelor degrees is 287.7%, according to the Education Data Initiative.

However, those who graduate with an engineering degree can expect much higher returns. For general engineering, the median 40-year ROI is 427.0%. It's even higher for some engineering majors. Computer science tops the list, at 823.0%. Over an entire career, those increased earnings can easily reach into the millions of dollars.

But the true value of an Oregon State Engineering degree can't be measured in money alone. Here's a small sampling of additional benefits:

Collaborative excellence. Although engineering historically has been seen as a highly competitive field, we flip the script by emphasizing collaboration at all levels. Our commitment to student success can be seen in initiatives like Engineering+. This innovative first-year curriculum offers an immersive student experience that encourages exploration and discovery, with lectures supplemented by small-group studios and courses organized by topic instead of major.

Inclusive community. We welcome to our community anyone who wants to become an Oregon State Engineer. Our college embraces diversity as a core value and celebrates individual differences as a source of strength. We actively recruit students from populations that are underrepresented in engineering,



and we offer additional support through initiatives like the Catalyst Scholars Program. In particular, we promote and encourage increased participation and leadership by women in engineering.

Work that matters. The College of Engineering's strategic vision is focused on creating a better future. Our faculty are working to develop innovative solutions to address some of humanity's greatest challenges, in areas such as renewable energy, clean water, climate change, advanced health care,

sustainable manufacturing, industrial automation, and resilient infrastructure.

Industry connections. The College of Engineering has developed mutually beneficial relationships and ongoing collaborations in research and workforce development with some of the biggest and most innovative companies in the Pacific Northwest. Oregon State University is a preferred hiring partner for Adidas, Amazon, Apple, Boeing, Coach, Dell, Deloitte, Google, HP, Intel, Nike, NVIDIA, Pixar, and Tesla, among others. The majority of our engineering students complete at least one internship, and many receive lucrative job offers before graduation.

National distinctions. Oregon State University stands out as one of only two universities in the country with land, sea, sun, and space grant designations. Our College of Engineering ranks among the top one-third of the best engineering schools nationwide, No. 7 among the country's largest by enrollment, and No. 1. in the number of computer science degrees conferred. Our engineering faculty includes many who are internationally recognized as leading experts in their fields.

Amazing location. Want to stay in Oregon? It's easy to see why. Our state's abundance of natural beauty, its wealth of outdoor recreation opportunities, its proximity to mountains and the ocean, and its mild climate, combined with the lowest cost of living on the West Coast, make Oregon one of the most desirable places to live in the world.



There is no limit to where you can go or what you can do with an Oregon State Engineering degree. Ready to find out more? Visit engineering.oregonstate.edu.

AWARD

Council of Early Career Engineers



Elizabeth Crain, P.E.

B.S., Chemical Engineering, 2008

Self-employed contractor

While she was still in high school, Elizabeth Crain joined the Apprenticeships in Science and Engineering program and spent eight weeks working with Skip Rochefort, associate professor of chemical engineering at Oregon State University, on a project related to horse joint protection. That experience ignited her passion for practical engineering.

Later, she explored diverse opportunities at Oregon State, shattering engineering stereotypes as a College of Engineering Ambassador and getting extended, hands-on, real-world experience in the Multiple Engineering Cooperative Program. After graduating, she worked for over a decade as a risk engineer with insurance companies, mitigating business and property risks and honing her communication skills.

Following a brief career hiatus, Crain returned to work part-time, balancing her career and family. In 2022, she transitioned to self-employment and secured her professional engineer license. She now specializes in plan review and project management.

Her field, fire protection engineering, will continue to evolve, requiring innovation and adaptation to address new difficulties. In her industry, she addresses challenges posed by evolving technologies, guiding clients in adopting innovative technologies for success.

Crain says her proudest achievement is her growth as a consultant, fostering effective communication and client understanding.



Wesley Deason

M.S., Nuclear Engineering, 2013

**Program Manager
Ultra Safe Nuclear Corporation**

Wesley Deason has dedicated his career to advancing cleaner energy production and exploring innovative applications of nuclear energy to benefit humanity.

After completing his studies at Oregon State University, Deason joined the Center for Space Nuclear Research at Idaho National Laboratory, where he played a pivotal role in NASA's development of space nuclear technology, working to facilitate involvement of industry. He also contributed significantly to INL's Integrated Energy Systems group, focusing on the integration of advanced nuclear systems with renewable energy to decarbonize complex industrial applications.

Deason then embarked on a two-year appointment as a junior professional officer at the International Atomic Energy Agency, in Vienna. He conducted research on the critical role of flexibility in 100% renewable energy systems, with his findings published in a peer-reviewed journal.

Currently, he holds the position of manager, Pylon Program, at Ultra Safe Nuclear Corp., in Seattle. In this role, he supports government contracts in space nuclear technology development and leads internal efforts for the Pylon project, a commercial, space-capable nuclear system architecture. His multifaceted program management responsibilities center on advancing Ultra Safe's advanced nuclear fuel and moderator technologies within compact nuclear energy systems.

Throughout his career in nuclear engineering, Deason has remained committed to reducing the environmental impact of energy generation and expanding the accessibility of clean energy solutions. His innovative contributions and dedication to advancing the field attest to engineering's power to change the world.

“Learn what you can from every opportunity. You glean applicable knowledge and wisdom from both good and bad experiences, which may be just what you need as your life and career ebbs and flows.”

“Always cherish the support of your colleagues and community. It is together that we work to make a positive impact, and everyone’s contributions are important no matter how large or how small.”



R. Brian Jackson

M.S., Nuclear Engineering, 2008

Ph.D., Nuclear Engineering, 2012

Lead, CFD Methods and Validation Engineer

Kairos Power

Brian Jackson came to Oregon State University for graduate study in nuclear engineering after receiving his B.S. in chemical engineering from Brigham Young University.

While at Oregon State, Jackson completed internships at the Idaho National Laboratory and the U.S. Nuclear Regulatory Commission. His internship work aligned with his research at Oregon State, working on the High Temperature Test Facility, a scaled integral non-nuclear gas reactor facility.

“Attending Oregon State for graduate school set me up for future success through the opportunities I received to work on collaborative multiorganizational research projects,” Jackson said.

After completing his doctorate, Jackson started his career with TerraPower, an advanced nuclear reactor company, where he took on a thermal hydraulic testing and simulation analyst role. Jackson spent seven years in that position, learning, changing, and growing into the engineer he is today.

After TerraPower, Jackson joined Kairos Power, an advanced nuclear company that is designing and deploying a fluoride salt-cooled high-temperature reactor.

Jackson also continues to participate in the nuclear thermal hydraulic community, publishing and reviewing technical papers, serving as assistant technical program co-chair of the 2019 NURETH conference, and participating in ASME committees.



Sarah Ruth Jones, P.E.

B.S., Civil Engineering, 2009

Associate, Design Studio Civil Group Leader

David Evans & Associates, Inc.

Sarah Ruth Jones says Oregon State University helped her find her own way as an engineer.

“There are so many great opportunities to discover your path within your field of engineering,” Jones said. “The College of Engineering has a long history of supporting student success through clubs and programs like MECOP, which was started there over 40 years ago.”

MECOP, the Multiple Engineering Cooperative Program, offers student-focused internships that provide real-world industry experience for future Oregon State Engineers. Jones started her own career through the Civil Engineering Cooperative Program with two, six-month internships, at Clark County Public Works and WHPacific.

“While at WHPacific, I was given the unique opportunity to develop a specialization in ADA compliance and site accessibility, which has become a technical focus of my career ever since,” Jones said.

Jones took her passion for CECOP to another level after graduation, when she became a member representative and mentor at WHPacific. “I was eager to give other engineers the same early career opportunities that I was given and to shape the future of my profession,” she said. Jones continues to serve on the board in various positions and is always looking for ways to support future engineers.

Currently, Jones manages the Oregon Civil Engineering group for the Land Development Department at David Evans and Associates. In her role, she mentors staff and manages a wide range of projects, from large commercial developments to smaller ADA compliance retrofits.

“Given the capability of nuclear power to provide large scale clean electricity to the citizens of the world to raise quality of life, nuclear engineering has an important role to play in the future.”

“Find your passion and chase it. This will point you in a direction that will keep you engaged and guide your path to success.”

AWARD

Council of Early Career Engineers



Kevin C. Kemper

B.S., Electrical and Computer Engineering, 2009
M.S., Mechanical Engineering, 2011
Engineer
X, the moonshot factory

In the ever-evolving world of engineering, Kevin C. Kemper has rolled with the punches of his chosen industry in the 12 years since leaving the halls of Oregon State University.

Kemper began his journey at Oregon State by pursuing a degree in electrical and computer engineering.

“I am extremely grateful for my time and experience at OSU,” Kemper said, citing the Tekbots program led by senior instructor Donald Heer as being especially meaningful. “I think the professors in the College of Engineering really recognized a potential in me and gave me the tools and support I needed to push myself to try creative ideas.”

Kemper also credits his graduate advisor, Jonathan Hurst, for laying the foundation and the philosophy for thinking when it came to approaching robotics design. “His emphasis on creating mechanisms and robots that are holistically designed with both hardware and software carefully intertwined is something I keep close in all my work,” Kemper said.

Kemper took his education at Oregon State all the way to a master’s degree in mechanical engineering, which he earned in 2011.

After graduation, Kemper became the lead engineer at Meka Robotics, where he gained extensive experience developing advanced, high-performance modular control architectures — from novel hands and arms to full running and walking systems — for many kinds of robots.

In 2014, after Meka was acquired by Google, Kemper led a group of engineers in the development of a cost-effective robotic arm. After his experiences and achievements with Google, Kemper decided to found his own business, Roam Robotics, based on developing core technology to enable humans to achieve more.

“I’m very proud of my work at Roam Robotics. It was such a privilege to be able to learn how to develop a great engineering culture with such great people. We accomplished a great deal with very few resources, and I learned so much about what it really means to bring a product to market.”



Michael Levy

B.S., Mechanical Engineering, 2019
Operations & Software Automation Engineer
SpaceX

Michael Levy will never forget the experience of loading parachutes, at 3 a.m. in the middle of the desert, into a rocket he’d worked on. Today, Levy is an operations and software automation engineer at SpaceX, currently working in the Starship Flight Software Division.

Levy’s journey to SpaceX started at Oregon State University and was paved by a series of transformative experiences, such as his work on the rocket team — and internships with NASA’s Aeromechanics Division, NASA’s Fluid Mechanics Division, Insitu Inc., Zepher Inc., and SpaceX itself. Those early experiences provided Levy with a diverse skill set and an expert’s understanding of the aerospace industry.

Levy says that when he thinks about his education and experiences at Oregon State University, the things that stand out most are the people — and the opportunities they made available to him. He made connections and quickly found opportunities to apply his newly acquired engineering skills to real-world efforts, both in and out of the classroom. Michael completed his bachelor’s degree in mechanical engineering with top honors, Magna Cum Laude.

During his tenure at SpaceX, Levy has contributed to the success of Starlink user terminals, Dragon subassemblies, and Dragon’s integrated checkouts. He has also built software systems and tools to support Starship checkouts. Most recently, he has contributed to the development of Starship flight software.

Levy’s love for diverse and challenging experiences grew during his time at Oregon State. He fondly remembers how the College of Engineering provided a significant variety of opportunities for students to take advantage of beyond the classroom.

“For me, this was truly the best part of being a student in the College of Engineering,” Levy said.

“While you’re in college, get involved with clubs that truly interest you outside of the classroom. Use your ‘I’m a student’ advantage to get access to the opportunities you’re looking for!”



Paige Sanna Molzahn

B.S., Chemical Engineering, 2014
M.S., Environmental Engineering, 2016
Environmental Engineer
Jacobs

Paige Sanna Molzahn has a lifelong passion for environmental preservation. Flickers of that passion showed as early as eighth grade, earning her recognition as “Most Likely to Save the World.”

After graduating from Oregon State University, Molzahn embarked on an environmental remediation career at CH2M (now Jacobs), where she has thrived in diverse roles: working in the Treatability Lab in Corvallis, conducting bench-scale remediation experiments, and eventually progressing to her current role as project manager.

Molzahn’s efforts are key to Department of Defense-funded projects focusing on the sustainable removal of per- and polyfluoroalkyl substances, a class of industrial chemicals known collectively as PFAS, from the environment. Remediating PFAS contamination on the West Coast, contributing to safer communities and ecosystems, has been a career highlight for her.

Molzahn also serves as the sustainability lead for a large industrial client’s remediation program and is secretary of the Sustainable Remediation Forum, where she presents her sustainability initiatives at conferences. Molzahn’s work influences the remediation industry through sustainability and innovation, educating teams for sustainable project outcomes. She envisions rapid growth and sustainable technology development in environmental remediation’s future.

Molzahn credits her Oregon State experience for her career success. The College of Engineering, especially her faculty advisor Lew Semprini, provided her with a strong network and the opportunity to develop technical skills as well as the “soft” skills needed to build enduring team relationships.

“Throughout my experiences at Oregon State and Jacobs, I’ve consistently emphasized the significance of balancing both technical and soft skills. It has been instrumental in my career to spend the time it takes to develop strong relationships with my teams and to forge long-lasting connections built on clear communication and understanding.”



Alison M. Tanaka

H.B.S., Civil Engineering, 2009
Traffic Engineer
Portland Bureau of Transportation

Raised in a small town in rural Oregon, Alison M. Tanaka came to Corvallis to study civil engineering in 2005.

Tanaka took to her new, much larger environment and classes at Oregon State University with enthusiasm, and an eagerness to find solutions to problems in the built environment using data and applied science.

“The professors I worked with in the civil engineering program are always looking for ways to tie their research into real-world applications,” Tanaka said. “They care deeply about exposing their students to work they can carry forward in their careers.”

After graduating in 2009, Tanaka put her practical knowledge of engineering to use in support of projects across the country involving traffic signal and intelligent transportation system design, operation, and research.

In addition, she was a lead author on NCHRP Report 954: Performance-Based Management of Traffic Signals and NCHRP Report 812: Signal Timing Manual, Second Edition. She is also a member of the Transportation Research Board’s Traffic Signal Systems Committee.

Currently, Tanaka is an engineer in the Intelligent Transportation Systems Section of the Portland Bureau of Transportation. She has worked in the transportation field for the past 12 years with a focus in traffic signals and ITS. Her current role involves supporting PBOT’s Signals, Street Lighting, and ITS Division with a central traffic signal system, automated traffic signal performance measures, networking and servers, and fiber optic design and construction.

Oregon State laid the foundation for Tanaka’s career. Her professors encouraged her to solve problems and think like an engineer. Now, the citizens of Portland benefit from her work every day.

“I have been fortunate to work all over the country and see how different public agencies approach transportation. I’m now able to apply what I’ve learned out there back here, in Oregon, and my aim is to bring innovation and new ideas to the Portland Bureau of Transportation.”

AWARD

Council of Early Career Engineers



Anh B. Tong

Ph.D., Industrial Engineering, 2018

Operations Research Analyst

U.S. Army

Anh B. Tong works at U.S. Department of the Army headquarters as an operations research/systems analyst for the deputy chief of staff for programs.

Her work focuses on developing and justifying plans, programs, and resourcing strategies for Army systems on behalf of the Office of the Secretary of Defense. Tong oversees analytical initiatives for the Warfighting Analysis Division that focus on cost-effective solutions while synchronizing crucial systems and capabilities in challenging operational circumstances. She has made significant contributions to integrating data analytics into future force design and modernization, impacting critical Army processes.

Tong began her career as an industrial and systems engineer at the National Institutes of Health. There her contributions included intricate simulations and modeling of health services systems and operations, and applications for Lean Six Sigma (a process improvement approach that uses a collaborative team effort to improve performance) and statistical process control. Her efforts led to considerable cost-cutting initiatives within the Department of Health and Human Services.

Her work continues to shape the future of engineering, facilitating faster product delivery and data processing capabilities that aid decision-makers across industries. Outside of work, Tong's interests include reading nonfiction science books, traveling, playing the piano, and participating in outdoor activities. She draws inspiration from the natural beauty and diverse culture of the Pacific Northwest.

She also draws inspiration from poetry, citing the words of Albert Camus: "In the depth of winter, I finally learned that within me there lay an invincible summer." The quotation evokes Tong's own resilience and determination, which have guided her professional and personal growth in the face of challenges.

Reflecting on her time at Oregon State University, Tong emphasizes the institution's culture and educational excellence, as well as her enduring relationships with faculty members.

Tong's career philosophy underscores the importance of collaboration: "Always check your work, but remember that good relationships make your great work a success."



David Zier

B.S., Computer Engineering, 2002

M.S., Electrical and Computer Engineering, 2004

Ph.D., Electrical and Computer Engineering, 2009

Senior System Software Manager

NVIDIA

David Zier joined NVIDIA as a senior CPU architect in 2009, shortly after earning his Ph.D at Oregon State. His early work focused on optimal architectural solutions for the company's first CPU products. In 2018, he transitioned to artificial intelligence, leading the formation of the Deep Learning System Software team.

Today, he serves as senior system software manager, overseeing software solutions that enhance the performance and deployment of machine learning and deep learning models.

The standout achievement of his organization is the Triton Inference Server, offering a platform-agnostic AI inference solution. Zier is an advocate of Agile methodologies for software development and clean programming practices, fostering a culture of flexibility within NVIDIA.

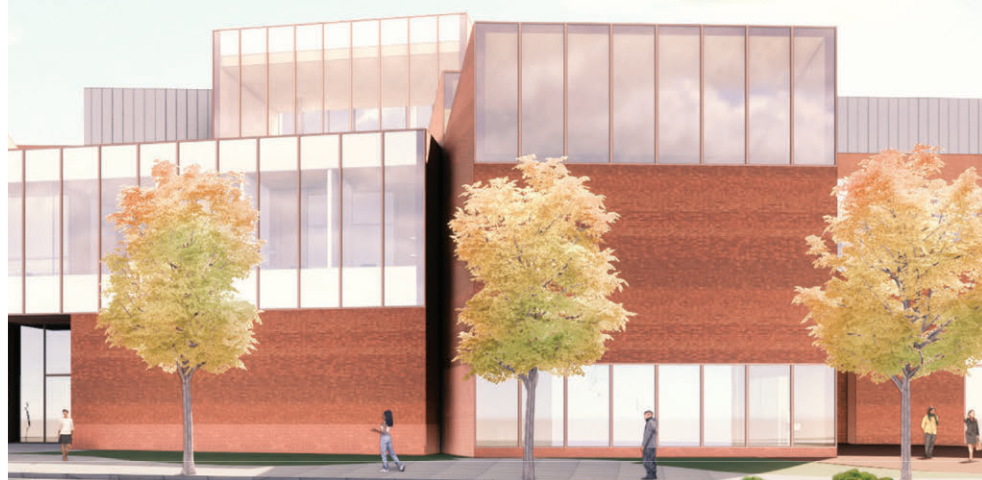
Outside of his professional endeavors, Zier remains a dedicated supporter of Oregon State University and the College of Engineering. His contributions include guest lectures, advising curriculum changes and facilitating the acquisition of specialized NVIDIA hardware and support. Zier attributes his career success to the education, training, mentorship, and networking opportunities he had access to at Oregon State. He emphasizes that none of his achievements would have been possible without them.

In his industry, Zier's work significantly impacts AI adoption, with Triton serving renowned organizations worldwide. He envisions AI permeating the engineering field, revolutionizing performance and capabilities across industries.

Zier's proudest accomplishment lies in building an efficient and adaptable team culture within his team at NVIDIA, resulting in the creation of industry-leading solutions.

"When you are working on the bleeding edge, pushing what is possible, you are bound to make mistakes. Push the boundaries of your knowledge, learn what is possible, and make those mistakes."

BUILDING THE FUTURE



Oregon State University

The Jen-Hsun and Lori Huang Collaborative Innovation Complex at Oregon State University is a \$200 million research and teaching center where world-class engineers will collaborate with and empower internationally top-ranked Oregon State programs such as forestry and oceanography to tackle grand challenges in numerous areas including climate science, sustainability, and microelectronics.

Harnessing the artificial intelligence, materials science, and robotics expertise of our faculty as well as dozens of new hires over the coming few years, the three-story, 150,000 square-foot complex will house specialized research facilities designed for team-based, transdisciplinary research. Among the facilities are a next-generation NVIDIA supercomputer estimated to be one of the fastest at a U.S. university, an extended reality theater, and a state-of-the-art clean room.

Here, world-class faculty in the College of Engineering will develop transformative solutions for the betterment of humanity, the environment, and the economy.

Big dreams. Big solutions.

Believe it.

The Campaign for
Oregon State University

OREGON STATE UNIVERSITY is developing solutions to the most significant challenges facing humankind — from renewable energy to biotechnology to economic prosperity — all while preparing the next generation of leaders. And our community is rallying behind us like never before.

Let's do the unbelievable together.

ForOregonState.org



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