

COLLEGE OF ENGINEERING

**OREGON
STATATER
AWARDS**

February 21, 2019



**Oregon State
University**

FROM THE DEAN

The evolution of engineering education

The College of Engineering at Oregon State University has built a solid reputation for producing globally minded graduates who contribute to solving society's most pressing issues. Part of our success lies in our ability to adapt to the evolving needs of a 21st-century engineering education and respond to the changing needs of our students and our industry partners.

Partnerships play a critical role in enhancing the educational experience of our students and driving industry innovation. These important collaborations assess current and future business needs, which, in turn, inform our curriculum. This enables our students to graduate with the cutting-edge research and technical skills our partners need. The new OSU Portland Center will substantially facilitate these partnerships and allow us to better serve the educational and professional development needs of the Portland community, as well as our Corvallis campus students and our distance learners.

Adapting to the needs of an evolving engineering education includes evaluating how that education is delivered. We've responded to an increasing demand for online educational opportunities and are currently ranked 9th in the nation by U.S. News & World Report for the Best Online Graduate Engineering Programs. Granting access to our programs online has a profound impact on our students' careers by providing the education they need in a flexible format that can accommodate their individual schedules.

The demographics of our engineering community are shifting as well. While we are pleased to see increasing numbers of female and minority students in the College of Engineering, these groups are still distressingly underrepresented in engineering across the globe. We have made a concerted effort to address this gap by implementing changes to encourage a more inclusive culture. We've doubled the number of women faculty hired in the last four years by ensuring our hiring practices eliminate bias, meaning only the most qualified candidates are brought on board. We are confident that this, and other important changes, will continue to inspire and influence our community in positive ways.



By monitoring the pulse of the evolving engineering landscape, we will continue to produce engineers like the ones on the following pages —people who break barriers, test the bounds of science and engineering as we know it, and serve at the highest levels of leadership in their industries. The 2019 College of Engineering Oregon Stater Awards honor engineering alumni and partners who make significant contributions to the engineering profession and to our global community.

Our Hall of Fame honoree, Robert Yüksel Yildirim, demonstrates just how far an engineering education can go. He transformed a family business into one of Turkey's most successful global enterprises. With offices in 50 countries and more than 12,000 employees, the Yildirim Group of Companies is a vertically integrated industrial conglomerate.

Five alumni will be inducted into the Academy of Distinguished Engineers, and 10 more will be recognized among the Council of Outstanding Early Career Engineers. This collective group, with their commitment to solving problems and pursuing innovation, embody the true meaning of engineering at Oregon State.

More than their accomplishments, the 2019 Oregon Stater Award honorees continue a long-standing tradition of excellence at Oregon State University and serve as inspiration for the next generation of engineers. Please join me in congratulating these individuals for

their accomplishments and thanking them for their contributions to our world.

Go Beavs!

Scott A. Ashford, Ph.D., P.E. (California)
(’83 Oregon State, Civil Engineering)
Kearney Professor and Dean
Oregon State University
College of Engineering

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Welcome to the Oregon Stater Awards

Oregonian Media Group is proud to publish this special program commemorating the 2019 Oregon Stater Engineering Awards for the sixth year running.

This year's honorees are

an impressive group from around the world, demonstrating the central role that Oregon State plays in global science, technology and engineering. Their work drives progress and innovation throughout the fields of agriculture, transportation, health care, computing and more.

As Oregon's largest media outlet we're privileged to report on OSU's accomplishments across all academic fields of study. Engineering is a field that captures the imagination – serving society by transforming the most challenging problems of business and science into solutions, and transforming humankind's most imaginative dreams into reality.

Congratulations to all of this year's honorees!

John Maher
President, Oregonian Media Group

ENGINEERING DEGREES ONLINE

Computer science
(postbacc)
B.S.

Engineering
management
M.Eng.

Radiation
health physics
M.S./M.H.P.

Navy veteran. Tesla engineer.
Dad of three. Albert Diaz needed a flexible academic plan to speed up his career plans, and OSU's online computer science program put him on the fast track.

Albert Diaz
B.S. in Computer Science
U.S. Navy veteran



ecampus.oregonstate.edu/engineering



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Oregon State
University

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About The Awards

IN 1998, THE COLLEGE OF ENGINEERING introduced the annual Oregon Stater Awards to honor outstanding alumni and friends for their contributions to the engineering profession and to Oregon State University. Our three award categories are determined by length of career and accomplishments:

ENGINEERING HALL OF FAME

Membership in the Engineering Hall of Fame is reserved for Oregon Staters who have made sustained and meritorious engineering and/or managerial contributions throughout their careers.

ACADEMY DISTINGUISHED ENGINEERS

Membership in the Academy of Distinguished Engineers is awarded to mid-career Oregon Staters who have made sustained and distinguished contributions to the profession, the field, the university, or society at large. They have at least 20 years of professional experience beyond their bachelor's degree and are still practicing their profession.

COUNCIL OF OUTSTANDING EARLY CAREER ENGINEERS

Membership in the Council of Outstanding Early Career Engineers is reserved for Oregon Staters who have distinguished themselves through professional practice and/or service to the university, the profession, or society at large. These individuals have made early career contributions that identify them as future leaders in their profession or field. They have fewer than 20 years of professional experience beyond their bachelor's degree.

Building What Matters

Congratulations, Kelly, for being inducted into Oregon State University's elite Council of Early Career Engineers!

Kelly says,

"The work I do improves neighborhoods and communities. I make a difference every day."

You do indeed, Kelly. Thank you!



Kelly Aust
Skanska Project Manager

SKANSKA

usa.skanska.com CCB #153980

09001038-01



OUT THERE

Engineering Solutions

WATER IS ONE OF THE WORLD'S MOST ABUNDANT RESOURCES. Yet in many regions clean water is in critically short supply—endangering the economy, public health, energy production, and food supply.

Oregon State University—with the support of generous donors—has launched the Clean and Sustainable Water Technology Initiative. The venture is building a collaborative community of faculty and students working together to solve one of the greatest challenges engineers face in the 21st century.

Their innovative solutions transform lives—right here in Oregon and around the globe.

LEARN MORE:

osufoundation.org/water
cbee.oregonstate.edu/water

“Worldwide, one in ten people lack access to clean drinking water.”

—WORLD HEALTH ORGANIZATION



Oregon State University
Foundation

Engineering Hall of Fame

Most people believe that it takes a certain amount of luck to succeed in business. Robert Yüksel Yildirim does not agree. He will tell you that the secret to prosperity is a lot of hard work. He uses intuition, lessons learned in childhood, experience gained from numerous business deals, and the engineering education he received from Oregon State.

Today, he is president and CEO of Yildirim Group of Companies, a vertically integrated industrial conglomerate based in Istanbul, Turkey. Business operations range from mining and fertilizer production, to port management and shipbuilding, to real estate and construction, with offices in 50 countries that employ more than 12,000 people.

Yildirim's journey to becoming one of the most influential people in the global mining and shipping business is rooted in humble beginnings. He was raised in Samsun, Turkey, a seaport city located on the north coast of the Black Sea.

bicycle, a raincoat, and became an Oregonian."

He immersed himself in his studies and campus life. It was during this time he met his future wife, Yolanda, who was studying accounting and business.

Yildirim says he continues to use the methodologies he learned in his engineering classes when making business decisions.

After completing his master's degree in mechanical engineering, he took a job with the San Mateo, California-based PACECO Corp., a subsidiary of the Japanese firm Mitsui Group that designs cranes for ports and container terminals. This was his first exposure to the global shipping industry. "After five years working with the Japanese, I learned their management system and I was starting to put the puzzle pieces together and look at the big picture," he said.

He returned home and began to apply his new skills to growing the family business. He first focused on foreign trading operations, including importing coal from Siberia. When the company earned \$50,000 in its first month importing nearly 10,000 tons of Russian coal, Yildirim's imagination soared. Six years later, the revenue from importing coal was high enough for Yildirim and his brothers to diversify their investments by exploring opportunities in shipbuilding, port management, and bulk commodity trading. They then slowly moved into the mining business and acquired more ports. The shift launched them into a new league.

The company has received several notable recognitions. Yildirim ranks 61 on Lloyd's List of the 100 most powerful and influential persons in the global shipping industry. He is also ranked the ninth most powerful person in the container terminal business and the third most powerful person in the chromium industry by ICDA and CRU.

As much as Yildirim values education, it's not surprising that the Yildirim Group supports educational projects in Turkey and beyond. Over the last three decades, the company donated all the labor and materials to build three vocational

high schools and seven elementary schools in Turkey. In addition, the Garip and Zeycan Yildirim Foundation, launched in honor of Yildirim's parents, provides scholarships for low-income students and also funds a range of health, environmental, and cultural causes.

Yildirim is also investing in Oregon State with a two-year, \$300,000 research project to develop a special nickel- and chrome-based superalloy for power plants that use supercritical carbon dioxide.

For now, Yildirim continues to work hard, and always thinks about the big picture — a strategy that transformed a tiny family business into one of Turkey's most successful global enterprises.



**Robert
Yüksel
Yildirim**

M.S. Mechanical
Engineering, 1989

President and CEO

Yildirim Group of
Companies

Istanbul, Turkey

His father owned a small business, trading building supplies and construction materials. He and his two brothers grew up working in the shop. "I have never forgotten those days because they helped me understand the value of money and hard work," Yildirim said.

Yildirim's parents wanted their sons to get an education so he earned a bachelor's degree in mechanical engineering from Istanbul Technical University. He also wanted to

learn English, so he asked his parents if he could travel to the United States to study English and get a master's degree. His father agreed to let him go, but under the condition that he return and one day help run the family business.

Yildirim arrived in the U.S. in 1983 and after spending a year in San Francisco learning English, he followed a friend to Corvallis to begin graduate school at Oregon State. "Everybody was riding bicycles," he said. "So, I bought a

*"I bought a bicycle,
a raincoat, and became
an Oregonian."*

AWARD

Academy of Distinguished Engineers



Jay Culbertson

B.S. Business Administration and Management, 1972

Executive Vice President, Design Build, Construction & Engineering

Southland Industries

Portland, Oregon

Jay Culbertson has always been a Beaver through and through. His parents both graduated from Oregon State and, in 1972, he proudly followed suit with his bachelor's degree in business administration. Following a four-year apprenticeship in the sheet metal trade, Culbertson joined, and later took the helm of, his father's company, Temp Control Mechanical (TCM), an HVAC contractor in Portland.

For 30 years, Culbertson used strategic planning, engineering, and solid financial acumen to differentiate his company from the competition and grow it into one of the largest mechanical contractors in the Pacific Northwest, before it became a wholly owned subsidiary of Southland Industries in 2014.

“I have always considered it an honor to give back to the institution that has given so much to me and my company.”

Today, Culbertson provides leadership for all functions of Southland, which is now one of the nation's largest mechanical, electrical, and plumbing building systems contracting firms with an operating plan of \$1 billion — but he never forgets his OSU roots. In fact, he credits the university for much of his personal and professional success.

As a longtime donor and advocate for the College of Engineering, Culbertson and his team have recruited generations of top-notch hires from the college, most of whom have continued with his companies for many years (TCM was recently named a top workplace of 2018 by the Oregonian newspaper).

“I have always considered it an honor to give back to an institution that has given so much to me and my company,” Culbertson said. “I firmly believe in what OSU is doing — and it isn't just football. It's about the exceptional quality of the education the school provides and the tremendous impact the College of Engineering graduates are ultimately making in the community and across the state and country.”



Yunteng Huang

Ph.D. Electrical Engineering, 1997

CEO and Co-founder

Aeonsemi, Inc.

Palo Alto, California

Yunteng Huang credits his father for giving him an early love of electronics and building things from scratch.

His father was a middle school physics teacher in rural China and owned a small electronics repair shop business on the side. At a very early age Huang was winding coils and making things. In elementary school, he and his brothers built radios and walkie-talkies. And his father built the family's first television set. “We were the only family in our town that had a TV,” Huang said.

Huang earned a bachelor's degree in electrical engineering from Shanghai Jiao Tong University, and then came to Oregon State for graduate school in 1993. Before finishing his Ph.D., he was already working for NewPort Communications. “I consider myself very lucky,” he said. “I was

one of NewPort's first employees, developing high-speed network communication chips. Then, when Broadcom Corp. acquired it for \$1.2 billion a few years later, it was a clear statement that this type of technology is valuable.”

Huang then moved on to Silicon Labs. During his tenure, he helped the company start two businesses

to build — almost from scratch — a line of products worth hundreds of millions of dollars. “To me, that's quite exciting,” he said. “Not many people get the opportunity to go from zero to something very successful and see the entire process along the way.”

In 2006, he left Silicon Labs to start his own business in China. He and a partner designed a smart chip capable of remotely reading utility meters. Two years later, Silicon Labs acquired the company and hired him back to lead a team of engineers to integrate and expand the technology.

Now, Huang is assembling a new team to build a company, Aeonsemi, Inc., to advance technology in the high-end chip sector. He offers this advice for new graduates: “Go with your passion. If you like what you do, in the end the money part will always work out.”

Academy of Distinguished Engineers



Walt Pebley

B.S. Agricultural Engineering, 1984

VP Technical Innovation

OFD Foods, LLC

Albany, Oregon

Walt Pebley is VP of Technical Innovation for OFD Foods LLC, the largest, diversified freeze dryer in North America. There is a reason he is a technical innovator: “I like to connect seemingly disparate engineering disciplines to find an appropriate solution,” Pebley said.

While his company, also known as Oregon Freeze Dry, has built its business by producing freeze-dried cereals, meals for the military, outdoor adventures, and emergency preparedness since the 1960s, Pebley has been working on expanding the broader applications of the science.

Early on, he spent a few years studying cell biology before transferring to Oregon State to pursue a degree in agricultural engineering. He was looking for a career that would benefit humanity. But it wasn't until his dad, a designer and equipment fabricator, pulled him into a building-design project for OFD in 1982 that the puzzle pieces began to fit together. Pebley's inspiration that freeze-dry technology might be used

to preserve cellular activity led to a job with OFD and gave the company a new revenue stream providing cell-preservation services on a contract basis.

Through years of interdisciplinary exploration in adapting the technology to the stabilization of compounds, cells, and inorganics, he's developed a skillset that has led to proprietary, patented, and scalable solutions.

“There is always more than one solution to a problem, but there is a best solution, if you creatively persevere.”

Currently, he is working with Oregon State researchers to investigate how freeze-dry techniques can be used to improve gut microbiome health and gut-brain access to nutrient-dense, functional foods for applications in sports performance and recovery, and for use by the United States military. Pebley is also passionate about perfecting the fusion of food and medicine as a personalized delivery system to treat and control chronic disease. “Our technology could be used to augment traditional approaches to treatment while providing a higher quality of life through diet for patients battling chemotherapy and chronic pain,” he said.

Pebley remains methodical as he keeps an eye on this prize: “There is always more than one solution to a problem, but there is a best solution, if you creatively persevere.”



Ron Sarazin

B.S. Industrial Engineering, 1976

President

Olympic Performance, Inc.

Sherwood, Oregon

Ron Sarazin likes to help people and companies solve problems.

He owns Olympic Performance Inc., a training and consulting company based in the Portland area. For nearly 30 years he has been providing executive coaching, strategic planning, and project management training to enhance personal impact and organizational performance. His clients come from industry, city and state governments, nonprofits and federal agencies.

After graduating with a bachelor's degree in industrial engineering, Sarazin launched his career at Alcoa; gained experience with internal consulting at PACCAR; and then joined Cook-Newhouse and Associates to help clients adopt new manufacturing and distribution processes. Then in 1983, he took a job with Portland General Electric (PGE). The electric utility company was trying to become more progressive, and Sarazin decided that PGE was a place where he could make a difference.

After eight years serving in various management capacities, he realized he missed the technical, problem-solving side of the profession and wanted to get back into consulting.

“It was never about winning games; it was about the journey they took to get there.”

The timing was right, as PGE was beginning to downsize. They offered him a repositioning package that enabled him to start Olympic Performance.

Sarazin coached girls' soccer, ages 9 to 16, for more than 21 years. He kept

coaching long after his daughters grew out of it because he enjoyed helping girls improve and perfect their skills. It's a strategy he's also found useful in coaching adults. “The more people improve the fundamentals of what makes them a good player, the better a team becomes and the more games they win,” Sarazin said. “It was never about winning games; it was about the journey they took to get there.”

Sarazin believes strongly in giving back to the community and always has several service projects going. He is former board chair for the Washington County Community Action Organization, served on the Tualatin City Council, and is currently an industry advisory board member for the School of Mechanical, Industrial, and Manufacturing Engineering in the College of Engineering at Oregon State University.

AWARD

Academy of Distinguished Engineers



Daniel Wachs

B.S. Mechanical Engineering, 1995

M.S. Mechanical Engineering & Nuclear Engineering, 1997

Directorate Fellow, National Technical

Lead for Fuel Safety Research

Idaho National Laboratory

Idaho Falls, Idaho

Daniel Wachs comes from a family of nuclear engineers.

His grandfather was a forerunner in the industry, working on the first nuclear reactors to power submarines and heading the reactor physics program at Idaho National Laboratory (INL). And his father worked at the Trojan Nuclear Power Plant near where Daniel grew up in Rainier, Oregon, before taking a job at Oregon State to operate the nuclear engineering program's training reactor.

When Wachs attended the College of Engineering at Oregon State, he was at first drawn into mechanical engineering and later earned master's degrees in mechanical and nuclear engineering.

"The professors at OSU were pretty remarkable," Wachs said. "They inspired me, and they have had a sustaining impact on my career."

"The long-term success of this field relies upon how effectively we empower people to carry the mantle to the next level."

A life-changing internship with Argonne National Laboratory helped launch his career at a time when the government was pulling back on new research — a period starting in the early 1990s and lasting nearly two decades.

Now, rapid technological advances combined with the demand for cleaner

energy have spawned a renaissance in the industry. These advances have also given rise to research into technologies that must meet stringent safety-testing protocols, thus reinvigorating INL's safety test reactors. Wachs, a leading authority on transient fuel testing, is responsible for articulating this new mission on behalf of the Department of Energy, the government agency that runs INL.

"New things are emerging that we never expected," he said. "It's a pretty exciting time to be a part of the program."

With the resurgence of the industry, Wachs is seeing a huge influx of nuclear researchers in their 20s and 30s.

"I've had an opportunity to mentor a number of people," he said. "I'm proud of these people and cherish the opportunity to influence their careers and help them grow into impactful leaders. The long-term success of this field relies upon how effectively we empower people to carry the mantle to the next level."

AWARD

Council of Early Career Engineers



Kelly Aust

B.S. Construction Engineering Management, 2010

Project Manager

Skanska

Vancouver, Washington

Growing up, Kelly Aust hadn't planned on a career in construction management. She earned her first degree in sociology from the University of Portland, but after graduating she realized the field wasn't a good fit for her.

"The decision to return to school for a second degree was difficult," Aust said.

As a student at Oregon State, she embraced every opportunity to expand her knowledge and network by engaging in classes and internships and participating in extracurricular activities.

"OSU has great instructors who are fully invested in helping students succeed," she said. "I took something from every class, and have used it in real-world situations."

Now, Aust oversees the execution of multi-million-dollar building projects for a broad range of Skanska clients, including Crestline Elementary School, Clark College STEM Building, PDX Concourse E Extension, and Oregon Health & Science University.

"I make a difference every day," she said. "We improve neighborhoods and communities. I love being a part of that impact."

She works to ensure that these projects are delivered in both a timely and cost-effective manner.

"Day in and day out, I am excited to come to work," she said. "There is nothing I would rather do."

Aust is a strong advocate for encouraging others to join the construction profession and is involved in a variety of associations and activities geared at attracting young people to the industry, with a focus on diversity and inclusion.

In 2018, she was awarded a Rising Star Award from the National Association of Women in Construction (NAWIC). She is also a charter member of the Skanska Women's Network Northwest Chapter and is heavily involved with NAWIC, Oregon Tradeswomen, Inc., and ACE Mentors.

"Everyone should take the time to figure out who they are so they don't get stuck on a career path that isn't working," she said. "I feel very grateful to have found a home in construction. I get to blend the best parts of myself into a career I love."

"I make a difference every day."



Teresa S. Bailey

B.S. Nuclear Engineering, 2002

Computational Physicist

Lawrence Livermore National Laboratory

Livermore, California

While living in Alaska in her teens, Teresa Bailey tagged along as an older sister toured the Oregon State campus. Without really thinking about it, she filled out an information card and selected some areas of interest. Several years later, a recruitment brochure for the nuclear science and engineering program at Oregon State just happened to fall out of a stack of mail from prospective universities. Although she knew little about nuclear engineering, she felt compelled to submit a last-minute application, and was accepted into the program.

Bailey was happy with the decision. "Oregon State's is a smaller nuclear engineering school, but it's a well-known one," Bailey said. "We were trained to think about systems and how all the components are connected."

Several years after that seemingly random start to her career in nuclear science, Bailey finds herself leading a team of scientists at Lawrence Livermore National Laboratory focused on using physics and computational modeling to simulate what, on a superficial level, can also seem like a random process — the transport of particles in nuclear systems. However, if her team's simulations of this process are close enough to measurements taken of actual systems, they can be used to predict outcomes of unknown systems.

To simulate particle transport, Bailey and her colleagues write software to approximate the solution for transport through a trillion little pieces of space, and then stitch these pieces together to build a representation of the overall solution. "This gives us a prediction about what happens in a real system," she said. "The more pieces we can solve, the better the prediction."

And because the code is fairly general, the models that spit out highly accurate predictions of particle transport may eventually be used to drive advances in radiation shielding for power plants and in certain areas of medicine.

"Seeing the scope of technical challenges that a highly motivated team can solve is truly amazing," she said. "There is nothing better than that."

"Seeing the scope of technical challenges that a highly motivated team can solve is truly amazing."

AWARD

Council of Early Career Engineers



Emily A. Caffrey

B.S. Nuclear Engineering, 2010

M.S. Radiation Health Physics, 2012

Ph.D. Radiation Health Physics, 2016

Radian Scientific, LLC

President

Huntsville, Alabama

Emily Caffrey is a member of a small niche of specialists that predict the fate and transport of radionuclides in the environment in order to help safeguard the health of future generations.

This is just one area where she is having an impact. As a consultant with South Carolina-based Risk Assessment Corporation (RAC) and president of her own company, Radian Scientific, Caffrey performs radiation-dose reconstructions for numerous projects sponsored by government and industry clients.

“Many of these projects are historic, dating back to the Manhattan Project era,” Caffrey said. “A lot of that material was left behind, and we need to reconstruct the radiation doses people received to determine the likelihood of adverse health effects.”

Another facet of her business is working with industry clients that run low-level radioactive waste sites to determine if the sites will be safe thousands of years into the future. In addition to providing radiation-dose projections, she helps clients obtain necessary regulatory approvals.

Caffrey is also an adjunct professor at two universities: Oregon State University and the University of Alabama-Birmingham (UAB).

When she and her husband, Jarvis – also a Beaver – moved to Alabama in 2016 for his dream job at NASA, Caffrey learned that UAB was starting a new health physics program. She is helping them build that program through teaching classes, mentoring students and helping them secure internships.

“The draw for me, to the university, is mentoring students,” she said. “My own mentors at Oregon State had such a big impact on my life and I want to pay that forward.”

As an adjunct professor for Oregon State, Caffrey is helping develop two classes for the radiation health physics online program, which was recently ranked ninth in the nation.

Caffrey also serves as president of the Alabama chapter of the Health Physics Society.

“My own mentors at Oregon State had such a big impact on my life and I want to pay that forward.”



Farhad Farahbakhshian

M.S. Electrical Engineering, 2008

CEO and Co-Founder

Naked Labs, Inc.

Redwood City, California

Farhad Farahbakhshian makes a living at the intersection of technology, health, and wellness. “Health and wellness have helped me maintain balance throughout my life,” said Farahbakhshian, who is an avid cyclist and has competed in several 100-mile races.

His passion for health coupled with his training in electrical engineering inspired Farahbakhshian to start his own company in 2015. The California-based startup, Naked Labs, recently launched its first product: a 3D body scanner for in-home use. And thanks to \$14 million in capital investments it raised, Naked Labs began shipping the 3D scanners to pre-order customers in August 2018.

The scanner product, called Naked, accurately shows users how their bodies change over time. Naked is a full-length, Wi-Fi- and Bluetooth-connected mirror that uses infrared light and a rotating scale to capture a 3D body image. It captures the user’s body fat, lean mass, fat mass, and total weight, and provides successive, side-by-side body-scan comparisons.

From the beginning, Naked Labs has been dedicated to helping improve the quality of peoples’ lives. Farahbakhshian says while many startups can successfully bring a product to market, most have the problem of figuring out what comes next. Naked Labs’ groundbreaking technology can not only be custom tailored for individual consumers, it has potential applications for industries related to health and nutrition, tailor-made clothing, ergonomics, and medicine.

Farahbakhshian’s journey toward starting his own company began after graduating from Oregon State in 2008. He started as a RFIC designer with Maxim, later taking a position in business management. Incrementally, he became responsible for Maxim’s entire automotive wireless portfolio, turning losses into huge profits. The six-year experience empowered Farahbakhshian to pursue his own dream.

“OSU gave me the best education in chip design and, more importantly, a level of confidence that I could go into any role and be successful,” he said. “That confidence has allowed me to pick what I want to do, and get it done by putting in the time, effort, and thought.”

“Health and wellness have helped me maintain balance throughout my life.”



Jason M. Culp

B.S. Mechanical Engineering, 1999

Engineering Design Manager

A-Dec

Wilsonville, Oregon

Jason Culp likes to make things. He is a prolific inventor and an advocate for the inclusion of science and technology in childhood education.

Culp is an engineering design manager for A-Dec, one of the world’s largest makers of dental chairs and equipment. The company was co-founded by Joan and Ken Austin (B.S. Industrial Engineering ’53; E.B. Lemon Distinguished Alumni Award, 2000), generous philanthropists and supporters of Oregon State.

Culp leads a team that designs custom-engineered cabinetry for the company. He likes using his ingenuity to meet the unique and changing needs of each customer and helping his group develop professionally.

“I love my job as a leader because I get to watch people grow,” Culp said. “When my team members come up with new ideas and see them built, it ignites a spark within them.”

While his career has primarily focused on the design of engineered-to-order products, he also coordinates offshore manufacturing efforts.

Culp says the internships he had at Atlas Copco Wagner and Blount while attending Oregon State helped him define a career focus.

“They fueled my passion for creating and building things and really infused the practical application of engineering,” he said.

Culp especially enjoys teaching young minds about science, technology, engineering and math careers. He and his wife, Kelley, are four-year coaching veterans of the For Inspiration & Recognition of Science & Technology (FIRST) program in Wilsonville, Oregon. Culp also volunteers as a judge for high school-level robotic competitions.

“I am investing in our future,” he said. “When you combine the robotics experience with the marketing and presentations skills these kids learn, it really opens the door

for them to think about a potential career in a different way. They inspire me.”

In addition to his outreach with young students, Culp has served for six years on the industry advisory board for the School of Mechanical, Industrial, and Manufacturing Engineering in the College of Engineering at Oregon State.

“When my team members come up with new ideas and see them built, it ignites a spark within them.”



Debra Gale

Ph.D. Chemical Engineering, 2012

Staff Scientist

Thermo Fisher Scientific

Corvallis, Oregon

Debra Gale utilizes her engineering skills to develop products and solutions that help Thermo Fisher Scientific customers advance life sciences research and make new scientific discoveries. Gale leads a global, cross-functional team with the purpose of developing the next generation of the Qubit Fluorometer — a device that enables customers to accurately measure DNA, RNA, and protein quantities in biological samples. She is involved in every phase of the product development process: user experience, software design, hardware testing, manufacturing, and customer support.

Mentors have been fundamental throughout Gale’s education and career. She credits her Ph.D. advisor, Gregory Rorrer, a professor of chemical engineering at Oregon State, with giving her many leadership opportunities, ranging from mentoring interns to managing an instrument facility. “I really appreciate the people who have helped and encouraged me,” Gale said. “I value the guidance I have received from my mentors.”

Early on, Gale has also mentored others through community outreach activities. While attending the University of Utah she was a counselor for “Expanding Your Horizons” and “Girls Engineering Abilities Realized.” The goal of these programs is to give girls early exposure to science and engineering fields.

She continued her outreach activities at Oregon State by mentoring young females in the Summer Experience in Science and Engineering for Youth, the Oregon Academy of Science, and the Johnson Scholar Programs. Today, she is a Girl Scout leader for her five-year-old daughter’s troop.

Gale is motivated by Thermo Fisher Scientific’s mission of making the world healthier, cleaner, and safer. “We are the world leaders in serving science and we’re on the cutting edge of life science technology and research,” she said. “This is made

possible by talented and innovative colleagues that are motivated to solve complex, real-world problems. We are passionate about taking these challenges on as a social responsibility.”

“We are the world leaders in serving science and on the cutting edge of life science technology and research.”

AWARD

Council of Early Career Engineers



Todd Gerlach

B.S. Mechanical Engineering, 2000

Director of Engineering, Concrete Cutting & Finishing

Blount International, Inc.

Tualatin, Oregon

At an early age, Todd Gerlach was interested in understanding how mechanical things work. His projects centered around Legos and radio-controlled cars and evolved into building bicycles and automobiles. “In my early years, I was better at taking things apart than putting them back together,” Gerlach said. “But I stuck with it, expanding my skills and confidence.”

Once at Oregon State, Gerlach became motivated to take full advantage of all the resources available to him. He spent free time at the well-equipped shop in Rogers Hall, exploring the dynamics of complex mechanics. For his senior design assignment, he built a high-speed retrieval robot and demonstrated it for CBW Automation, the event sponsor. The project led to his first job working for the company in Colorado.

“The mechanical engineering program really had a profound impact on me,” he said. “I started seeing all the directions where my education and career could take me.”

Today, Gerlach heads the engineering and product development group for the Concrete Cutting & Finishing (CCF) Division of Blount International. His team is responsible for developing diamond tools and equipment for construction and infrastructure markets.

When Gerlach joined Blount, he started in the Forestry Lawn and Garden Division as a product design engineer, then moved into corporate business development as a senior engineer tasked with helping to diversify Blount's product portfolio. After designing and launching a new and innovative product, Blount offered him a management position within CCF in 2010, and then promoted him to the division's director of engineering in 2016.

“I have always loved the technical and creative challenge of problem-solving and data analysis,” he said. “But in my current role, I really enjoy learning about what motivates people and teams, how to bridge the gaps, and developing new talent to achieve extraordinary results.”

Gerlach has mentored many interns and junior-level engineers just entering the profession, which he believes has helped make him a valuable contributor to the industry advisory board for the School of Mechanical, Industrial, and Manufacturing Engineering in the College of Engineering at Oregon State.

“The mechanical engineering program really had a profound impact on me.”



Jeffrey Rask

B.S. Chemical Engineering, 2002

Footwear Development Director

Nike, Inc.

Beaverton, Oregon

Jeffrey Rask manages a team that designs the next generation of athletic shoes for kids. As a lifelong athlete, he is thrilled to work for Nike, which sits at the apex of the sporting industry.

Rask is Footwear Development Director for the sneaker behemoth's Kids category and guides his team in developing shoes that meet the unique needs of growing feet. His group collaborates on colors, materials, and construction, and recommends adjustments to make the shoes light and flexible, yet durable. Then, once the team decides everything, they work with their factory partners to fabricate a prototype. “My team is heavily involved with the back and forth of that design process, and with the actual technical aspects of building the product,” Rask said.

Rask's last step with a new shoe is to source the final prototypes for upscale manufacturing. Along the way, he also manages team dynamics, schedules work assignments, balances workloads, and develops new talent.

Rask says his degree from Oregon State provided a great foundation. The focus he developed in his chemical engineering courses, coupled with a work ethic he learned from his father, who worked long hours at a paper mill, taught Rask how to maximize his time in environments that often have competing priorities.

After completing a short stint as a senior process engineer for a San Jose-based semiconductor firm, Rask began working at Nike as a manufacturing engineer. He then incrementally took on new responsibilities until he began managing teams, first as a cost engineering director, and finally moving into his current

leadership position. “I really appreciate the opportunity to help people learn and grow, develop their skills, and get better at their jobs,” he said. “Making sure my team is at their best allows me to be at my best.”

“Making sure my team is at their best allows me to be at my best.”



Richard Przybyla

Honors B.S. Electrical Engineering, 2008

Co-founder and System Architect

Chirp Microsystems

Berkeley, California

While working on his Ph.D. at the University of California, Richard Przybyla and his colleagues developed an ultrasonic 3D rangefinder system that fits on a chip. In 2013, he co-founded Chirp Microsystems to commercialize the research. Five years later, his company was acquired by TDK Corporation, a global leader in sensor technology and electronic components.

One reason TDK was particularly excited to snap up Chirp is that Przybyla and his team have adapted the rangefinder system to more precisely track the motion of headsets used in TDK's virtual reality (VR) platforms. “It is actually a quite challenging problem, but we've solved it using ultrasound,” Przybyla said. “Our solution uses a combination of software and sensors embedded into the headset.”

Przybyla says that companies making VR platforms are moving toward mobile technology that incorporates a computer built into the VR helmet. This shift eliminates the need for all the extra equipment – an external PC, cables, and a camera set up across the room – currently necessary to operate the VR experience. “It will become a self-contained unit, designed to be portable so you can take it with you and play it wherever you want, essentially making it more useful and easier for people to engage with VR,” he said.

Chirp is now working with other TDK-owned companies to integrate its ultrasound technology with complementary technologies that will take VR to the next level. Przybyla imagines a not-too-distant future where it will be easy for everyone to utilize VR technology for a multi-sensory experience with family and friends.

Przybyla says he continues to use the trouble-shooting and technical-writing skills he learned in labs while earning his bachelor's degree in electrical engineering from Oregon State.

He encourages new graduates to embrace the areas where they can learn more and challenge themselves to learn something new every day. “You will look back in a year or two and realize how much you have learned since graduation,” he said. “The degree is only the beginning.”

“The degree is only the beginning.”



Tim Sissel

B.S. Construction Engineering Management, 1997

Senior Project Manager and Founding Owner

Fortis Construction, Inc.

Corvallis, Oregon

Tim Sissel's childhood friend, J.D. Vetter (B.S. Construction Engineering Management (CEM) '97, B.S. Business Administration '97), an honored Oregon Stater Council inductee in 2012, is responsible for getting Sissel to take a look at the CEM program, rather than following his original plan of becoming an accountant.

The decision has paid off. Sissel's company, Fortis Construction, Inc., founded in 2003, has experienced significant success. He says the key to that success is the culture. “We believe our culture is unique in our industry,” Sissel said. “It's a culture founded on freedom, responsibility, and hiring razor-smart people. We are a flat organization, and really try to stay away from titles. We look for self-starters, who are motivated, passionate, curious, and humble.”

Fortis' business model came from DPR Construction in Redwood City, California, where Sissel was recruited directly from Oregon State. He spent six years with DPR before starting Fortis with a small group of former DPR employees. Sissel has served as Project Manager on more than 40 projects including Oregon State's Learning Innovation Center, Furman Hall, and the recent updates to Reser Stadium.

Sissel says that one person cannot successfully build a building, and it starts with constructing strong teams — working with different personalities, backgrounds, ethnicities, and genders. “There was a time in my career when I thought I would like to someday teach high school math and coach basketball,” he said. “But a couple of years ago, I realized that my opportunity to impact many more than 30 people in a classroom existed at Fortis, and within this industry.”

“I know that the CEM program at Oregon State was a key ingredient to my success. And why wouldn't I want to give back to the school that helped me get here?” added Sissel, who avidly supports OSU sports and sits on the board of the OSU Foundation.

“I know that the CEM program at Oregon State was a key ingredient to my success.”

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