THE BRIDGE

Predicting river temperatures

CEE researchers help to restore tribal fishing stocks by harnessing satellite data to determine river temperatures.

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CIVIL & ENVIRONMENTAL ENGINEERING
UNIVERSITY of WASHINGTON

Supporting CEE

What matters this year and how to help

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MESSAGE FROM THE CHAIR

As autumn wraps up on campus, the department's energy is palpable. Classrooms are full, labs are busy and More Hall is abuzz with the largest junior cohort in our history. More than 220 students are starting their junior year, up from about 150 last year and 120 the year before. Against that momentum, recent state and federal actions are shaping how the department operates, and it is important to share where things stand.

In the recent state budget, support to the university was reduced and the UW adopted a 6.5% across-the-board budget cut. At the same time, federal research funding has also become less predictable. Some awarded grants have been revised or delayed, leading faculty to scale back new graduate appointments to maintain support for their current students.

Amid these constraints, the department is focused on honoring current funding commitments for graduate students, sustaining strong support for undergraduate teaching, and keeping research moving by bridging short funding gaps to maintain research continuity.

Support from our community is especially important at this time, from personal gifts to partnerships. This issue of *The Bridge* includes an article on individual giving that answers common questions and highlights practical ways to help the department. For our external partners looking to get involved, we are expanding industry capstone projects that allow students to connect with companies and faculty on real-world design work.

Also in this issue, timely research about Professor Faisal Hossain's team using satellite data to predict river temperatures for salmon recovery, Professor Mike Dodd's work examining how disinfectants affect antibiotic resistance genes, and Professor Don MacKenzie's research on how perceptions of charger reliability shape electric vehicle adoption. Lastly, we have a look inside our undergraduate construction materials class, where students get their hands dirty learning the ins and outs of concrete.

Thank you to our alumni, partners, students, staff and faculty for steady engagement through a period of change. That shared commitment continues to make a direct difference for CEE and for the region we serve.

Bart Nijssen
Chair & Professor

Department honors

Professor Yinhai Wang, the Thomas and Marilyn Nielsen Endowed Professor in Civil and Environmental Engineering, received the 2025 Outstanding Research Award from the Institute of Electrical and Electronics Engineers Intelligent Transportation Systems Society, recognizing his contributions to transportation data science, traffic sensing, edge computing and artificial intelligence for smart transportation.

Ph.D. student Rubina Singh received a Best Paper Award at the 38th Electric Vehicle Symposium in Gothenburg, Sweden, for "Poor Reliability of Public Charging Stations Can Impede the Growth of the Electric Vehicle Market." Singh, who works with Professor Don MacKenzie in the Sustainable Transportation Lab, was recognized among the top two papers in her category from roughly 400 submissions.

DEPARTMENT NEWS

Faculty promotions

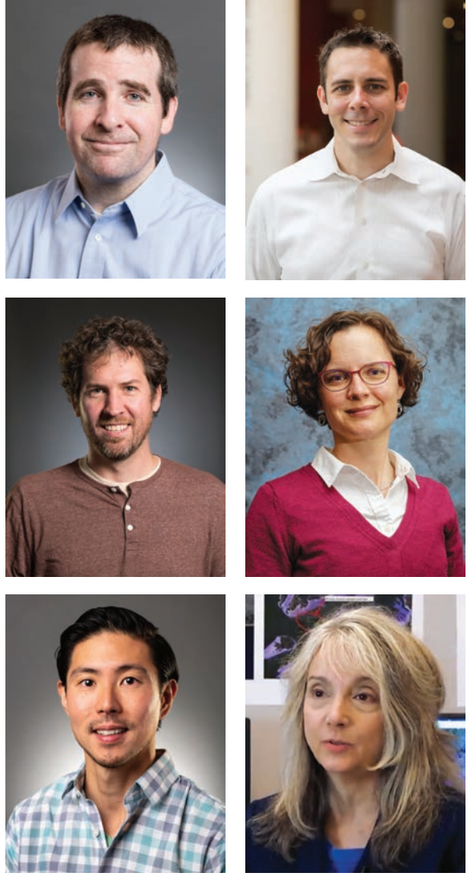
Michael Dodd was promoted to professor. Dodd's research focuses on using chemicals and light to remove pollutants from water to make drinking water and wastewater treatment safer and more effective. He also studies how pollutants travel in the environment, and designs solutions for city plants and smaller local systems.

Don MacKenzie was promoted to professor. MacKenzie's lab researches how new transportation technologies and policy affect sustainability and access. His work informs public decisions related to shared mobility, vehicle electrification and transport equity. He holds the Allan & Inger Osberg Endowed Professorship.

Michael Motley was promoted to professor. Motley studies how ocean waves and tsunamis affect coastal structures. Current projects include improving the resilience of coastal infrastructure and boosting the performance of turbines that harvest energy from tides and currents. He holds the John R. Kiely Endowed Professorship.

Rebecca Neumann was promoted to professor. Neumann's research group examines how physical, chemical and biological factors interact in soils, aquifers and surface waters. Her work addresses challenges such as water quality and contaminant transport in a changing climate.

Julian Yamaura was promoted to associate teaching professor. Yamaura teaches courses on construction materials, temporary structures and infrastructure methods, and directs the department's professional master's programs in construction and energy infrastructure. He is the Tom and Marilyn Draeger/Beavers Charitable Trust Term Faculty Fellow.



Clockwise from top left: Michael Dodd, Don MacKenzie, Rebecca Neumann, Dorothy Reed, Julian Yamaura, Michael Motley.

Retirements

Dorothy Reed retired earlier this year after 42 years on the CEE faculty. A national voice in wind engineering and infrastructure resilience, her research explored how hurricanes affect electric power systems. She also served as president of the American Association for Wind Engineering (AAWE) and chaired the Structural Wind Engineering Committee within the American Society of Civil Engineers (ASCE). She is a fellow of ASCE and the Structural Engineering Institute. Her honors include the Michael Gauss Distinguished Service Award from AAWE in 2022 and the Puget Sound Engineering Council's Academic Engineer of the Year in 2014.

Highlighting external partnerships

Faculty and students collaborating with industry, government and community partners.

Assistant Professor Erica Fuhrmeister's lab is working with the **Washington State Department of Health**'s Wastewater-based Epidemiology Program to pilot wastewater testing for bacterial pathogens and antimicrobial resistance at sites across Washington. The effort aims to provide earlier community-level detection and inform targeted public health responses.

The Sustainable Transportation Lab, led by Professor Don MacKenzie, is collaborating with the **Seattle Department of Transportation**, the **Open Mobility Foundation** and **Blue Systems** to create a system that automatically sets and broadcasts safety perimeters around emergency incidents. The system sends slow-down or rerouting alerts to autonomous vehicles and navigation apps, helping to clear space for first responders and reduce secondary crashes.

CEE sees strong enrollment growth

After years of steady outreach to help students understand what civil and environmental engineers do, CEE is welcoming one of its largest junior cohorts in recent memory. This fall, the department enrolled 223 juniors, up from 146 last year, with interest rising among direct-to-college students, current UW students who want to switch their majors to CEE and community college transfers.

The surge marks a turn after several years of lower enrollment and reflects department efforts to raise awareness of the field.

"There used to be a perception across campus that majoring in engineering was out of reach," says Brian Kinnear, CEE's lead undergraduate academic adviser. "We've worked to shift that by increasing our collaboration with campus partners, showing up at public events and putting real stories about civil and environmental engineering in front of prospective students."

The department has taken a broad, intentional approach to raising its visibility through student outreach and campus partnerships.

"We've made conscious efforts to present civil and environmental engineering as an accessible major," Kinnear says. The message is simple: what civil and environmental engineers build touches daily life, and there are many ways to contribute.

The increase comes amid a larger, nationwide need for civil engineers. Public and private investment in transportation, water, energy and climate resilience continues to expand across the U.S., and employers are hiring accordingly. Civil engineering remains a reliable career path with steady demand in Washington and beyond, from local firms designing bridges and transit to agencies upgrading water systems to companies focused on clean energy and sustainable infrastructure. On campus, that demand shows up clearly: CEE's annual career fair drew more than 100 employers this year and reached venue capacity.

"We rarely see students struggle to find employment opportunities," Kinnear says. "The demand is there."

Department Chair Bart Nijssen says the renewed interest aligns with both workforce needs and student priorities.

"Interest in careers in civil and environmental engineering is up across the country. Students are responding to something concrete and want to have a real-world impact by making things work for people: water systems, safer roads, reliable transit. We've been clear about that work and the need for more engineers in our region."

Growth brings some logistical puzzles, like finding larger classrooms and adjusting section sizes, but the department views them as the right kind of challenges.

"Everybody in the department is happy to help students reach their goals," Kinnear says. "It feels good to accommodate students who are putting in the effort and want to be here."

Kinnear says the surge stems from two forces: better awareness of the major and strong demand in the field. "We've made the work visible," he says, "and nationwide investment in infrastructure has made civil engineering a reliable, growing career path."

Urban Freight Lab pilots Seattle's first micro-pantry network

By Katie Ward

The Urban Freight Lab (UFL) is leading a new effort to link Seattle's network of community micro-pantries with real-time data to track supply and demand. The project aims to predict food needs, reduce food waste and ensure donations reach neighbors who need them most.

Backed by a $700,000 National Science Foundation Civic Innovation Challenge award, the UW-led team will retrofit existing micro-pantries with sensors to anonymously track use, donations and temperature, helping volunteers match supply with demand and keep food safe.

Micro-pantries — small, volunteer-run cupboards and fridges that emerged during the pandemic — now dot Seattle. A 2024 UW planning grant identified 275 active sites that together distribute an estimated 4 million pounds of food each year, offering 24/7, low-barrier access.

A micro-pantry in Seattle. Photo by Mark Stone / University of Washington.

This cross-campus effort brings together UFL with the Paul G. Allen School of Computer Science & Engineering, Environmental & Occupational Health Sciences and the School of Public Health, alongside civic partners including Cascade Bicycle Club's Pedaling Relief Project, University District Food Bank and the Washington State Department of Health, among others. Partners will pilot tools to track pantry usage and donations and test food-safety practices for refrigerated micro-pantries.

Lessons learned from this Seattle-based pilot will provide a blueprint for other cities to implement similar data-driven, neighborhood-based food distribution systems.

PacTrans expands Workforce Development Institute amid regional labor shortages

PacTrans is scaling up its Workforce Development Institute (WDI) as agencies report difficulty filling transportation roles.

The institute was launched to provide continuing education for Alaska, Idaho, Oregon and Washington. In just one year, the program expanded from two offerings to 17, with a dozen more in development. Courses span topics such as active transportation, artificial intelligence and road safety, and are available in person, online or on demand to make professional learning accessible across the region.

The institute develops courses with universities, industry experts and state and local departments of transportation. Recent collaborators have included Toole Design Group, Fehr & Peers and the Washington State Department of Transportation. In addition to professional training, WDI supports K–12 STEM outreach intended to build interest in transportation careers.

PacTrans describes the institute as part of a broader effort to address gaps in the transportation workforce while keeping skills current as technology and practice evolve. The expansion comes as major infrastructure projects in the Pacific Northwest move forward and agencies seek specialized expertise in planning, design, safety and operations.

Participants in the PacTrans Workforce Development Institute's "Field Course in Active Transportation Design" take part in a biking tour through Seattle's Capitol Hill neighborhood to examine real-world street infrastructure. Photo courtesy of PacTrans.

LEARN MORE
More information and course listings are available at **pactranswdi.org.**

Fighting antibiotic resistance AT THE GENETIC LEVEL

By William Poor

Antimicrobial resistance is a growing threat in hospitals around the world. As more bacteria evolve defenses against available drugs, more patients run the risk of contracting infections that defy treatment.

New CEE research shows that while common disinfectants stop antibiotic-resistant bacteria, many don't destroy the bacterial DNA that carries resistance — leaving genes that can still spread and do harm.

Researchers tested nine common disinfectants used in health care facilities or households — including ethanol, hydrogen peroxide, benzalkonium chloride and UV light — against three strains of antibiotic-resistant bacteria, including methicillin-resistant Staphylococcus aureus (MRSA), the microbe responsible for life-threatening staph infections.

They measured two outcomes: how well each disinfectant inactivated the bacteria and whether the disinfectant damaged resistance genes within those bacteria. While all the cleaners did a great job of stopping the spread of bacteria, the picture was very different when the team zeroed in on DNA.

"All disinfectants stopped bacterial cells, but many left resistance genes largely intact," says Huan He, who completed this work as a CEE doctoral student and is now an assistant professor at Tongji University.

Those resistance genes can persist after a cell dies. Inactivated bacteria can still leave DNA behind that other bacteria may pick up, a process known as horizontal gene transfer, allowing resistance to persist even after surfaces are cleaned.

Most disinfectants were highly effective at inactivating bacteria but had little impact on resistance genes. Some findings ran counter to expectations: Chlorine seemed to be less effective against DNA than researchers originally anticipated, whereas phenol, another common cleaner, performed relatively well. UV light stood out for doing significant damage to the resistance genes, though ultimately not as much as the team anticipated.

The researchers were quick to point out that existing disinfection regimens are still effective and important for preventing the spread of disease. These findings could help to refine disinfection protocols in certain circumstances.

"If you have a patient who's infected with an antibiotic-resistant pathogen, I think we have enough evidence at this stage to suggest trying certain disinfectants over others when cleaning surfaces or instruments that the patient may have been in contact with," says CEE Professor Michael Dodd. "For example, UV light could be a good choice, whereas benzalkonium chloride might not be."

In future studies, the researchers plan to look at how factors like temperature, humidity and bacterial density influence DNA damage and to identify combinations that deliver a one-two punch against both cells and genes.

Inconsistent charging stations HINDER EV ADOPTION

By William Poor

Public electric vehicle charging stations in the U.S. have a bad reputation. They're notorious for being slow, finicky and unreliable. Advocates for electric vehicles (EVs) worry that these concerns are hampering adoption at a critical moment in the campaign to reduce greenhouse gas emissions, but data has been limited.

To address this problem, CEE researchers set out to determine how perceptions of public charging reliability influence consumers' willingness to buy their first EV. They surveyed about 1,500 people who had never owned an EV, assigning them to one of three conditions: imagine a world where public charging is poor, imagine a world where public charging is excellent or receive no prompt and rate charging reliability as you already perceive it (control group). Participants then chose between EVs and comparable gas cars while researchers varied price, gas costs, range and public charging access.

The effect of negative perceptions was striking. Compared to respondents with moderate views, those primed to see public charging as unreliable were far less likely to choose an EV. Offsetting that distrust required major improvements, according to participants: a 30% EV discount, an extra 366 miles of range or 30,000 additional public charging stations.

"No one knew how much charger reliability was coloring the decisions of prospective EV buyers," says CEE Professor Don MacKenzie. "I was not at all surprised by the direction of the response. What surprised me was the size. These were monster results. This is a warning for the whole industry."

One surprise: Results were essentially the same for people with home charging access and those without.

"Even if they wouldn't actually have to rely on the charging network, respondents were still concerned about reliability," says Rubina Singh, a CEE doctoral student.

The findings arrive as the EV market continues to grow in spite of shifting incentives and policy debates. Reliability worries compound those pressures. Even with signs of improvement, the threat of slow or broken public chargers remains a powerful deterrent for trips beyond a driver's home range.

As the auto industry works to bring EVs into the mainstream, these findings are both a warning and an invitation for further study. What's clear, MacKenzie says, is that reliability must be prioritized as charging networks expand.

"This is the Achilles' heel right now for EVs," he says. "If we push the broader market towards EVs before we can fix this problem, it's bad news for continued growth. I think it could create a real backlash. It only takes one bad experience to lose a customer. That's a big danger for EV adoption."

Predicting river temperatures

By Jackson Holtz / Photos by Mark Stone

CEE researchers help to restore tribal fishing stocks by harnessing satellite data to determine river temperatures.

Fishing for salmon along Washington's Klickitat River is in Ira Lee Yallup's DNA.

An enrolled member of the Confederated Tribes and Bands of the Yakama Nation, Yallup catches salmon with dip nets, a method his family has been using for generations.

He stands on a hand-built wooden platform 40 feet above Lyle Falls, maneuvering a 30-foot pole with a large hoop and net at one end. Yallup swoops the net through the river and, with a little luck, scoops up a Chinook or Coho salmon.

"Fish is our livelihood. It's very important in our culture, tradition and way of life," Yallup says.

Why temperature matters

Salmon runs — a natural resource critical to communities, ecosystems and businesses across Washington — are under threat. Development has devastated salmon stocks in rivers throughout the Pacific Northwest. Dams, agriculture, industry and warming waters make it harder for salmon to return to their spawning grounds.

The Columbia River Inter-Tribal Fish Commission (CRITFC), which coordinates fisheries for four Columbia Basin tribes, helps manage the Columbia River, which is the Pacific Northwest's largest watershed.

Now these fishery managers have a new tool, thanks to a team of CEE researchers. Using advanced computing and machine learning, the team devised a way to extract river temperatures from NASA satellite images, and created a website that charts precise temperature for remote river locations across the Columbia River Basin, with readings that go back more than four decades.

"Water temperature is one of the key environmental attributes that determines whether a fish is going to survive in the Columbia River," says Elaine Harvey, CRITFC's watershed department manager. "This tool is directly related to water temperature, and we can utilize it for management of salmon."

A new tool for fisheries managers

Since the 1970s, NASA's Landsat satellites have been collecting data to create a long-term record of Earth's surface, with the goal of using imaging technology to produce a continuous archive of the planet and track the impacts of human development.

The data from these satellites is publicly available, and researchers around the world have accessed it to identify trends. But turning raw imagery into practical, site-specific river temperatures is challenging.

CEE doctoral student George Darkwah, working with Faisal Hossain, the John R. Kiely Endowed Professor in Civil and Environmental Engineering, tackled that problem.

Darkwah combined the NASA satellite thermal imagery with topography, historical weather and existing records from river gauges and in-river sensors, then used machine learning to translate that data into temperatures.

The open-source tool and website that Darkwah created, Thermal History of Regulated Rivers (THORR), puts those results in the hands of resource managers and the public.

The site lets anyone view water temperature and other critical information along even the most remote reaches of the Columbia River basin.

Where gauges are sparse or clouds block views, THORR models conditions using weather and geographic data to estimate temperatures in hard-to-access streams and rivers.

From science to stewardship

In April 2023, Hossain and Darkwah shared an early version of THORR with CRITFC.

Harvey, a member of the Yakama Nation, wanted to see how river temperatures varied in remote locations and how they've changed over time. Fluctuations in temperature can threaten salmon, and if the river gets too hot, fish cannot survive.

"It's imperative that we understand what's happening with water temperature in the Columbia River, because the fish have lethal limits," Harvey says. Having a tool like THORR, she adds, is a blessing. "Salmon are part of our daily life, and every year it's a great concern for the tribes when water temperatures are excessively high."

Using the data from THORR, CRITFC can make policy recommendations to the Bonneville Power Administration and the U.S. Army Corps of Engineers, the two organizations that manage dams along the Columbia River. Releasing colder water from dams upstream is one strategy that could lower temperatures for salmon survival.

"When we collaborate, we create," says Davis "Yellowash" Washines, a Yakama Nation tribal elder who advises CRITFC. Working with the UW, CRITFC and other tribes has allowed him to help preserve fisheries, use the land and uphold traditions for the next generation. "We have a responsibility to our mother, to this ground, to water, to our way of life," he says.

Virgil Lewis Sr., a Yakama tribal elder and CRITFC commissioner, remembers looking down on the Klickitat River as a boy and seeing it flush with salmon. Today, from the same spot, he might see one or two fish.

While changes such as removing dams, dredging silt and restoring fish runs may take decades, the work must happen, Lewis remarks.

"We have generations that are coming up. I have grandchildren and great-grandchildren that will someday be taking my place fishing on this river," he says.

Darkwah also has a vision of returning to his home country of Ghana to use technology like THORR to help support communities there. In the meantime, he says, connecting with elders including Washines and Lewis adds a dimension to his doctoral research and teaching.

"Knowing that my work has an impact out there, it makes me feel more satisfied within," Darkwah says. "I know that what I'm doing is for humanity."

Top left: CEE Ph.D. student George Darkwah observes the river. This page, top: Ira Lee Yallup (Yakama Nation) dip-net fishes from a wooden platform at Lyle Falls; middle: Darkwah and a Columbia River Inter-Tribal Fish Commission staff member survey the river; bottom: Klickitat River. Cover photo: Aerial view of the Klickitat River near Lyle Falls.

Giving, simplified

Your questions about supporting CEE, answered by our individual giving team

Alumni engage with CEE in many ways, from mentoring and hiring to philanthropy. In this Q&A, Caitlin Bell and Emily Thurston from CEE's Advancement team offer straightforward answers to some common questions about individual giving for readers who are curious about different options.

Why does my support matter right now?

CEE is moving forward amid tighter resources and shifting timelines. As we face reductions in state and federal funding, we are welcoming one of our largest undergraduate cohorts to date. Flexible private support gives the department room to keep classes hands-on, honor commitments to graduate students, and maintain the labs and shared spaces that make learning possible. In short, it preserves what makes a CEE education so strong and keeps research that benefits communities across Washington on track.

What needs are most immediate, and how can support be focused there?

Support is most needed in four areas: keeping classes small and interactive, funding graduate student teaching and research, bridging short funding gaps, and maintaining essential spaces. In practice, that means funding student instructors who lead discussion sections and hold office hours; supporting graduate students who run labs and keep experiments moving; providing short-term support to keep projects on track when outside funds are delayed; and sustaining classrooms, labs and shared facilities in More Hall.

The **CEE Strategic Support Fund** directs flexible resources to the highest-need areas like these, helping support students and faculty where it matters most.

I'd like to give, but I'm not sure what I can afford at this time. Are there ways to make giving more accessible?

Yes. Many alumni choose **recurring gifts** — monthly or annual commitments that provide steady support the department can count on. Even modest amounts add up and make a real difference, especially during times of decreased public funding.

Others give through **non-cash assets** such as appreciated stock, mutual fund shares or real estate, which can offer tax advantages while supporting students and faculty. For alumni over the age of 70, a **Qualified Charitable Distribution (QCD)** from an IRA can count toward your required minimum distribution but is not taxed as income, making it one of the simplest and most tax-efficient ways to support CEE.

I'd like my gift to create something lasting. How do I honor a legacy at CEE?

Consider a named fund. **Endowed funds** are invested to provide steady support year after year. **Named term funds** are spent now for immediate impact — especially helpful this year as we navigate funding uncertainty and higher enrollment. You can also add to existing funds in areas you care about.

What if I'm planning ahead or considering options later in life?

Many supporters choose to include CEE in their **estate planning**, which enables a future gift without affecting current finances. Common options include naming CEE in a will or trust or designating the department as a beneficiary of a retirement account or life insurance policy.

HELP US SHAPE THE FUTURE OF CEE

Interested in learning more about how your giving can strengthen CEE's research, teaching and student experiences? Visit **ce.uw.edu/giving** or contact **Associate Director of Advancement Caitlin Bell** at **bellcait@uw.edu.**

Why I give

"CEE gave me the foundation for a career that's kept me employed every day since graduation. I give back each year to the department's Strategic Support Fund because I want to support the faculty and programs that keep the department strong for future engineers."

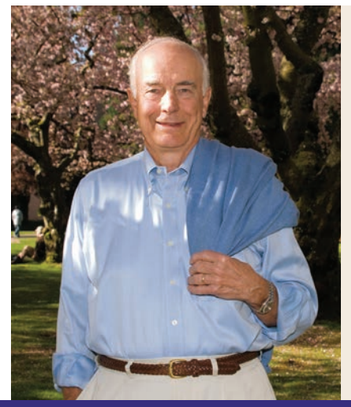
Darren S. Johnston, P.E., S.E. (BSCE '93)
Senior Structural Engineer, Amento Group

"I recognize the importance of student internships because we need good problem solvers. Students from CEE come out of the program with enthusiasm for the field and a unique way of thinking. I support the department because a degree in CEE gives future engineers the strong foundation they need to succeed."

Natividad Soike, P.E. (BSCE '79)
Retired Director of Engineering, Port of Seattle

"CEE gave me the education and connections that shaped my career. Four of my seven engineering jobs came through UW classmates or alumni. Giving back is my way of showing gratitude for all that the UW has made possible in my life."

Alan Findlay, P.E., S.E. (BSCE '94, MSCE '99)
Structural Plan Reviewer, City of Renton

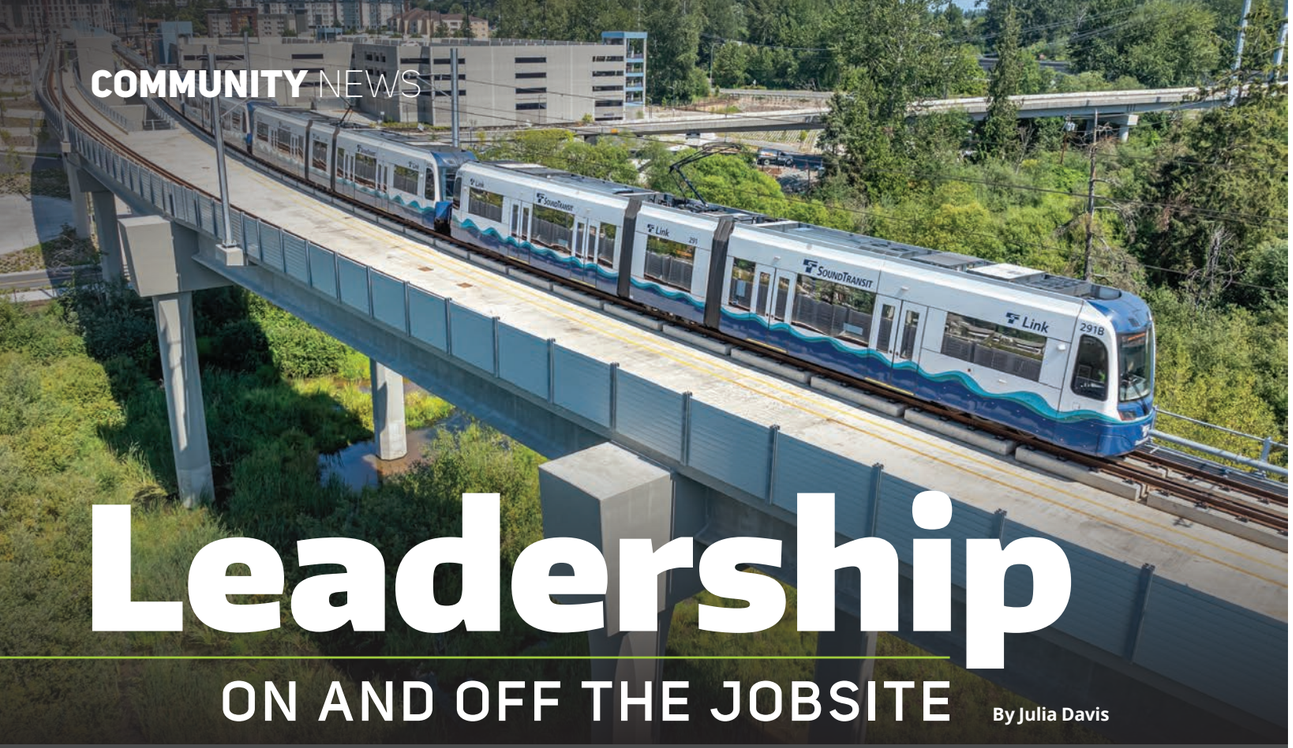


Giving spotlight:
Daniel J. Evans Endowed Professorship

The Daniel J. Evans Endowed Professorship in Civil & Environmental Engineering honors Daniel J. Evans (BSCE '48, MSCE '49), a UW CEE graduate, civil engineer and three-term Washington governor whose career exemplified service to the public. This professorship is designed to strengthen CEE's ability to recruit and retain faculty who teach with purpose and pursue work that benefits communities.

This professorship reflects shared values across our alumni: pride in a CEE education, a sense of community that looks out for one another and a commitment to engineering for the public good.

Photo by Mary Levin



Leadership

ON AND OFF THE JOBSITE

By Julia Davis

From Iceland to Washington, alumnus Thorvaldur Konradsson makes his mark by championing teamwork, mentoring young engineers and leading by example.

At nearly $1 billion, Sound Transit's Lynnwood Link Extension is one of the Seattle region's largest recent infrastructure projects. Spanning 3.7 miles northward from Shoreline to Lynnwood, Washington, the light rail extension connects growing suburban communities directly to Seattle's urban core.

The project, which began construction in 2019 and opened to riders in 2024, includes two elevated stations, 2.3 miles of elevated rail guideway, extensive street improvements and a new 1,650-stall parking garage. More than 4 million labor hours and hundreds of workers went into creating the newest section of the Seattle light rail system. Despite pandemic disruptions and regional labor shortages, the project finished on time and on budget.

On the team overseeing this enormous effort was Thorvaldur Konradsson (MSCE '10), a project executive at Skanska who has spent more than 15 years guiding teams through complex logistical challenges. Ask him what led to the project's success, and his answer is straightforward.

"It's always about the people who work to build it. There's no magic," Konradsson says. "You've got to have the right people at the right time with the right attitude. And when a problem or obstacle comes up, you run to it as fast as you can and you tackle it together."

That philosophy has shaped not only the Lynnwood Link Extension, but also Konradsson's longstanding relationship with CEE. Despite a demanding schedule, he regularly gives guest lectures, mentors students and arranges visits to construction sites so students see heavy construction in action.

Growing up in construction

Konradsson's career in construction started long before he arrived at the UW. Growing up in Iceland, he worked alongside his siblings at his family's construction company, gaining firsthand experience by operating heavy machinery at just 16. His family's projects ranged from bridges and dams to highways and tunnels, giving him an early appreciation for teamwork and creative problem-solving.

After nearly a decade in the industry, he earned his engineering degree at Reykjavik University. There, he learned about the UW's Valle Scholarship Program from then Program Director Scott Rutherford. The program supports graduate student exchanges with Nordic countries, and has funded hundreds of scholars since its founding in 1980. Konradsson applied and enrolled at the UW as a Valle scholar in 2009.

Finding his footing at the UW

Konradsson's commitment to mentorship stems from his own experience as a student. CEE Professor Emeritus Joe Mahoney, his adviser, recalls how his real-world experience stood out.

"He was like a sponge," Mahoney says. "He came in with all this heavy construction experience, but was eager to learn everything he could. He was intense, energetic and completely engaged."

Mahoney introduced Konradsson to leaders at Skanska. When offered a position after graduation, Konradsson decided to take it, though it meant starting over professionally in a new country.

"It was humbling," Konradsson says. "There were no shortcuts. I had to prove myself all over again."

Shaping future engineers

Today, Konradsson remains deeply involved with CEE. In addition to guest lectures, he regularly attends campus recruiting events, helps students network within the industry, and supports the career development of UW graduates within Skanska.

"Going through school, I saw how challenging it can be for students to break into construction," Konradsson says. "I realized I could help them get a leg up."

In his current leadership role, he is just as committed to helping young engineers grow once they enter the workforce.

CEE Associate Teaching Professor Julian Yamaura, a former classmate of Konradsson, sees his leadership continuing to make an impression on young engineers.

"What makes him stand out is that he genuinely cares about the next generation of engineers. He's approachable, which resonates with new graduates who are going into a brand new field that they might not know too much about," Yamaura says.

At Skanska, Konradsson leads a structured mentorship program. New engineers rotate through various roles, including surveying, environmental compliance and quality control, to help them discover their strengths and interests.

"Somebody starting out in construction often doesn't know what they'll be best at. You just have to try things, and often, people surprise themselves," Konradsson says.

Many engineers who started their careers under his guidance are now leading major projects across the Pacific Northwest, from highway improvements to bridges and rail expansions. Watching that growth is what Konradsson finds most rewarding.

"I enjoy seeing the progression of people, and watching their talent bloom as they take on amazing things and are successful at them," he says.

While Konradsson prefers to focus on the people behind the work, the industry has taken notice of his leadership. The Lynnwood Link project earned the Associated General Contractors of America's (AGC) Grand Award, recognizing it as the nation's best construction project in its category. Konradsson also earned the AGC Project Manager of the Year award, along with several other honors recognizing the project's emphasis on safety, environmental stewardship and equity.

He credits these accolades to the collective efforts of his teams, saying that awards merely underscore the teamwork and discipline necessary for successful projects.

"To me, this has never just been about building infrastructure," Konradsson says. "It's about building communities, creating opportunities for others and leaving things better than you found them."

Top left: A Link light rail train travels through the Lynnwood Link Extension corridor, part of the 3.7-mile expansion led in part by Konradsson. Top: Konradsson (left) leads a field team meeting. Bottom left: The new Lynnwood City Center Station, the northernmost stop on the extension. Bottom right: Elevated tracks constructed as part of the project. All photos courtesy of Skanska.

A DAY IN CEE'S

Construction Materials Lab

Photos by Dennis Wise / University of Washington

Undergrads mix, test and break concrete to learn how materials behave in the real world.

"We go into this assuming none of our students have any idea what concrete even is. The lab is where it becomes exciting because they get to apply all their lecture knowledge, and you can see it just *click*."

JULIAN YAMAURA, *CEE Associate Teaching Professor*

In CEE's Construction Materials class, one of the department's foundational undergraduate courses, students learn about the properties and performance of materials used in heavy construction, such as cement and concrete. The course equips students with knowledge to assess material and guide selections for construction projects, a key aspect of construction engineering. It's also one of the first truly hands-on courses for civil engineering majors. Taught by Associate Teaching Professor Julian Yamaura, the class pairs focused lectures with weekly labs where students design mixes, follow American Society for Testing and Materials (ASTM) standards, and determine how choices in ingredients, proportioning and curing change performance.

"We go into this assuming none of our students have any idea what concrete even is," says Yamaura, who is the Tom and Marilyn Draeger / Beavers Charitable Trust Term Faculty Fellow. "The lab is where it becomes exciting because they get to apply all their lecture knowledge, and you can see it just *click*."

On this day in the lab, teams made two very different concretes: a high-strength mix and a pervious mix that lets stormwater and other sources of runoff drain through while still providing some strength. After testing, students "read" the fracture surfaces together to understand how their ingredient ratios and curing steps affected performance.

The class also serves as practice for teaching assistants, who lead small groups through mixing, testing and post-test reviews.

"It's a great opportunity for teaching assistants to develop their own teaching and communication skills while also strengthening their technical mastery of the subject," Yamaura says.

By the end of the quarter, students can explain not just what a mix did but why it failed or held up — in the same terms used on industry projects.

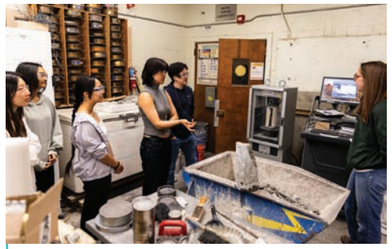
"The students get a connection to the materials and how things get built in industry," Yamaura says. "It inspires many students to lean into construction engineering and appreciate not only the design-related activities but also the hands-on nature of fieldwork and working in teams."

Drainage test in action

CEE graduate student Vania Moreno-Colin, a TA for the class, demonstrates a simple device that measures how quickly water passes through a pervious concrete cylinder. After the demo, teams test their own samples, and the team whose cylinder has the fastest drain time while remaining strong enough to withstand a pressure of 1,000 pounds per square inch (psi) wins the challenge.

Pervious by design

This top view shows pervious concrete, which is made with intentional gaps that let rain and other sources of runoff pass through the surface and into the soil below instead of through a traditional drainage system.



Inside the Breaker Space

Students test the strength of their concrete cylinders in the department's Breaker Space, an instructional lab where a hydraulic press squeezes each sample until it breaks. The results show how much pressure the cylinder withstood before failure.

Post-test review

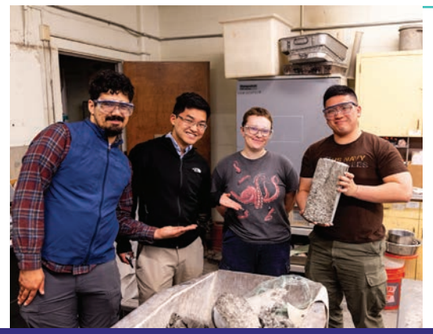
CEE graduate student and class TA Grace Collins unwraps a high-strength concrete sample that has just been tested and shows the cracked surface to the group. The class discusses what went well and what to change in the next mix.

Reading the cracks

Associate Teaching Professor Julian Yamaura points out fracture lines on a team's cylinder. These patterns offer clues about compaction, air content and how the sample was cured.

Concrete up close

A broken face of concrete reveals the size of the rocks, the paste between them and how well everything bonded. Comparing these textures helps teams troubleshoot their ingredient ratios and curing.



A successful lab test

Students show off their cylinders after a full round of testing.

THE BRIDGE AUTUMN / 2025

Bart Nijssen, *Professor & Chair*
CONTENT: Julia Davis

ce.uw.edu
TEL 206.543.2390 FAX 206.543.1543

CIVIL & ENVIRONMENTAL **ENGINEERING**

More Hall, Box 352700, Seattle, WA 98195-2700

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SPRING EVENTS: CELEBRATE STUDENT INNOVATION AND BIG IDEAS WITH CEE

Capstone & Research Showcase — NEW!

MAY 2026

For the first time, CEE will host a department-wide showcase of student work. Explore posters, prototypes and demos from industry and academic capstone teams and research groups. Meet student innovators, talk with faculty and partners and see how classroom learning translates to real-world impact. Free and open to the public.

Daniel L. & Irma Evans Endowed Lecture

APRIL 23

Featuring Deb Niemeier, Clark Distinguished Chair in Energy and Sustainability and professor at the University of Maryland. Niemeier's research examines how housing, roads and city services shape who is most exposed to air pollution, flooding and other climate-related risks. Learn more at **ce.washington.edu/news/lecture/evans.**

WATCH ON DEMAND: 2025 Edward Wenk Jr. Endowed Lecture

In his November talk on reducing disaster risk for vulnerable communities, Carlos Genatios, director of Engineering, Technology & Design at Miami Dade College, shared three case studies — safer self-built housing, post-landslide drainage planning and hurricane/flood preparedness — with practical steps for communities and agencies. Watch at **ce.washington.edu/news/video.**