THE BRIDGE

REAL-WORLD ASSIGNMENT

Students work on new Engineers Without Borders project in Nicaragua

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SPRING 2017

CIVIL & ENVIRONMENTAL ENGINEERING

UNIVERSITY *of* WASHINGTON

MESSAGE FROM THE CHAIR

In the Autumn 2016 edition of *The Bridge*, I noted my term as chair was slated to end in June 2018. By the time you read this, however, I will already be serving in a new position as Vice Dean of the UW College of Engineering. The position provides strategic support to Dean Mike Bragg as the college continues to grow, parallel to what is occurring at the local CEE level.

In the short term, professor Tim Larson will serve as interim CEE chair, a role he has filled on two prior occasions. An internal search is already underway, with the goal that a new chair will be appointed by the dean this coming fall.

I normally prefer to look forward in chair's messages. However, now as the recent former chair, I would like to recount a few department highlights since late 2009, when my appointment began. The successes emphasize how our faculty, staff, students and alumni have kept CEE on a great trajectory. I am certain this momentum will continue under the leadership of the next chair.

Through the years, we have worked to support and strengthen the department's core education mission. In 2010, we introduced a major junior year curriculum revision, opened freshman and sophomore paths to CEE admission, and grew our enrollment and degree numbers by about 40 percent. We launched three online master's degree programs, the most recent of which starts this coming fall. We are also on track to launch a new Bachelor of Science in Environmental Engineering degree program next year. Our two CEE-based study abroad programs in Rome and Jordan will expand with a third program next year in India. Two of our faculty received university awards for their outstanding instruction.

Our student groups have been increasingly active, with impressive numbers participating in Concrete Canoe and Steel Bridge competitions, service organizations like Engineers Without Borders, and professional organization student chapters like American Society of Civil Engineers and American Public Works Association. About 75 percent of our undergraduates participate in internships during their studies, and our students regularly win local and national academic awards, scholarships and fellowships.

Greg Miller, Professor & Vice Dean

CEE's graduate programs remain among the highest ranked in the College of Engineering (#12 for environmental engineering and #16 for civil engineering), which is reflective of the quality of our research programs. We now have four major research centers based in CEE involving faculty from across the department, with regional, national and international reach. In the past eight years, we have hired 17 new faculty members (some with shared appointments in other departments), and the quality of the new hires bodes well for the department's ongoing success.

Beyond our core activities, we introduced a series of community building engagement activities for our alumni. These include annual tailgate parties, various reunions, public lectures and the participation of 50-year graduates in our annual CEE graduation ceremony.

Recounting these highlights reminds me what a privilege and honor it has been to serve as chair of a department with such a distinguished history and bright future. I first entered the department as an undergraduate nearly 40 years ago. Although many things have changed over the years, the fundamental commitment to excellence in education, research and the profession has been constant. We can all look forward to seeing and supporting what comes next.

Greg Miller, *Professor and Vice Dean*

Meet the interim chair

The UW CEE community welcomes professor Tim Larson as interim chair. A respected and longstanding faculty member, Larson has twice before served as interim chair of the department and will once again lead the department through a leadership transition. Larson has more than 35 years of experience in air quality research, specifically the characterization of urban air pollution and its sources. An alumnus of the department, Larson earned his Ph.D. in 1976.

Tim Larson, *Professor & Interim Chair*

BRINGING BIG IMPROVEMENTS TO A SMALL VILLAGE

From clean water to electricity, Engineers Without Borders student team is working to meet basic needs in Nicaragua

In a small village called Tortuga in Nicaragua, 80-year-old Patrosiño Valle lives with his wife in a house that does not have running water. He travels half a mile to collect water from the closest well, which likely contains high levels of bacteria and calcium.

"We can live without power and with washed-out roads, but without water there is no life," Valle said.

Valle's house is one of 18 in the village not connected to the primary water system due to lack of water pressure. But that's about to change, thanks to a group of students involved in the UW chapter of Engineers Without Borders (EWB), which helps meet human needs through engineering projects that focus on clean water, energy, sanitation, agriculture and structures.

The Nicaragua project is the newest addition to the UW EWB chapter, which also has an ongoing project in Guatemala and recently closed out a project in Ghana. New projects are secured through EWB nationals after student chapters throughout the U.S. apply to work with specific communities. Working in Tortuga was the UW team's top choice and they committed to partnering with the community for a minimum of five years.

With a population of about 675 people, Tortuga consists primarily of a handful of markets, a school and a church. Accessing the town isn't easy. From one end of the community to the other there are five streams, all without bridges. The majority of residents work in the tourism industry at the nearby resort town San Juan del Sur.

A handful of the 15 students involved in the project visited Tortuga for the first time in December 2016 to assess the community's needs. During the eight-day visit, students talked to residents about improvements they would like to see in the community and identified priority projects, which entail connecting more households to water and electricity and removing calcium from the water (see sidebar on page 4).

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Cover Photos

Left: The village's water and sanitation committee maintenance worker shows students how water pipes are installed in the hilly terrain.

Right top: While interviewing women in the village about projects they would like to see completed, CEE sophomore and project lead MaKenzie Fockler meets children.

Right middle: One of the village wells in the south region, which currently does not have running water.

Right bottom: Members of the team during their first visit to Nicaragua: mechanical engineering student Chris Cole, professional mentor David Schwartz, civil & environmental engineering student MaKenzie Fockler, electrical engineering student Bryan Bednarski, professional mentor Bob Wicklein and CAPS president Arsenio Yubank Serrano, from left.

Photo top left: Residing in a house without running water, 80-year-old Patrosiño Valle must walk half a mile to the closest well.

Photo top right: Students organize an open forum with Tortuga residents to discuss priority projects and strengthen relationships with the community.

Photo credit: MaKenzie Fockler, David Schwartz and Daniel Hernandez.

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Knowing they would not return to the village for many months, the students coordinated logistics and gathered information. They inspected the existing water system, coordinated water analysis at the closest university and collected the necessary data they will need to work remotely on the projects. The students also met with the village's water and sanitation committee, the Comité de Agua Potable y Saneamiento, which they will work closely with on water system enhancements.

"Getting to meet the people in the community and knowing that the little kids will grow up with clean water and electricity from our project makes hundreds of hours of planning and documentation worth it," said MaKenzie Fockler, a CEE sophomore and project lead.

From designs to prototyping to planning, the students complete the majority of work on campus. Comprised of both undergraduate and graduate students from various engineering disciplines, the UW EWB chapter meets weekly and students spend additional hours working on project specifics according to their area of specialty. Professional mentors and faculty advisors, who this year are CEE faculty members Rebecca Neumann and Faisal Hossain, help guide the students.

"The students are highly dedicated and I am energized by their idealism and passion," Neumann said. "I have been impressed by their ability to plan, coordinate and implement international engineering projects while juggling other academic demands."

Students will visit Tortuga again this coming summer to start on project implementation. They plan to connect seven houses on the west side of town to the existing water system, which will leave only 11 remaining houses without running water – but not for long.

Nicaragua priority projects

The following priority projects were identified during the Nicaragua student team's first visit to Tortuga:

WATER AND ELECTRICITY EXPANSION

Western Region:
Households in this area currently collect water from a well, which likely has high levels of bacteria. To connect households to the existing water system, pipes will be strategically added to maintain water pressure despite an altitude change in the western region. The existing water system already has a chlorination pump system to ensure the water is potable.

Northeast Region:
To enable water to reach more households, a solar-powered pump system will be installed at the well in this region. Since the well is shallow, it will be expanded so there is enough water to maintain a water system. A chlorination pump system will be added to ensure the water is potable.

Southern Region:
To bring electricity to the south region, students are working with the community and municipality to connect households to the main electrical grid. Once this region has electricity, the students plan to connect households to water via an electric pump system attached to the existing well. If water analysis indicates high levels of bacteria, a chlorination pump system will be added.

Top left: Children excitedly try out new concrete bleachers, which will hold several hundred people during town meetings and events.

Top right: Volunteers from the local community pour a new concrete pad for the community's first gathering place.

NICARAGUA

Guatemala project: still going strong

In 2012, the UW EWB chapter began a five-year commitment to develop sustainable solutions for the community of La Vega del Volcan, located in northwestern Guatemala. While the five-year commitment ends this year, the students are interested in continuing the partnership. The Guatemala team is currently comprised almost exclusively of CEE students: Ross Burk, Eli McMeen and Brandon McNerney, with mentoring assistance from alumnus Travis Corigliano, MSCE '12.

To date, the Guatemala student team has completed the following:

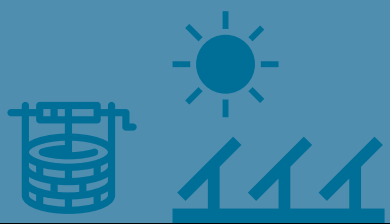
FISH FARM ENHANCEMENTS: From 2012-2014, the student team worked to address the community's ongoing struggle with consistent access to food. After enhancing a fish farm, which previously yielded only 2,000 eggs per year, more than 25,000 eggs hatched the subsequent spawning season.

BUILDING A COMMUNITY GATHERING PLACE: From 2014-2016, the student team worked to build the community's first gathering place for the more than 750 residents. The community gathering place serves as a market, sports field, meeting area and general gathering space. The students also regraded the hillside near the community center and constructed concrete bleachers.

STEEL ROOF FOR COMMUNITY GATHERING PLACE: Starting in 2016, the student team is working on the structural design for a steel roof structure for the community gathering place. Construction is anticipated to start in June 2017. To inspect the final structure and begin a yet-to-be-determined new project with the community, a student team will visit the site in September 2017.

CALCIUM REMOVAL

The current water system contains extremely high levels of calcium. This project is the top priority of the community due to health concerns. The students expect this project will take the longest to complete, as removing calcium from water is a complicated chemical process. Students are in touch with endocrinologists and Nicaragua's Ministry of Health to explore the health effects of high levels of calcium.



HELP SUPPORT THE TEAM!

The Nicaragua student team is supported primarily through donations and grants. To support the team, visit ewbuw.weebly.com/donate.html

Students

Shahryar Ahmad

IVANHOE AND
AWRA FELLOWSHIPS

Master's student Shahryar Ahmad is the recipient of two fellowships: a Washington Section American Water Resources Association Student Fellowship and an Ivanhoe Foundation Fellowship. The awards fund Ahmad's research to maximize hydropower potential using satellite observations and numerical weather forecasting models.

Claire Beveridge

NORTHWEST CLIMATE SCIENCE
CENTER GRADUATE FELLOWSHIP

Ph.D. student Claire Beveridge received a Northwest Climate Science Center Graduate Fellowship, which funds her research to investigate sediment dynamics at Mount Rainier, particularly the role of sediment on flood hydrology. Her goal is to learn how climate change affects flooding in select Mount Rainier drainages.

Nishan Biswas

IVANHOE
FELLOWSHIP

Master's student Nishan Biswas received an Ivanhoe Foundation Fellowship, which provides financial assistance to students who are pursuing water-related research. Biswas is developing software that utilizes research and satellite water data to better manage water-related decisions in the Hindu-Kush-Himalayan region, where glaciers are receding.

Anna Bovbjerg

WOMEN'S TRANSPORTATION
SEMINAR SCHOLARSHIP

Master's student Anna Bovbjerg received the Senator Scott White Memorial Scholarship from the Puget Sound Chapter of Women's Transportation Seminar. The award funds her research on the logistics and supply chain of food delivery programs in the region, with the goal of increasing access to healthy food that is affordable for low-income families.

William Currier

THIRD PLACE
ORAL PRESENTATION

Ph.D. student William Currier received third place for student oral presentations at the 28th Conference on Weather Analysis and Forecasting. Currier presented his research for the OLYMPEX Project, which entailed evaluating various snowfall estimates to more accurately predict the amount of water stored as snow.

Olivia Hargrave

MARY GATES
SCHOLARSHIP

Undergraduate senior Olivia Hargrave has received a Mary Gates Research Scholarship. The scholarship supports Hargrave's work in the Hydro-biogeochemistry Lab, where she is studying arsenic mobility in lake sediments in Tacoma, Wash., with the goal of better understanding elevated levels of arsenic found in associated lakes.

Lysandra Medal

SECOND PLACE
POSTER AWARD

Ph.D. student Lysandra Medal received second place in a best poster contest at the New Frontiers in Construction Conference. The poster detailed ongoing research by Medal and assistant professor Amy Kim that aims to understand how facility managers and other decision makers prioritize energy efficiency retrofits in buildings.

Justin Pflug

AMERICAN WATER RESOURCES
ASSOCIATION FELLOWSHIP

Ph.D. student Justin Pflug has received a Washington State American Water Resources Association Student Fellowship. A member of the Mountain Hydrology Research Group, Pflug is working on the OLYMPEX Project, which entails studying glacier melting and snow accumulation over glaciers.

Twenty-three students receive WAPA scholarships

UW CEE students are on the path to success - in this case a paved one. In recognition of their hard work, a total of 23 students were awarded scholarships from the Washington Asphalt Pavement Association (WAPA). The students received the scholarships at a ceremony in February 2017, presided by WAPA executive director Dave Gent, BSCE '81. Of the 23 students, one graduate student received $4,000 and 22 undergraduate students each received $1,000.

Awardees

Congratulations to the following recipients:

Aryssa Brantner, *senior*
Skyler Brehm, *junior*
Donovan Cordova, *junior*
Hudson Dadie, *junior*
Renee Engleson, *senior*
Fausto Figueroa, *senior*
Elizabeth Guilford, *junior*
Katherine Hedgecock, *senior*
Kyleah Hess, *junior*
Emily Johanning, *senior*
Parker Johnson, *junior*
Kara Kronbauer, *junior*
Katarina Kubiniec, *junior*
Iris Kwong, *senior*
James Lew, *graduate student*
Gregory Malcolm, *junior*
Amy Moore, *junior*
Jennifer Nyerick, *junior*
Timonthy Prusa, *junior*
Martha Quigg, *junior*
Amanda Tinoco, *junior*
Emily Walbon, *senior*
Alyssa Yap, *senior*

Donors

Thank you to the following current and past members of the Washington Asphalt Pavement Association for generously funding the scholarships:

Wesley C. & Jean C. Bogart
Ace Paving Company, Inc.
St Paul/Seaboard
Sturdy Weld Equipment & Design, Inc.
Wenatchee Sand & Gravel Co.
Wilder Construction Co.
Woodworth & Company, Inc.
Albert & Pat DeAtley/Superior Asphalt
Brown & Brown of Washington/ Superior Asphalt
A.E. DeAtley/Superior Asphalt

Two CEE students receive Husky 100 Awards

In recognition of their performance both inside and outside the classroom, undergraduate seniors Trevor Renken and Esther Chang were honored with Husky 100 Awards. The annual awards recognize 100 undergraduate and graduate students from across UW's three campuses in Seattle, Tacoma and Bothell who "apply what they learn to make a difference on campus, in their communities and for the future."

Faculty

Professor Greg Miller honored with Thorud Leadership Award

The timing couldn't be better. Just as professor Greg Miller transitioned into a new leadership role as Vice Dean for the UW College of Engineering, he was honored with the David B. Thorud Leadership Award. The annual award recognizes one UW faculty member and one staff member who have "demonstrated exceptional abilities to lead, serve, inspire and collaborate with broad impact." Prior to his new role as vice dean, Miller served as chair of UW CEE for eight years, starting in late 2009.

More than 450 students and 50 companies attend the 11th annual UW CEE Career Fair.

Career fair connects students with employers

Connecting CEE students with employers is a win-win situation. More than 450 students attended the 11th annual UW CEE Career Fair on January 19, which featured representatives from 50 companies. Over the years, a total of 143 different companies and organizations have utilized the CEE Career Fair to connect with students who are seeking internships and full-time positions. Thank you to all the companies and organizations who continue to support the annual event.

Perfect Attendance

The following companies have attended the majority of CEE career fairs since 2007:

BergerABAM
Gray & Osborne, Inc.
Hart Crowser, Inc.
Kiewit
KPFF Consulting Engineers
Magnusson Klemencic Associates
Parsons Brinckerhoff
Perteet, Inc.
Reid Middleton, Inc.
US NAVY

Stellar Support

The following companies have attended at least half of all CEE career fairs since 2007:

GeoEngineers, Inc.
Golder Associates Inc.
Harder Mechanical Contractors, Inc.
Harriott Smith Valentine Engineers Inc.
HDR Engineering, Inc.
HNTB Corporation
IBI Group
KBA, Inc.
Manson Construction Co.
Murray, Smith & Associates, Inc.
PACE Engineers, Inc.
Puget Sound Energy
Tacoma Water
Transpo Group (formerly Transportation Solutions)
Triad Associates
U.S. Army Corps of Engineers Seattle District
U.S. Forest Service

New online master's program launches in autumn 2018

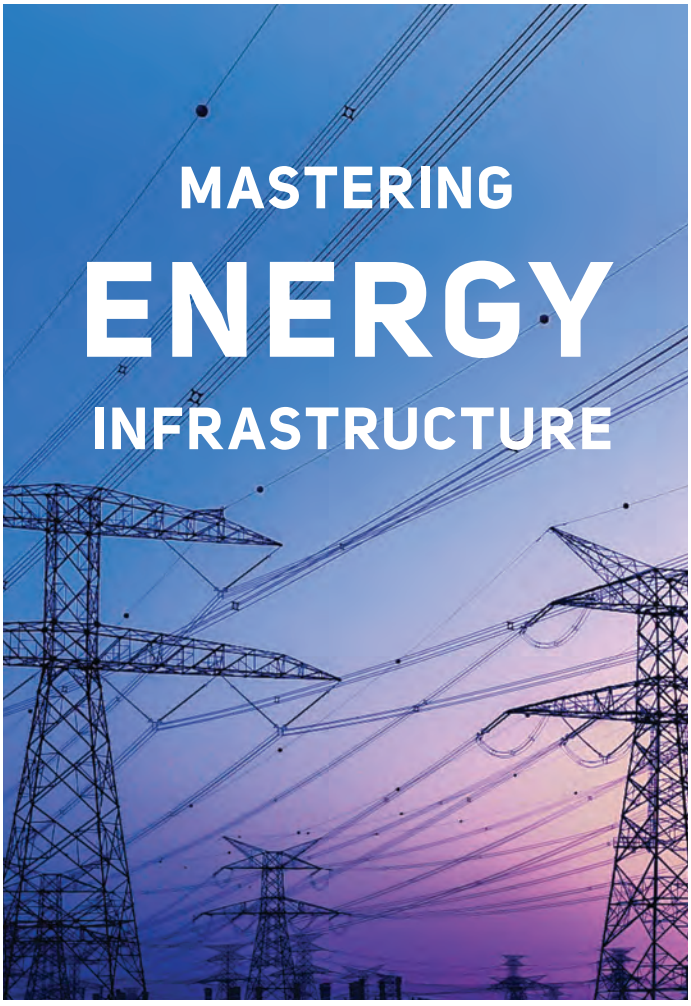
Prospective students will soon have yet another topic to master: energy infrastructure. A new online master's program, called Master of Science in Civil Engineering: Energy Infrastructure, will launch in autumn 2018. The program will prepare students to plan, design, construct and manage energy related infrastructure projects.

The new program responds to current changes in the country's energy infrastructure, which is moving from traditional fossil fuel systems to renewable energy sources and storage such as wind, solar, batteries, hydropower and more. As a result of this shift, there is an increasing number and variety of jobs that require specialization in energy infrastructure. Engineers who specialize in this field enjoy careers as energy analysts, construction managers, energy project managers, plant managers, facility planners and project engineering directors.

The online program is designed for early-to-mid career engineering professionals who would like to gain expertise in various energy systems. The program allows students to pursue a specialized focus while setting their own schedule, enabling them to participate from any location and still work full-time. Students may start the program during any quarter and set their own course load. Most students will be able to complete the program in 2-3 years.

Coursework is similar to in-person programs and students communicate with classmates and instructors online. Courses are taught by UW CEE faculty in the Construction, Energy and Sustainable Infrastructure group, as well as experts in the field.

For more information, visit www.energy-infrastructure.uw.edu.



UW CEE graduate programs ranked #12 and #16

UW CEE's graduate school rankings are not only consistent - they are consistently good. For yet another year, UW CEE ranks among the top graduate schools with the #12 best graduate program in environmental engineering and #16 best graduate program in civil engineering, according to *U.S. News & World Report's* 2018 rankings.

The department's rankings are the third highest of the 10 engineering programs at UW, and contribute to the UW College of Engineering's overall #25 ranking. Congratulations to UW CEE's faculty, students and staff who make the department a place of excellence!

CAMPAIGN 101:

BUILDING SUPPORT FOR THE NEXT GENERATION OF ENGINEERS

Help educate future engineers by supporting people, places and programs

The importance of infrastructure investment hits home for future civil engineers who are housed in a building that is largely in a state of disrepair. Built in 1946, UW CEE's More Hall is tight on space and long overdue for upgrades. Facilities improvements and enhancements are just one of three main department priorities taking stage in the campus-wide fundraising campaign, "Be Boundless: For Washington, For the World," which launched publicly in October 2016.

Financial investment from alumni and friends of the department is increasingly important as UW CEE aims to educate more engineers with the skills and leadership abilities needed to make future urban systems better than the last. While UW CEE is poised to lead the way in preparing engineers to address critical issues at home and abroad, student demand to learn these skills is surpassing capacity. The following priorities will enable UW CEE to accommodate even more deserving and passionate would-be civil and environmental engineers:

- **Facilities Improvements and Expansion:** Potential large-scale More Hall renovation plans are being developed and discussions are underway regarding building a new interdisciplinary engineering building to be shared among departments. Parallel to these larger potential capital projects, the department continues to seek unrestricted support to help improve existing facilities.
- **Student Support:** With tuition costs rising dramatically in recent years, bolstering existing undergraduate scholarship and graduate fellowship endowments will enable UW CEE to continue to provide access to diverse communities and attract the best students.
- **Faculty Recruitment and Retention:** UW CEE continues to hire new faculty members at a rate not seen in decades. Adding new professorships and endowed chairs will be key in keeping the department competitive and building the next generation of outstanding faculty.

To read the department's full Case for Support, and to learn how you can support UW CEE, please visit www.ce.washington.edu/giving.

Photo above: Other engineering disciplines across campus are in the process of expanding their facilities, thanks to donor support. Located next door to More Hall, a new Computer Science & Engineering building is currently under construction. The 130,000 square-foot-building is anticipated to open in 2018.

MASTERING MONEY MATCHING

Alumnus Al Potvin leverages modest annual gifts to form an endowment

Al Potvin, MSCE '66, Ph.D. '68, is a civil engineer, not a magician. But he does have a trick up his sleeve. He exponentially multiplied five years' worth of modest annual donations, which enabled him to establish an endowment to honor the person he credits with steering him toward his career path.

"I think it's the same story for a lot of us. He must have seen something in me that said 'Let me see if I can give this guy some responsibility and see how he does,'" Potvin said about his Ph.D. adviser, the late Billy Hartz. "That turned into something I did for the rest of my career."

Potvin established the Billy Hartz Endowed Student Support Fund in 2011, shortly before Hartz passed away. To do so, he turned his annual IRA required minimum distribution into a charitable rollover, took advantage of his former employer's generous 3:1 matching program and utilized the UW Endowment Matching Program (see sidebar for more specifics). While Potvin is contributing the majority of funding for the endowment, other alumni have generously contributed and fundraising is ongoing.

Potvin's goal is for the endowment to reach $250,000, the minimum funding required for a graduate fellowship, by 2021 to mark the 10-year anniversary of Hartz's death. Endowed gifts, which are invested and continue to grow over time, generate a steady source of income for specified purposes. In this case, Potvin intends for the endowment to support a graduate fellowship for students studying computer structural analysis and finite elements in structural engineering.

During Potvin's graduate studies, the field of computer structural analysis and finite element analysis

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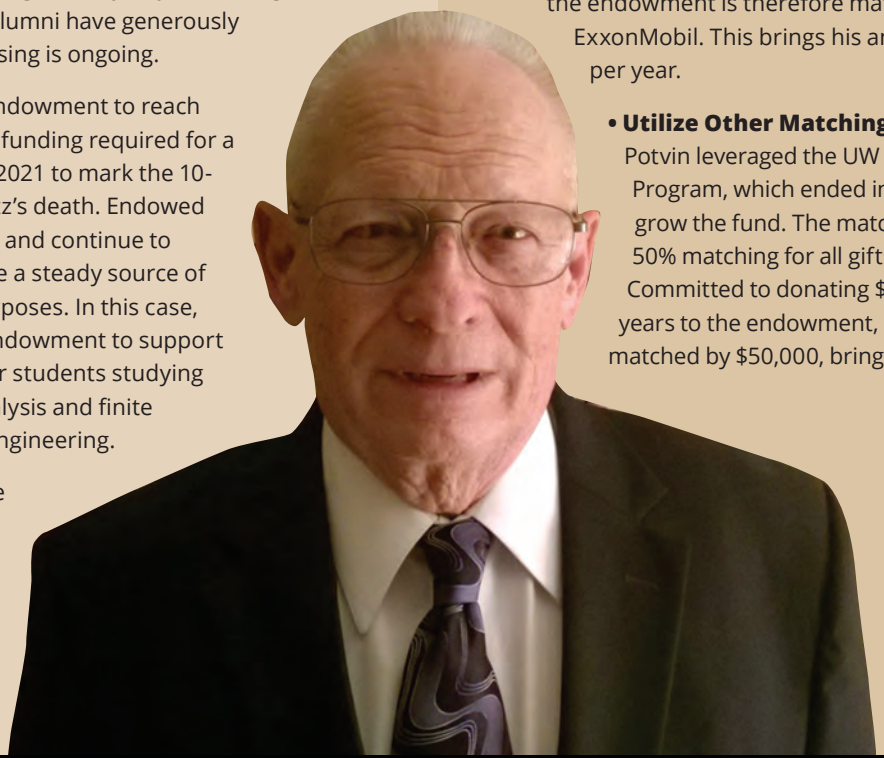

Learn to Leverage Your Gift

Potvin hopes to encourage other potential donors to explore ways to leverage their gifts. The following is a summary of how Potvin is leveraging annual donations to fund an endowment:

- **Turn IRA Required Minimum Distributions Into Tax-Free Charitable Rollovers**
  Starting at age 70 ½, individuals must start withdrawing an annual required minimum disbursement from their IRA. Taxes must be paid on the withdrawal, unless the money is directed toward a qualified charity. By directing $5,000 of his annual required minimum distribution to the endowment, Potvin is able to avoid paying taxes on the withdrawal.

- **Apply Employer Matching Gift Programs**
  Many employers offer educational matching grants. Potvin's former employer, ExxonMobil, offers a 3:1 matching program. The $5,000 that Potvin withdraws from his IRA and directs to the endowment is therefore matched by $15,000 from ExxonMobil. This brings his annual gift to $20,000 per year.

- **Utilize Other Matching Opportunities**
  Potvin leveraged the UW Endowment Matching Program, which ended in 2016, to substantially grow the fund. The matching program offered 50% matching for all gifts of $100,000 or more. Committed to donating $20,000 per year for five years to the endowment, Potvin's $100,000 was matched by $50,000, bringing the total to $150,000.

Alumnus Allan Osberg

honored with 2017 Diamond Award for community service

When Allan Osberg, BSCE '45, commits to something, he always follows through. He learned the value of keeping his word at a young age, from his father.

"A handshake was a contract with him," Osberg said. "I learned that from him and it always put me in good stead, being able to be a person of my word."

The ability to follow through on commitments has served Osberg well over the years, leading to both professional and philanthropic achievements. In recognition of his strong commitment to community service, Osberg was honored with a 2017 Diamond Award for Distinguished Service. The College of Engineering's Diamond Awards honor outstanding alumni and friends who have made significant contributions to the engineering field.

Osberg has supported a variety of organizations over the years. Dedicated to higher education, he served as a trustee of the UW President's Club, a member of the UW Foundation Board of Directors and also served on the College of Engineering's former Development Committee and Creating Futures Campaign Committee. Together with Inger, his wife of 63 years, Osberg established an endowed professorship and a graduate fellowship.

The couple also supports numerous other organizations, including the Woodland Park Zoo, Mountains to Sound Greenway Trust and the Nordic Heritage Museum, where Osberg was heavily involved in advocating for a new facility, which will open in 2018. Osberg has also been active in

Photo credit: University of Washington.

Photo left: Allan Osberg and his wife, Inger, attend the UW Gala in 2016.

the Associate General Contractors of America, serving as president of the local chapter in 1965 and again in 1974, following the merger of the Seattle-Northwest and Mountain-Pacific Chapters.

Born and raised in Seattle, Osberg had an early interest in engineering. While earning his bachelor's degree in civil engineering at UW, Osberg was inducted into three honor societies: Tau Beta Pi, Sigma Xi and Phi Beta Kappa. He then completed a master's degree in civil engineering at Harvard, specializing in soil mechanics.

"I was always interested in engineering, even back in grade school," Osberg said. "Surveying and things like that always interested me."

After graduate school, Osberg returned to Seattle and joined the family business, Osberg Construction Company. Osberg's father, who immigrated to the United States in 1915, founded the company in the 1930s. The company focused primarily on public works and military related heavy construction projects. During Osberg's time with the company, he oversaw the completion of several major projects in the Northwest and Alaska. Notable projects include straightening the Sammamish River between Redmond and Lake Washington, reconstructing segments of the North Cross-State Highway (also known as State Route 20) and building the Yukon River Bridge for the Alyeska pipeline in Alaska.

In more recent years, the focus of the business has shifted from active construction to maintaining investments and properties. At 92-years-old, Osberg still goes into the office daily and the business is still family run. Osberg serves as the president of the company, his brother is vice president and his nephew is the secretary/treasurer.

Honors that Osberg has received over the years include the President's Medal while attending UW, the Mountain-Pacific Chapter's Contractor of the Year Award in 1970, induction into the UW Construction Hall of Fame in 1998 and a 2007 AGC Lifetime Achievement Award. In 2007, Osberg and his wife were recognized as Laureates of UW.

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was just beginning to emerge on the West Coast. Hartz acquired one of the first finite-element computer programs, called the ELAS program, from the Jet Propulsion Laboratory in California. Looking for someone with a knack for computer programs to learn how to operate it, Hartz asked Potvin to oversee installing, maintaining and updating the software.

Potvin not only learned how to use the ELAS program, he later enjoyed a 35-year career as one of ExxonMobil's lead experts in finite-element analysis and software engineering. Shortly after joining ExxonMobil, Potvin was the first to use finite element techniques to analyze the large tubular connections that comprised the framework of the giant offshore platforms constructed for the oil discoveries in the Santa Barbara channel. As the potential for the software spread throughout the company, Potvin's expertise was increasingly called upon. He eventually oversaw the maintenance, development and acquisition of similar software to be employed on a wide range of company problems.

Prior to his retirement from ExxonMobil in 2003, Potvin began taking advantage of the company's 3:1 matching program to support the CEE discretionary fund and Engineering Dean's Fund for Excellence. Seeing first-hand the benefits of matching programs, Potvin was inspired to leverage his annual gift on an even larger scale. This ultimately led to the formation of the endowment.

"My philosophy in life is that no one achieves something all by themselves," Potvin said. "There is a responsibility for all of us to give back."

Get Involved!

To mark the 10-year anniversary of Hartz's death, Potvin's goal is to grow the fund to $250,000 by 2021. While Potvin is contributing the majority of the funding through annual donations and matching programs, other alumni have generously contributed to the endowment and fundraising is ongoing. If you are interested in supporting the endowment, please contact Jill Dalinkus at 206.616.0403 or jmd4@uw.edu.

Alumna **Deb Niemeier**

elected to the National Academy of Engineering

In recognition of her life's work, Deb Niemeier, Ph.D. '94, has received an honor of a lifetime: being elected to the National Academy of Engineering, one of the most prestigious honors in the engineering field.

"It is an honor to be asked to join such an esteemed group," said Niemeier, a professor in the Department of Civil and Environmental Engineering and the School of Education at the University of California, Davis. "I am grateful for all of the support I've had. No one ever travels a path completely on their own."

Over the years, Niemeier has worked to develop groundbreaking tools to improve the accuracy of estimating regional vehicle pollutants, which impact the health of populations that reside in close proximity to highways. When Niemeier first entered the field, it was known that vehicles were significant polluters. However, despite advances in engine technology that reduced tailpipe emissions, there weren't robust methods for estimating the impact of tailpipe emissions on regional air quality. If estimates of vehicle pollution are too low, not enough emissions control technologies are implemented. Conversely, high estimates may lead to the implementation of too many, or the wrong types, of pollution controls.

"It's a balancing act with significant health implications, mostly for the poor and minorities," Niemeier said. "If we don't control emissions enough, we jeopardize health."

Studies have shown that minority populations, particularly communities of color and low-income households, tend to live closer to congested highways. This exposes them to a variety of pollutants produced by vehicles, especially nitrogen dioxide which causes health problems such as heart attack and asthma.

To address this challenge, Niemeier and her students developed new algorithms to more accurately estimate vehicle emissions. They also drafted new regulatory guidance to ensure that public agencies utilize the new evaluation methods when making decisions related to air quality issues.

Born out of this interest in environmental justice, Niemeier and three of her students also formed a company. Primarily through pro bono work, they collaborate with legal advocacy groups and environmental law clinics on social justice issues associated with transportation-related air quality issues that impact underserved populations.

A Texas native, Niemeier moved to Seattle to attend graduate school at the UW after working for a consulting firm in Maine for several years. After considering several prominent east coast engineering schools, none of which felt like a good fit, an undergraduate professor suggested visiting CEE professor Scott Rutherford, who ended up being Niemeier's Ph.D. adviser.

"I am grateful for all of the support I've had. No one ever travels a path completely on their own."

"Coming to UW was the best decision I ever made," Niemeier said. "Scott was the perfect adviser for me. He set an example for me on how to let students be independent and grow, make a few mistakes, and eventually carve out their own path. I can only hope I have given my students some of what he gave me."

Among the many honors she has received over the years, Niemeier was named a fellow of the American Association for the Advancement of Science in 2014 and a Guggenheim Fellow in 2015. She has also served as chair of the Department of Civil and Environmental Engineering at the University of California, Davis. Niemeier is a UW CEE affiliate faculty member and teaches two courses in the online Master of Sustainable Transportation program. Not surprisingly, she gets excellent student ratings.

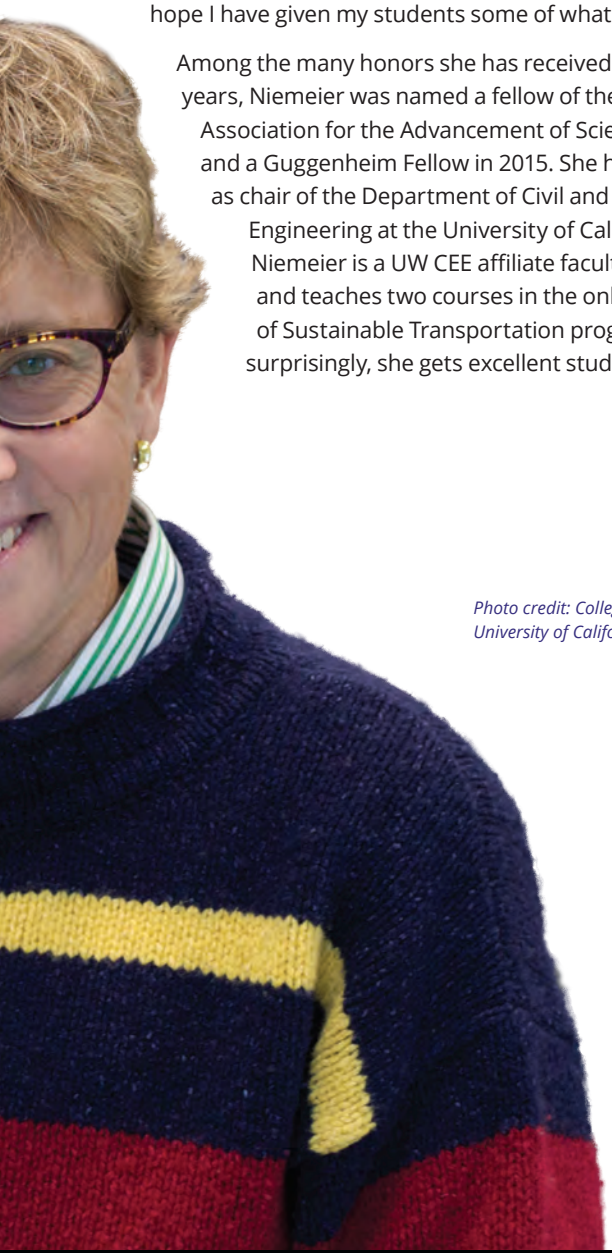

Photo credit: College of Engineering, University of California, Davis.

UPCOMING EVENT

Class of 1967 50th reunion celebration

Class of 1967 alumni are invited to take an all-inclusive trip down memory lane during a 50th class reunion on Sunday, June 11, 2017. In addition to reminiscing with classmates and friends during a luncheon, attendees will be recognized during the department's graduation ceremony.

Attendees are invited to participate in the following:

50th Reunion Celebrant Luncheon
11:30 a.m. - 1 p.m., HUB Room 250

CEE Graduation Ceremony
2 - 3:30 p.m., HUB Ballrooms

Graduation Reception
3:30 - 4:30 p.m.

Attendees may bring a guest to the luncheon, which is complimentary. Business casual attire is recommended.
No regalia necessary. Please RSVP by June 5 to Jill Dalinkus, 206.616.0403 or jmd4@uw.edu.

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THE BRIDGE SPRING / 2017

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Send address corrections, questions, and comments by email to comments@ce.washington.edu or to the return address above.

Discovery Days

Alumni Breakfast

Breakfast is not only a good way to start the day, it's also a good way to connect with the UW CEE community. More than 75 alumni attended the first-annual Discovery Days Alumni Breakfast on Saturday, April 22. The event kicked off the second day of Discovery Days, an annual event where students and faculty from all engineering departments host hands-on activities and exhibits to introduce elementary through high school students to the field of engineering.