

# The Trend in **ENGINEERING**

UNIVERSITY OF WASHINGTON COLLEGE OF ENGINEERING NEWSLETTER SPRING 2017

A new direct-to-college  
admissions process for 2018

*Pages 4-5*



UNIVERSITY of WASHINGTON  
OFFICE OF ADMISSIONS  
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UNIVERSITY of WASHINGTON

**WELCOME TO  
THE PACK**

**W**

Announcing the  
Paul G. Allen School of  
Computer Science  
& Engineering

*Pages 6-7*



## FROM THE DEAN

Spring has arrived, and student activity is in high gear. Student teams like Formula SAE, EcoCAR, Concrete Canoe and Husky Robotics are preparing for and participating in national competitions. Many of these groups came out in force to welcome nearly 10,000 middle and high school students to campus at our annual Discovery Days in April.

As graduation nears, many of our students receive support from our Career Center @ Engineering. In 2016 — the center's first full year of operation — over 4,400 students were served and close to 500 companies were hosted on campus.

As a first-generation college graduate, I understand how access to higher education transforms lives. The demand for engineering education continues to soar, and the College is doing its part to meet the needs of Washington state. Recently we have taken significant steps to expand our student support programs and educational offerings. And, in this issue, you'll read about revisions to the admission process that will allow freshmen to receive direct admission to engineering programs. This policy — known as Direct to College admission — will go into effect for the freshman class of 2018, providing incoming students with the certainty that they can pursue a UW engineering degree.

Though we're excited about a revised admission process, this policy change will not open more seats to qualified and interested students — that will require state investment. This spring I had the opportunity to present to the Senate Higher Education Committee in Olympia about the demand for engineering education. I look forward to continuing to partner with the state to address this demand.

Investment in engineering education is in our region's best interest, and someone who understands this well is computing pioneer Paul G. Allen. This March, we were thrilled to announce the establishment of the Paul G. Allen School of Computer Science & Engineering. In the following pages, you'll read more about this significant development that will propel the UW to the forefront of computer science education and innovation.

All of these initiatives promise to positively impact the UW Engineering student experience. I'm excited about the future and hope to see you on campus soon.

Mike Bragg

*Frank & Julie Jungers  
Dean of Engineering*



## Faculty honors highlights

**Thomas Anderson** (CSE), **François Baneyx** (ChemE, BioE), **Cecilia Giachelli** (BioE) and **Daniel Schwartz** (ChemE, MSE) were inducted into the Washington State Academy of Sciences.

**Cecilia Aragon** (HCDE) and **James Hermanson** (A&A) were awarded Fulbright Fellowships.

**Ali Farhadi** (CSE) received an early-career fellowship from the Alfred P. Sloan Foundation.

**Sreeram Kannan** (EE) and **Franziska Roesner** (CSE) received National Science Foundation Faculty Early CAREER Awards.



**Christine Luscombe** (MSE) was named a fellow of the Royal Society of Chemistry.

**Greg Miller** (CEE) was awarded the UW David B. Thorud Leadership Award.

**Anthony Waas** (A&A) received the 2017 American Institute of Aeronautics & Astronautics and the American Society for Composites James H. Starnes, Jr. Award.

**Joseph Wartman** (CEE) was honored by the Geological Society of America for his collaboration on a study of the 2014 landslide in Oso, Washington.

### New clean energy facility accelerates testing of cleantech innovations

The Clean Energy Institute (CEI), a UW research unit, recently opened the Washington Clean Energy Testbeds to increase the rate at which science and engineering discoveries turn into market-adopted clean energy technologies. The state-of-the-art facility has labs for manufacturing prototypes, testing devices and integrating systems. CEI unveiled the Testbeds at a celebration with Washington Gov. Jay Inslee, cleantech leaders and researchers on February 16.

“The process of taking a clean energy research discovery and making a prototype, then rigorously testing and refining it for market readiness, requires equipment and expertise that is expensive and rarely available when and where you need it,” said CEI director and Boeing-Sutter Professor of Chemical Engineering Daniel Schwartz.

The Washington State Legislature provided \$8 million to design and build the Testbeds. The 15,000-square-foot facility gives researchers and cleantech businesses customized training and access to top-quality fabrication, characterization and computational instruments.

At the Testbeds, users can print low-cost, thin-film solar cells and electronic devices using novel electronic inks; fabricate and test new battery systems to increase performance without compromising safety; and develop and test energy management software that controls and optimizes how batteries, vehicles and buildings integrate with a clean energy grid.

“The Washington Clean Energy Testbeds are a tremendous resource for Washington’s and the world’s visionary clean energy entrepreneurs and researchers,” said Gov. Inslee. “I applaud CEI for building a center that will lead to the development of technologies to benefit our economy and environment. Our state’s commitment to clean energy remains strong.”

### College of Engineering’s STARS program wins \$2.2M to improve access for low-income students

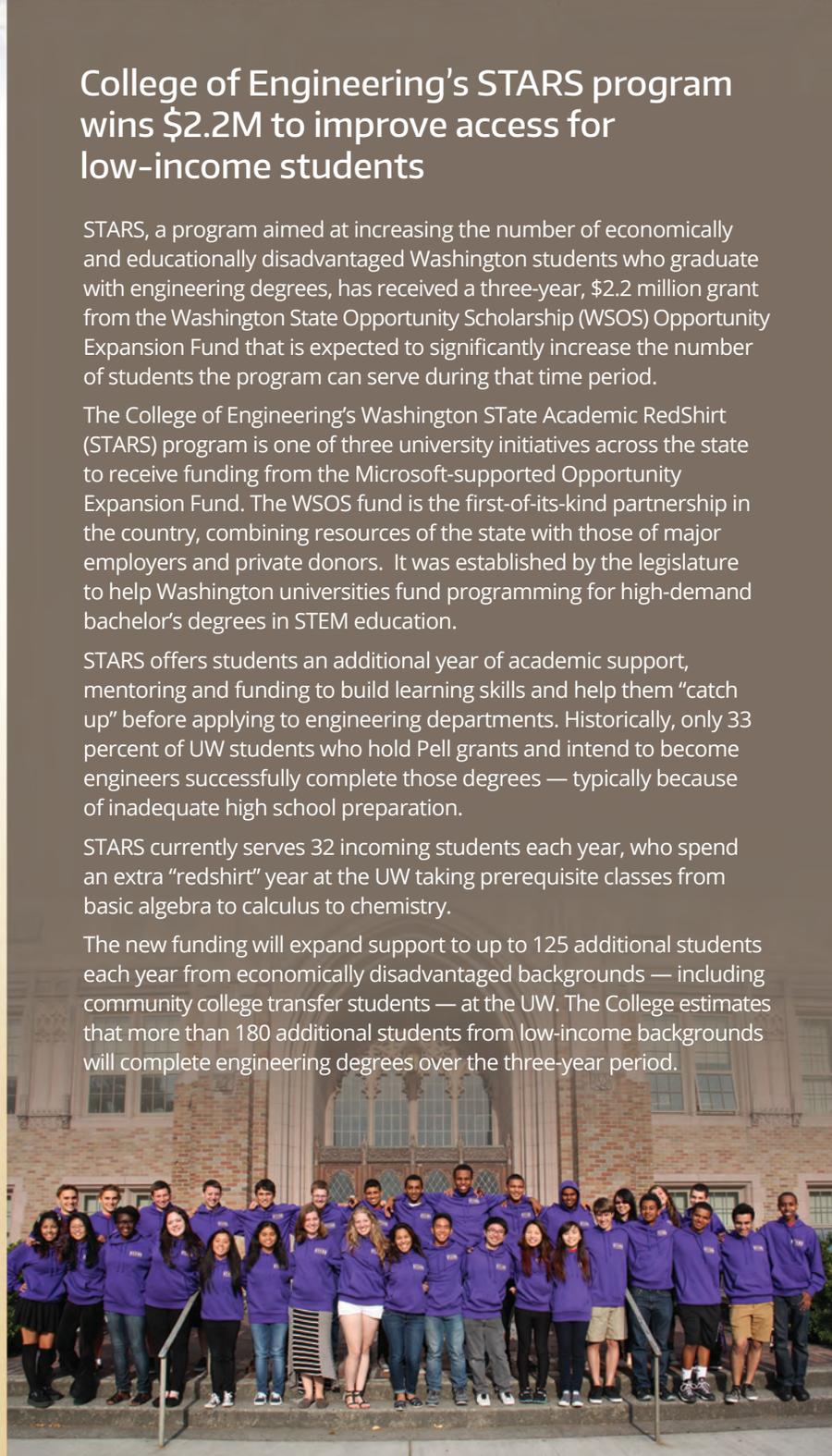
STARS, a program aimed at increasing the number of economically and educationally disadvantaged Washington students who graduate with engineering degrees, has received a three-year, \$2.2 million grant from the Washington State Opportunity Scholarship (WSOS) Opportunity Expansion Fund that is expected to significantly increase the number of students the program can serve during that time period.

The College of Engineering’s Washington State Academic RedShirt (STARS) program is one of three university initiatives across the state to receive funding from the Microsoft-supported Opportunity Expansion Fund. The WSOS fund is the first-of-its-kind partnership in the country, combining resources of the state with those of major employers and private donors. It was established by the legislature to help Washington universities fund programming for high-demand bachelor’s degrees in STEM education.

STARS offers students an additional year of academic support, mentoring and funding to build learning skills and help them “catch up” before applying to engineering departments. Historically, only 33 percent of UW students who hold Pell grants and intend to become engineers successfully complete those degrees — typically because of inadequate high school preparation.

STARS currently serves 32 incoming students each year, who spend an extra “redshirt” year at the UW taking prerequisite classes from basic algebra to calculus to chemistry.

The new funding will expand support to up to 125 additional students each year from economically disadvantaged backgrounds — including community college transfer students — at the UW. The College estimates that more than 180 additional students from low-income backgrounds will complete engineering degrees over the three-year period.





## College of Engineering introduces Direct to College admission

The College of Engineering is taking a significant step to improve undergraduate engineering students' educational experiences by offering Direct to College admission beginning with the entering freshman class of 2018.

This change will assure incoming freshman students who are admitted into the College and their families that they will be able to pursue an engineering degree at the UW. It will also allow the College to more fully engage these students in an immersive engineering experience from their first day on campus, while still maintaining opportunities for transfer and other UW students to pursue engineering degrees. Approximately 800 undergraduate students receive engineering degrees from the UW each year.

Starting with next fall's applicants for the 2018 freshman class, the new process will ensure that roughly half of the students who receive undergraduate engineering degrees from the UW will have been admitted directly to the College as freshmen. The remaining engineering degrees will be awarded to students who transferred to the UW, primarily from Washington community colleges, or to students who were not admitted directly to the College but applied later as UW freshmen and sophomores.

Currently, most aspiring engineers at the UW are not accepted into engineering majors until they complete a competitive process at the end of their sophomore year. This creates uncertainty among students about whether they will be able to pursue their intended degree and career path. The Direct to College admission policy guarantees that admitted freshmen who continue to meet course requirements will find an academic home in one of the UW's 10 engineering departments.

"Student demand for engineering education is soaring, but with current resources, we can admit fewer than half of the well-qualified students who come to UW to pursue an engineering major," said Michael Bragg, the Frank & Julie Jungers Dean of Engineering.

"This new admission policy won't solve our capacity problem — that will require additional state investment to grow our programs. But we will be able to offer more transparency and certainty to incoming UW freshmen about whether this is a place where they can pursue their passion for engineering," Bragg said.

*"A great benefit from the Direct to College admissions policy will be that admitted students will be able to spend their first year taking risks and exploring different disciplines within engineering."*

– UW engineering student  
Kaitlyn Zhou

It will be the first UW program in which half of the students are admitted directly as freshmen. A handful of individual UW units currently offer very limited slots directly to freshmen at the time of application to the UW.

“A great benefit from the Direct to College admissions policy will be that admitted students will be able to spend their first year taking risks and exploring different disciplines within engineering,” said Kaitlyn Zhou, a junior double-majoring in human centered design and engineering and computer science.

“Rather than having to worry about taking the most strategic set of classes and acing all the prerequisite classes, students will be able to focus on learning, get involved in extracurriculars and explore what it means to be an engineer beyond the

Direct to College admissions also gives admitted engineering students the opportunity to explore the College’s majors so that they can discover where their passion for engineering will take them. Because engineering disciplines range so widely — from civil engineers who design earthquake-resistant structures, to electrical engineers working on smart cities, to chemical engineers harnessing solar power, and many other options — the new program is structured to facilitate this exploration before students place into a major.

After deciding which disciplines capture their interest, students will submit “placement requests” to specific engineering departments after their freshman year or



## for 2018 freshman class

classroom,” Zhou said. She also added that she believes the cohort of each year’s admitted students will help build a stronger engineering community.

Beginning next year, freshman applicants who meet UW admissions criteria and who list an engineering major as their first choice on their application will be automatically considered for Direct to College admission. Engineering anticipates that the cohort of students admitted through the Direct to College pathway will mirror the diversity of the overall UW incoming freshman class, and the College will continue to support and expand its numerous access programs to encourage underrepresented populations to explore engineering careers.

“For high school students who are certain they want to be engineers, we offer a leading-edge educational experience that begins the day they set foot on campus,” Bragg said. “But our doors will also remain open to other UW students, transfer students and those who may not discover their enthusiasm for engineering until they arrive at the UW.”

during their sophomore year, at which point they will declare into a specific major.

At the Paul G. Allen School of Computer Science & Engineering, the Direct to College admission option will be available to students pursuing bachelor’s degrees in computer engineering, which are awarded by the College of Engineering. The Allen School’s computer science degree, which is awarded through the College of Arts & Sciences, will not be a part of the new Direct to College program.

“The Direct to College policy in the College of Engineering will enrich the student experience, reduce students’ uncertainty about whether or not they can pursue engineering at the UW and assist students in making the best academic and professional choices among our many different engineering options,” said Philip Ballinger, UW associate vice provost for enrollment and undergraduate admissions.

## Investing in the future of innovation

### \$50M endowment establishes the Paul G. Allen School of Computer Science & Engineering

Thanks to the generosity of internationally renowned philanthropist and computing pioneer Paul G. Allen, the University of Washington embarks on an exciting new path of innovation and leadership in computer science and engineering education, research and entrepreneurship.

The establishment of the Paul G. Allen School of Computer Science & Engineering was announced at UW CSE's 50th anniversary event on March 9. Shortly before the event, the UW Board of Regents voted to name the school for Allen in recognition of his longstanding support for the mission of the University and CSE.

A \$50 million endowment for the new school — which comes in the form of \$40 million from Allen, enhanced by a gift of \$10 million from Microsoft Corporation in Allen's honor — will propel the UW to the forefront of computer science education and innovation for generations to come.

"We are entering a new golden age of innovation in computer science, and UW students and faculty will be at its leading edge," Allen said. "My hope is that the school will have the same influence on them as it did on me — that they will continue to dream big, breaking through technological barriers and using their skills to solve some of the biggest problems our world faces."



*"There's probably no institution that has had a greater influence on me than the University of Washington. I spent hour after hour in the University library devouring everything I could on the latest advances in computer science. And it was access to UW computers as a high school student that served as a springboard for the eventual launch of Microsoft."*

Paul G. Allen



The move to elevate CSE from a department to a school signifies its growing size, stature and impact, and acknowledges the increasing importance of computer science and engineering in the modern university and in the modern world.

"Computer science education is a gateway to progress, innovation and opportunity. We are delighted to honor Paul's tremendous impact on our company, and his continuing support for computer science will have a lasting impact on generations to come," said Brad Smith, president of Microsoft.

"In becoming the Paul G. Allen School of Computer Science & Engineering, we will be forever linked with an internationally revered pioneer and visionary," said Ed Lazowska, Bill & Melinda Gates Chair in Computer Science & Engineering. "The aspirational and reputational value of this connection is incalculable. CSE will be more nimble, more competitive and have an even greater impact on students, on science and on society."

The creation of the school is also a tribute to Allen's vision of the role that science should play in society, by coupling technological innovation with the quest for solutions to humankind's greatest challenges. This vision led him to establish the Allen Institutes for Artificial Intelligence, Brain Science and Cell Science. These leading-edge research institutes have opened new frontiers of discovery and new collaborations with UW faculty and students.

Allen has a longstanding connection to and affinity for UW CSE. As a student at Seattle's Lakeside School in the 1960s, he visited the UW campus to use its computer labs. Just over three decades later, in 2003, doors opened to the state-of-the-art Paul G. Allen Center for Computer Science & Engineering at the heart of the UW campus, which catalyzed UW CSE's growth into one of the top computer science programs in the nation.

With his latest gift, Allen attains the rank of Regental Laureate, an honor reserved for those whose lifetime giving to the UW totals \$100 million or more.

"We're truly fortunate to have such a generous supporter in Paul Allen, who not only shares our commitment to fostering broad-based excellence, but who has demonstrated it throughout his career," said UW President Ana Mari Cauce.

As the Allen School, UW CSE will have the flexibility and resources to compete at the highest level for faculty, students and new investments in research, and it will use Allen's gift to pursue new opportunities to accelerate scientific discovery and real-world impact. The school will provide a creative springboard for young innovators to drive forward technologies that change the world for the better, inspired by the example set by Allen himself.

"Our school and its contributions to education and innovation will become part of Paul's legacy," said Hank Levy, Wissner-Slivka Chair in Computer Science & Engineering and director of the new school. "Every day, every one of us will work hard to make Paul as proud to be associated with us, as we are to be associated with him."

The endowment comes in addition to UW CSE's efforts to raise \$110 million for a second computer science and engineering building, plus funds for undergraduate scholarships, graduate fellowships and faculty professorships and chairs. Construction began in January on the new building and is scheduled for completion in December 2018. Allen's latest gift comes in the midst of the University's most ambitious philanthropic campaign in its history, "Be Boundless — For Washington, For the World." The campaign seeks to raise \$5 billion by 2020.



## Leading-edge research

UW CSE has risen to prominence by generating innovations in emerging areas of the field:

**Mobile health:** UW researchers are leveraging increasingly sophisticated smartphone sensors to diagnose and manage disease in ways that will improve the quality of life for people globally.

**Neural engineering:** UW is at the forefront of research at the intersection of computing and neuroscience — developing brain-computer interfaces that could enable people suffering from paralysis to move again.

**Artificial intelligence:** UW has developed expertise in artificial intelligence, computer vision, machine learning, natural language processing and robotics. Several UW researchers split their time with other leading AI organizations, including the Allen Institute for Artificial Intelligence.

**Next-generation data storage:** UW and Microsoft Research have launched an ambitious project to revolutionize data storage based on DNA. Last year the team set a world record for the amount of digital data encoded and retrieved using strands of synthetic DNA.

**Data science:** A leader in the data science revolution, the UW is advancing tools and techniques of data-intensive discovery and putting them to work in the physical sciences, life sciences, environmental sciences and social sciences.

# Paying it forward

**Mechanical engineering senior David Coven has worn many hats since starting at the UW in 2012:** he's held research positions in cell biomechanics and materials science labs on campus as well as internships at Boeing and Tesla. He's co-organized Dubhacks, the Pacific Northwest's largest hackathon, and is one of the UW Hyperloop team's directors. He also leads Scholarship Junkies, a nonprofit that helps students nationwide secure scholarships through essay writing advice, editing assistance and access to a comprehensive scholarship database at no cost.

He recently sat down with the College of Engineering to discuss why he chose to study engineering and how he finds opportunities to practice compassion and generosity — two of his guiding values — everyday on campus.

### **What led you to study at the UW?**

I grew up in Seattle's Central District and went to Cleveland High School. I did pretty well in my classes despite some difficulties at home, the biggest among them being the periods of homelessness my family experienced. Even though I liked school, I was frequently absent from class because of homelessness. No kid wants to show up at school if they haven't been able to shower for a few days, or sleep. It makes you feel really embarrassed and unworthy.

However, with support from friends and an amazing high school teacher, I was eventually able to secure housing, which allowed me to focus on schoolwork and attend class regularly. I wanted to go to college but didn't think it would be possible for me financially. But then I learned about Scholarship Junkies, and things began to change...

#### **How so?**

In high school, I participated in Math Academy and Samson Lim, Scholarship Junkies' founder, visited our class. Sam shared great insights about applying for scholarships, a process that can be really overwhelming for students. Thanks to his advice, and encouragement from my teachers, I applied for a bunch of UW scholarships and received the Costco Diversity Scholarship and the Washington State Diversity Scholarship. Because of them, I could attend the UW. I've been incredibly fortunate that I've been able to entirely fund my education thanks to scholarship support.

#### **Why did you decide to study engineering?**

Honestly, because of Iron Man! Tony Stark was able to imagine things like Iron Man's cool suit and devices and then use math, science and engineering to actualize them. When I realized that, as far as superhero abilities go, his were somewhat attainable, I set my sights on engineering.

#### **When did you start working with Scholarship Junkies?**

I started volunteering with Scholarship Junkies shortly after I came to the UW. I loved that it gave me a space to actively participate in "paying it forward": I was getting a UW education thanks to the help of others, and instead of feeling like I had to repay them, I became more interested in extending generosity to those who could use it. When Sam moved to New York for grad school in 2013, I was asked to take over leadership. How could I say no?

#### **How do you apply "paying it forward" to your life as an engineering student?**

Every day I try to work on the world around me as much as I work on myself. Mechanical engineering has been a great fit for me because it intersects with so many areas. It's helped me develop a strong set of skills in analysis, mechanical design and problem solving. I'm particularly interested in aerospace, renewable energy and sustainability, and in projects that have a large, meaningful impact. Because of mechanical engineering, I've interned with companies whose values align with mine: The Boeing Company, which is committed to making the skies safer, and Tesla, where advancements in renewable energy are revolutionizing transportation technologies.

Building community is also important to me. Most UW engineering undergrads start as pre-engineering students; they don't have a home department until they apply and are — hopefully — accepted after their first year. So there's not always a built-in structure or sense of collective identity for students from the start. But

## Engineering students named to the 2017 "Husky 100"

The Husky 100 recognizes 100 UW undergraduate and graduate students from Bothell, Seattle and Tacoma in all areas of study who are making the most of their time at the UW. Sixteen engineering students have been named to 2017's Husky 100 cohort:

Camille Birch, Bioengineering,  
Computer Science  
Esther Chang, Civil Engineering  
Shivani K. Gupta, Bioengineering  
Kelsie Haakenson, Computer Science,  
History  
Mayoore Jaiswal, Electrical Engineering  
Kevin Lybarger, Electrical Engineering  
David McIntyre, Bioengineering  
Trevor Renken, Civil Engineering  
Kayla Sprenger, Chemical Engineering  
Holly Sullivan, Chemical Engineering  
Gabriella Tosado, Chemical Engineering  
Connor Tsuchida, Bioengineering  
Jonathan Tsui, Bioengineering,  
Molecular Medicine  
Bradley Wachter, Mechanical Engineering  
Grant Williamson, Molecular Engineering  
Jessica Zistatsis, Mechanical Engineering

**Learn more about these students and the program at [uw.edu/husky100](http://uw.edu/husky100).**

we often do our best work and are our best selves with a supportive community! I strive to find ways to connect with others, help people when I can and look to them for the support I need.

#### **What advice do you have for other students?**

Don't be afraid of failing, and know that it happens to all of us. When it happens to you — and it will — try to understand what you can learn from the experience. Ask for help and advice when you need it. People like to help! School — particularly engineering — can be very intense. It seems that a lot of students focus their time solely on coursework and getting the best grades. And when they don't make the best grades, they're crushed.

I wish more students took advantage of alternative and experiential learning opportunities. For me being involved with UW Hyperloop, Dubhacks and Scholarship Junkies have been invaluable in this respect. And, if you can, put some time into researching and applying for scholarships! There's so much scholarship money out there that goes ungifted every year — it's pretty amazing.

## STUDENT EXPERIENCE



### Engineering students receive UW Presidential medals

Undergraduates Hannah Werbel and Evan Wang have received medals for academic achievement and extra-curricular involvement from UW President Ana Mari Cauce. These medals are awarded annually to three outstanding students across campus.

Werbel, who is majoring in computer science, enjoys teaching and finding practical applications for what she is studying in class. She is currently a teaching assistant for a computer programming class. Outside of academics, she plays piccolo in the marching band and basketball pep bands. Being legally blind, she is dedicated to increasing accessibility for other blind students. Werbel is president of the Washington Association of Blind Students and works for DO-IT (Disabilities, Opportunities, Internetworking and Technology), where she frequently attends panels about disability in the technological fields.

"I love to learn and have always aspired to make the most out of every opportunity I have to gain new knowledge, both inside and



outside of the classroom," she said. "This award validates all of the hard work and effort I've put into my studies."

An electrical engineering senior, Wang's drive to better understand the natural world led to a fascination with learning how things work at the atomic level. Over time, this gave way to learning the math and physics involved in reactions, and led him to study electrical engineering. Wang has been working with EE professor M.P. Anantram to model properties of devices that may one day be able to serve as faster, smaller and inexpensive memory sources in computers. Outside of the lab, he enjoys playing the French horn. Last year, he went on tour to China with the UW Wind Ensemble.

"Receiving this award has helped me realize that my research and my accomplishments can make an impact," Wang said.

### Engineering student teams win big at 2017 UW Innovation Challenges

Engineering student teams swept this year's Hollomon Health Innovation Challenge (HIC) and placed highly in the Alaska Airlines Environmental Innovation Challenge (EIC). Held in March, these events provided interdisciplinary student teams the opportunity to solve pressing issues affecting the environment and in healthcare.

Teams pitched their innovations, demonstrated their prototypes and fielded questions. They were judged on their pitch, prototype demonstration and ability to articulate the potential for impact. At the HIC, UW teams including students from mechanical engineering and bioengineering won first, second and third place for the following devices:

- **First place: EpiForAll**, an affordable emergency epinephrine auto injector used to treat anaphylaxis, a potentially life-threatening allergic reaction.
- **Second place: BWB Anesthesia**, an electricity-free portable anesthetic device that aims to improve access to inhaled anesthesia in low-resource settings.
- **Third place: PlayGait**, an adjustable, affordable, non-electric exoskeleton to support in-home walking practice for kids with neuromuscular disorders.

UW teams led by electrical engineering and chemical engineering students placed in the EIC with these projects:

- **Second place: Airy**, a battery-free, wireless home security solution that uses sensors mounted on doors or windows to harvest energy.
- **Clean energy prize: Membrion**, which provides low-cost, high-performance membranes for advanced batteries, fuel cells and reverse osmosis water desalination applications.

Learn more at [foster.uw.edu/buerk](http://foster.uw.edu/buerk).

## RESEARCH

### New route-finding map lets Seattle pedestrians avoid hills, construction, accessibility barriers

Transportation routing services primarily designed for people in cars don't give pedestrians, parents pushing strollers or people in wheelchairs much information about how to easily navigate a neighborhood using sidewalks.

For someone with limited mobility, using sidewalks or pedestrian paths in unfamiliar areas can be like driving without directions and hitting dead end after dead end. Obstacles include hills that are too steep for wheelchairs or people with certain health issues to climb, and sidewalks without sloped "curb cuts" that allow people using wheeled devices to safely and easily cross intersections.

**AccessMap** — a project spearheaded by the UW Taskar Center for Accessible Technology — recently launched a new online travel planner offering customizable suggestions for people who need accessible or pedestrian-friendly routes when getting from point A to B in Seattle.

It also routes people around Seattle's ubiquitous building and construction sites that can close sidewalks for entire blocks, forcing people who are traveling on foot or using assistive devices to embark on unforeseen detours.

The team of student engineers and computer scientists is also creating a set of standards and toolkits that will eventually let users crowdsource and map detailed, real-world conditions on pedestrian pathways and intersections — from sidewalk widths and problematic surface conditions to the presence of ramps, handrails and adequate lighting.

Find AccessMap online at <https://accessmap.io>.

### UW engineers turn everyday objects into FM radio stations

Imagine you're waiting in your car and a poster for a concert from a local band catches your eye. What if you could just tune your car to a radio station and listen to that band's music? Or perhaps you see the poster on the side of a bus stop. What if it could send your smartphone a link for discounted tickets or give you directions to the venue?

Going further, imagine you go for a run, and your shirt can sense your perspiration and send data on your vital signs directly to your phone.

A new technique pioneered by UW engineers makes these "smart" posters and clothing a reality by allowing them to communicate directly with your car's radio or your smartphone. Bus stop billboards could send digital content about local attractions. A street sign could broadcast the name of an intersection or notice that it is safe to cross a street, improving accessibility. Clothing with integrated sensors could monitor vital signs and send them to a phone.

The team has — for the first time — demonstrated how to apply a technique called "backscattering" to outdoor FM radio signals. The new system transmits messages by reflecting and encoding audio and data in these signals that are ubiquitous in urban environments, without affecting the original radio transmissions.

"What we want to do is enable smart cities and fabrics where everyday objects in outdoor environments — whether it's posters or street signs or even the shirt you're wearing — can 'talk' to you by sending information to your phone or car," said lead faculty and UW Allen School associate professor of computer science and engineering Shyam Gollakota.



## COLLEGE OF ENGINEERING

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# DIAMOND AWARDS

Friday, May 19, 2017, 6-9 PM Don James Center, Husky Stadium, UW Campus

Please join the College of Engineering as we honor six alumni and friends for their outstanding achievements.

**Brad Smith**

*Dean's Award*

A visionary leader at Microsoft, Brad Smith has steered game-changing initiatives, partnerships and funding for science, technology, engineering and math (STEM) education at the UW and around the region.

**Suzanna Darcy-Hennemann, '81 BS, Aeronautics & Astronautics**  
*Distinguished Achievement in Industry*

Suzanna Darcy-Hennemann has been an influential leader at The Boeing Company and across the aerospace industry as a record-breaking chief pilot, director of flight training and designated captain of multiple jets.

**Ashutosh Chilkoti, '91 PhD, Chemical Engineering**  
*Distinguished Achievement in Academia*

Ashutosh Chilkoti is a world-leading biomolecular engineer at Duke University whose research discoveries have resulted in low-cost point-of-care diagnostics, therapeutics and devices for patients and doctors worldwide.

**Cherng Jia Hwang, '64 MS, '66 PhD, Electrical Engineering**  
*Entrepreneurial Excellence*

By inventing the long-life semiconductor laser and founding three companies, Cherng Jia Hwang has pioneered advancements in semiconductor lasers and fiber optic communications with widespread medical and defense applications.

**Allan Osberg, '45 BS, Civil Engineering**  
*Distinguished Service*

Allan Osberg's dedication to his work at the Osberg Construction Company is matched by his passion for community service at the UW, the College of Engineering and for organizations across the Pacific Northwest.

**Jean Wang, '04 MS, '07 PhD, Electrical Engineering**  
*Early Career*

Jean Wang was a founding member and chief of staff for Google Glass, a product that launched a new wave of human/machine interfaces, changed accessible computing and laid the foundation for modern AR/VR hardware.

**Learn more about the honorees and the dinner at**  
[engr.uw.edu/da](http://engr.uw.edu/da)