

# TOGETHER, TOWARD A BOUNDLESS FUTURE

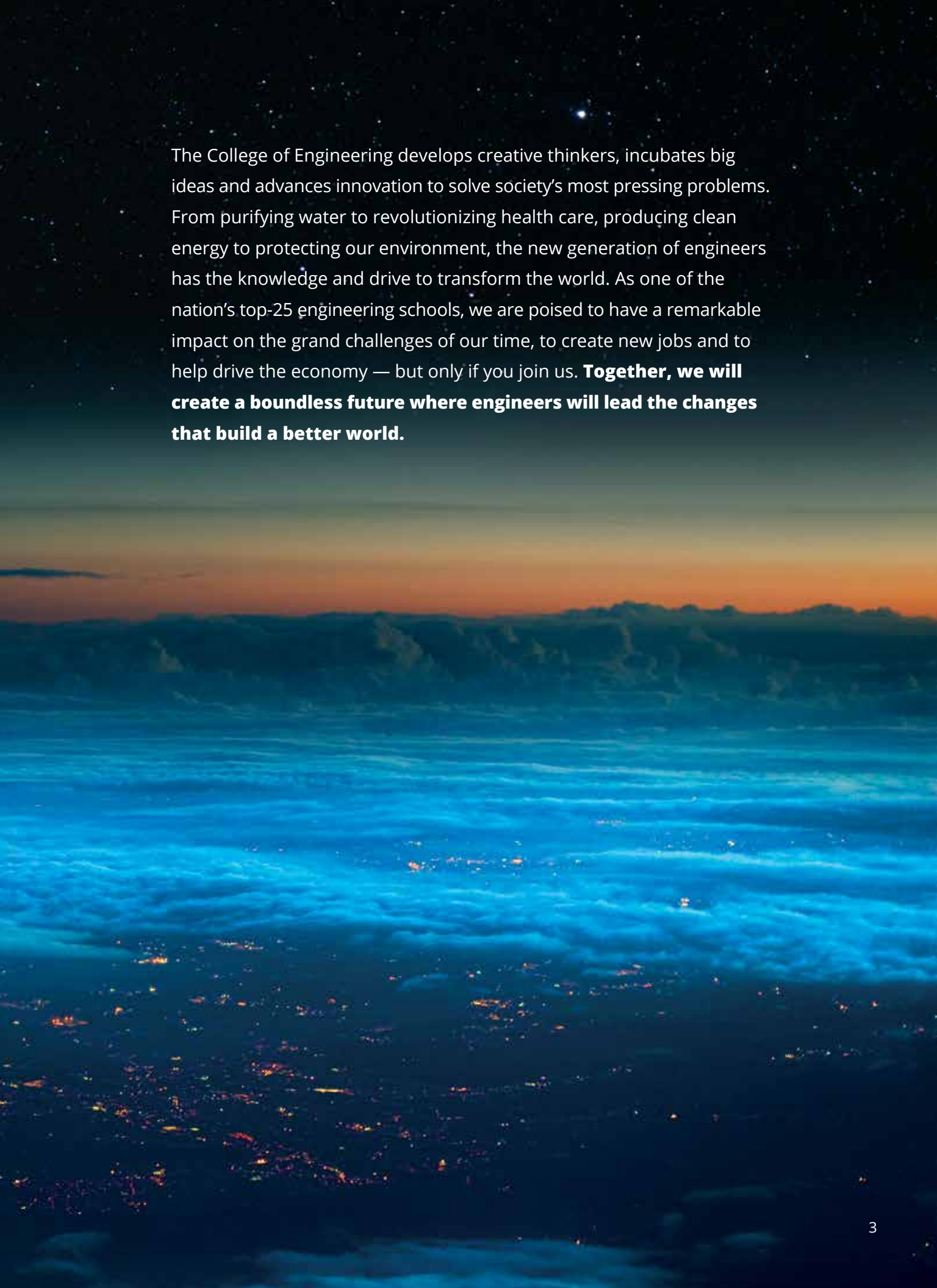
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THE CAMPAIGN FOR THE COLLEGE OF ENGINEERING

UNIVERSITY *of* WASHINGTON







The College of Engineering develops creative thinkers, incubates big ideas and advances innovation to solve society's most pressing problems. From purifying water to revolutionizing health care, producing clean energy to protecting our environment, the new generation of engineers has the knowledge and drive to transform the world. As one of the nation's top-25 engineering schools, we are poised to have a remarkable impact on the grand challenges of our time, to create new jobs and to help drive the economy — but only if you join us. **Together, we will create a boundless future where engineers will lead the changes that build a better world.**

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Nearly 8 billion people now reside on our planet — double the population of just 50 years ago. This rapid growth is straining the earth’s natural resources and man-made infrastructures in unprecedented ways. We must develop new and sustainable energy sources, improve access to clean water and strengthen urban infrastructure across the globe. Engineering innovations will make these goals a reality — empowering us to live longer and healthier lives, to learn and use information more powerfully and securely, and to drive economic prosperity for families and communities. The College of Engineering has identified five areas of focus for education, research and innovation to improve lives everywhere:

- Developing and perfecting clean energy solutions that can be delivered efficiently and affordably.
- Protecting the environment and ensuring the equitable distribution of clean water.
- Facilitating the return of manufacturing to the United States through technologies such as robotics, rapid prototyping and nanofabrication.
- Improving health care, lowering costs and saving lives by training a new generation of innovative and entrepreneurial engineers to partner with clinicians to move brilliant ideas into the health care marketplace rapidly and efficiently.
- Advancing resilient urban infrastructure, from transportation to energy production to new methods of construction and sustainable design.

**The “grand challenges” we face today demand**

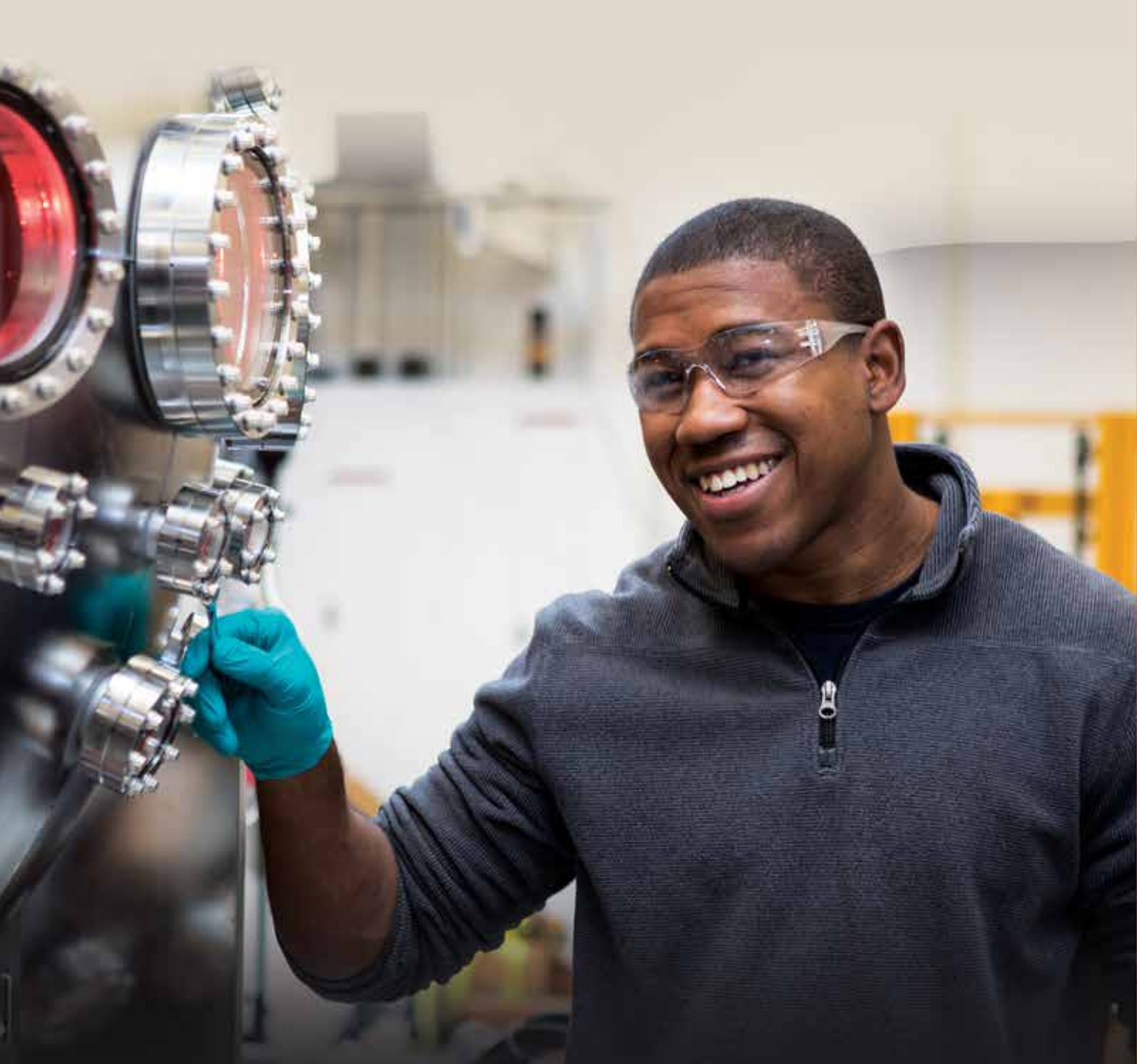




## **a re-engineered approach to educating engineers**

To address these and other “grand challenges of the 21st century” as identified by the White House Strategy for American Innovation, the National Academy of Engineering and the United Nations, we must transform engineering education — developing a new model that is as dynamic, sophisticated and interrelated as the problems tomorrow’s engineers must tackle. Long gone are the days when engineering students toiled in isolation on theoretical problems. Today, just as they will when they graduate and begin their careers, they must learn to work collaboratively. And they must begin this work as undergraduates with opportunities to not only work together but to engage in meaningful research, to work with the best faculty on the globe, to study real-world issues at home and abroad, and to have access to cutting-edge technology, tools and learning spaces.

We have the vision and knowledge to create a new, world-class engineering education experience for our students, to brave new frontiers through research, and to partner with industry on innovative solutions to the grand challenges of our day. And you have the power to help make our vision a reality.



“Our students come to us with a desire to make the world a better place. Whether it’s engineering a new water delivery system to combat drought, designing a better wheelchair or creating the next rocket ship to Mars, they want to have an impact. We are reinventing the way we educate them to fuel those aspirations.”

Michael B. Bragg  
Frank & Julie Jungers Dean of Engineering

## How does UW Engineering make a difference in people's lives?

**W**e've explored how families in third-world countries can use cooking fires as personal power stations for electrical devices. Our researchers lead the world in developing new helmet technology to prevent brain trauma in athletes. Bioengineering research is creating models to help surgeons build replacement ears for deaf children, while our electrical engineers are helping people with cochlear implants hear something they've never heard before: music. We're developing implantable nanorobotics to deliver medications more effectively and injectable polymers to keep soldiers from bleeding to death on the battlefield.





## A history of achievement



The College of Engineering is fortunate to be part of a world-class research university with a top-ranked health system — in a region that is a hub of innovation in aerospace, biotechnology, global health and information technology. With an enrollment of 7,500 students, we are the third largest of all the UW's colleges and schools and produce half of our state's engineering graduates. Our 250-member faculty includes some of the nation's most accomplished engineering scholars, researchers and industry leaders; with more than 22 percent of them women (compared to a national average of just 15 percent), we lead the nation with the highest percentage of women in tenure-track engineering faculty positions.



**S**ince 1974 the UW has ranked No. 1 for public universities in federal research funding, impacting countless lives as the birthplace of dialysis, the Hepatitis B vaccine and diagnostic ultrasound. Vinyl and synthetic rubber, yellow highway paint, disposable diapers, CP/M operating system and the cardiac treadmill are just a few innovations with UW Engineering roots. Research expenditures for the College of Engineering total more than \$142 million a year. We generate revenue and jobs and spur economic growth as the source of more than half the University's reported innovations, start-up companies and patents, filing nearly 1,400 patents in the last four years alone. Driven to discover, our undergraduate students participate in research and industry sponsored design projects and attend classes that incorporate cutting-edge research not yet published in textbooks.



# A future that is boundless

**T**he Puget Sound region is a thriving environment for corporations and entrepreneurs. This strength of location fosters our corporate partnerships. We meet industry needs by providing trained and skilled graduates for the workforce and by translating the engineering expertise of our faculty members into research impact. We continue to advance our industry partnerships with the Career Center@Engineering, designed to provide a single point of contact for employers looking to connect with our students. On-campus industry collaborations include the Boeing Advanced Research Center and the Ricoh Corporation Advanced 3D Printing project.



We are proud of these achievements, but we know that realizing our vision for the future will require a new level of commitment. Cutting-edge technology employers like Microsoft, Boeing, Amazon, Google, PACCAR, SpaceX and Blue Origin make the Puget Sound region one of the nation's top five employment centers for engineers and scientists. Yet Washington ranks far below the national average per capita in the number of graduates we produce to fill those jobs. Each year, more than 2,100 first-year students come to the UW with an expressed interest in engineering and with the qualifications to succeed. **But because we lack the space, faculty and resources to accommodate them all, only one in three of these admitted UW students will be able to earn a bachelor's degree in engineering or computer science.**

We must provide greater access and opportunities to more students — especially those from underrepresented communities and groups. We must galvanize our efforts to attract and retain the best and brightest faculty and support their life-changing research. And we must revitalize or replace buildings and facilities that were constructed with regimented classrooms and scarce space for collaboration and today's engineering education. These are the priorities of the Campaign for Engineering.

By investing in the Campaign for Engineering, new and loyal supporters and industry partners can fuel a visionary and creative educational experience for tomorrow's engineers. With a gift to the Campaign, you can open the doors to discovery and vital pathways for innovation.





## You can create a boundless future for our students

Your investment in the Campaign for the College of Engineering will help educate generations of professionals who are critical to the future of our world. The Campaign presents a remarkable opportunity for you to play a vital role — not just in sustaining one of the great colleges of its kind in the nation, but in creating the very best public College of Engineering in the world. Your gifts will have a profound impact in the following four areas of investment.

### 1. You can provide many more students access to a UW engineering degree.

Countless careers await engineering graduates — from biotech entrepreneur to industry researcher, environmental engineer to Wall Street analyst, high school teacher to medical device technologist. Higher education institutions in Washington and across the U.S., however, fail to graduate enough engineers and computer scientists to meet industry demand for employees and student demand for engineering education. The number of engineering undergraduate degrees remained flat at the UW for 30 years, despite increased demand for both admissions and graduates. Even with an uptick in funding to admit more students beginning in 2009, we are still forced to deny admission to hundreds of well-qualified students simply because we cannot accommodate them in our cramped buildings and outdated classrooms, laboratories and departments.

To make an engineering education accessible to a diverse population of qualified undergraduate applicants, we must address issues of both availability of seats and affordability to students and parents. Your support will allow us to increase undergraduate scholarships and bolster graduate fellowships.

## 2. You can ensure that students have a richer leading-edge educational experience.

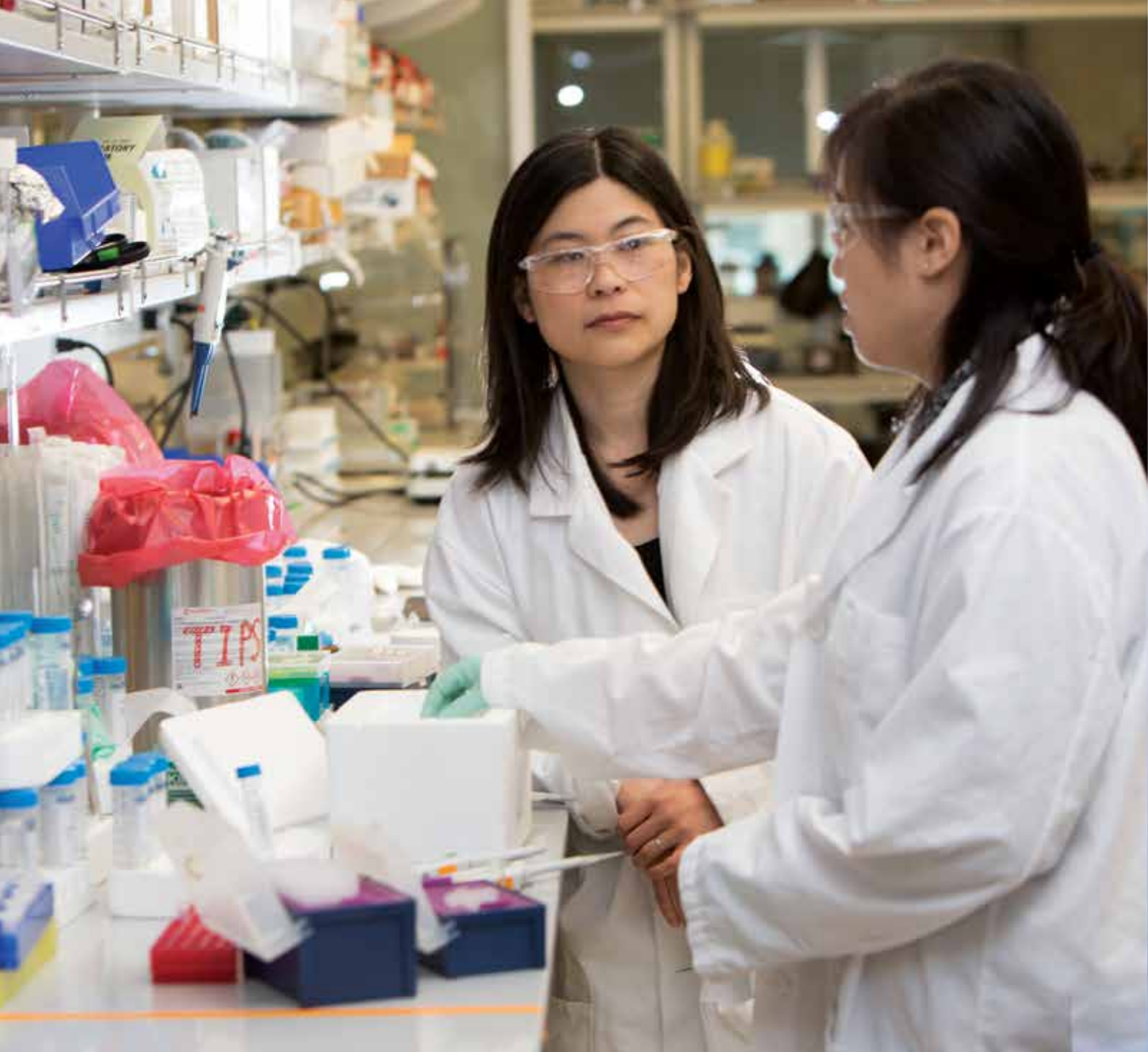
To prepare students for current and as-yet-unimagined challenges, we continue to investigate how engineers learn best and then incorporate that knowledge into how we teach for an ever-improving student experience. True mastery develops when students have the opportunity to participate in research and work collaboratively on practical projects and problems. This experiential learning is deeply empowering, enabling students to understand early on what it means to be an engineer and the societal impact of the discipline.

This educational transformation requires us to hire new faculty, develop innovative curricula and leadership programming, and create new tools and spaces that advance learning. Your gifts will allow us to integrate collaborative, experiential styles of learning into our courses, use technology to streamline core curricula, increase opportunities for hands-on learning and expand undergraduate research opportunities. Your support also will enable more students to participate in co-curricular activities like EcoCAR, Engineers Without Borders and the Environmental Innovation Challenge.

Today, we are exploring a new admissions policy that will allow first-year students to enroll directly in the College — and begin their engineering education immediately — rather than waiting until they are juniors. Private support will enable us to provide the space and educators to leverage this policy shift and to provide both need-and merit-based scholarships to our students.

# and for the world.





### **3. You can attract the most sought-after professors to UW Engineering.**

The “triple threat” of academia is a faculty member who is a great educator, an elite researcher and an entrepreneurial innovator whose work makes a real impact in the world. These heavily-recruited faculty members in turn attract the best and brightest students and creatively engage those students in learning and research. The College of Engineering competes with top-ranked universities to hire these professors and competes with industry to retain them.

Your support for the Campaign will enable us to expand our already stellar faculty and to equip new teacher-researchers with labs, staff and programmatic support for their work. By funding endowed chairs and professorships, supporting fellowships for graduate students to work with faculty, seeding research initiatives and donating to capital improvements, you can bring the best talent in the world to the College.

#### **4. You can create the spaces to develop tomorrow's engineers today.**

This is not your grandparents' engineering education. But it is their engineering building. Every year we lose top students and brilliant faculty to other universities where the facilities far surpass ours. Half of the College of Engineering's 22 buildings are more than 50 years old, making them inefficient and functionally obsolete. Our students are pursuing technological breakthroughs in creative and innovative fields while working in facilities that were built for a long-outmoded model of engineering education.

The new approach to learning we envision can only succeed in state-of-the-art facilities that promote interactive, interdisciplinary and collaborative study. Our buildings must accommodate the latest technology, facilitate undergraduate research and projects, and provide offices and labs for new faculty. More expensive than traditional, outdated classrooms, these new teaching, learning and research spaces are critical to the future of UW Engineering — and therefore critical to the world our graduates and faculty strive to change.

You can provide the innovative, flexible space we need to prepare tomorrow's engineers and today's researchers and industry leaders for the grand challenges they face. New and renovated facilities in key programs also will increase our capacity to enroll more students, hire new faculty, conduct more research and explore entrepreneurial inventions. Your gifts will create the facilities that match the level of world-class research and learning which will take place within them.

#### **Solutions to tomorrow's challenges are in your hands today. Join us. Support the Campaign for the College of Engineering.**

To learn more about the impact your investment will make, please contact:  
Judy Mahoney, associate dean of advancement at [jkm7@uw.edu](mailto:jkm7@uw.edu)



**BE BOUNDLESS**  
FOR WASHINGTON

FOR THE WORLD