



Civil & Environmental Engineering

To claim that Berkeley Engineers built California is hardly an exaggeration. From the university's very inception, its founders believed that civil engineering was critical to the growth and prosperity of their young state. The department quickly established itself as a worldwide leader in developing engineering solutions to societal-scale challenges — conducting cutting-edge research to build seismically safe structures, energy, transportation and water systems. Extensive efforts will be needed to adapt civil infrastructure to withstand adverse changes in weather and climate. Our research and teaching serve the needs of a growing and increasingly urban world population that requires sustainable improvements in standards of living and fostering a diverse community of perspectives to challenge conventional thinking.

Did you know?

- The earthquake simulator at the UC Berkeley-Pacific Earthquake Engineering Research (PEER) Lab was the first of its kind when it was dedicated in 1972. At 20 x 20 feet and with six degrees of freedom, it's still the largest multidirectional shake table in the country and one of the most prominent in the world.
- US News & World Report ranked CEE's graduate program in civil and environmental engineering first and second nationwide for 2023, and CEE's undergraduate programs in civil engineering and environmental engineering were ranked #1 for 2022.
- T.Y. Lin, a visionary structural engineering professor, was considered the "Father of Prestressed Concrete" for greatly simplifying its design process. The material quickly became integrated into high-rise buildings, long-span bridges, dams and other expansive structures.

867

undergraduate
and graduate students

\$844K

research expenditure
per FTE faculty

19

National Academy of
Engineering members

41%

of students are women

20%

of students are URM

Berkeley
Engineering



“ The program offers courses that provide the right blend of traditional and innovative concepts. This sets the stage to thrive in a world that is reluctant to change and quickly changing at the same time. ”

Mikael Elia Abi Kheir
M.S.'20 CEE



◀ What if autonomous vehicles managed traffic?

Berkeley researchers are using machine learning to turn autonomous vehicles into traffic managers. Their project, called Flow, is a cloud-based, open-source system capable of producing new solutions for large-scale, multi-vehicle problems where semi- and fully autonomous vehicles share the road with traditional cars. In the system, automated cars use data from nearby smart vehicles or infrastructure to manage congestion, effectively becoming mobile robots that can smooth out the flow of traffic.

▶ Predicting dangerous air

Berkeley researchers are testing the capabilities of a real-time 3D high-resolution U.S. weather forecasting model, High-Resolution Rapid Refresh (HRRR-Smoke). Their analysis indicates the model could accurately predict the general movement and distribution of the smoke plume by accounting for weather variables, like wind speed, that affect smoke distribution. With wildfires now regularly occurring in many regions year-round, the model's unique ability to forecast the spread and density of smoke makes it a vital tool in protecting people's health, especially for those affected by asthma and other respiratory illnesses. This pivotal technology could help people better prepare and know when to expect hazardous levels of air pollution with further testing.

