



buckeye/engineering

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Giving the gift of play

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ENGINEERING SAFER WATER

399 MILLION REASONS TO SAY THANK YOU

BUCKEYES SET NEW LANDSPEED RECORD



THE OHIO STATE UNIVERSITY

COLLEGE OF ENGINEERING



Engineer elves modify toys for tots

Civil engineering major Meg West hopes that one day every electronic toy will include a jack that allows children with special needs to plug in their custom button or switch and start playing. Until then, she and her fellow Buckeye engineering elves are doing the next best thing—modifying toys so that every child has the chance to learn through independent play.

What began in 2013 as a single workshop has evolved into the Toy Adaptation Program that provides hands-on educational opportunities to engineering students. In 2016, more than 870 students, plus alumni and community members, have modified approximately 400 toys. Once adapted, the toys are donated to toy libraries or given to families with need.

For the Buckeye engineers, the biggest reward comes from seeing that their engineering skills can make a difference.

“It was like instantly using stuff you learned in the classroom to do something to help people,” said computer science and engineering major Jarrod Manguiat. “I really liked that aspect.”

Learn more: go.osu.edu/elves



Engineering safer water

Harmful algal toxins—the culprit behind Toledo’s 2014 water crisis—could be a thing of the past thanks to new research from Ohio State engineers.

College of Engineering faculty are leading several different projects as part of the university’s Field to Faucet initiative, launched to ensure safe drinking water while maintaining an economically productive agriculture sector.

Engineering research will specifically address ways to reduce excess nutrient runoff. One of the biggest contributors to harmful algal blooms in lakes is excessive nitrogen and phosphorus from farms and cities upstream.

When water safety is in question, public officials need fast answers, but current testing often takes several hours or even days before results are obtained. Research led by Electrical and Computer Engineering Professor Wu Lu could reduce that delay to as little as five minutes with a new desktop device that will allow water treatment plant operators to measure water safety in real time.

Other multidisciplinary efforts include a mobile app that manages nutrients at the farm level, a new technique to improve the management of harmful algal blooms, and a smarter fertilizer free of excess nitrogen and phosphorus.

Learn more: go.osu.edu/f2f

Photo: Professor John Fulton uses the new Ohio State PLOTS app for nutrient management in the field.

\$399 million raised during historic campaign

Thanks to the generosity and support of its alumni, friends and partners, the College of Engineering raised \$399 million during the *But for Ohio State* Campaign, the most successful fundraising effort in The Ohio State University’s 146-year history.

Exceeding the college’s \$350 million goal set at the beginning of the seven-year campaign, the total raised represents gifts made by 22,422 donors.

The Ohio State University raised more than \$3 billion during the campaign from more than 750,000 donors—a figure thought to be unparalleled in U.S. higher education—shattering the goal of \$2.5 billion.

“We’re extremely grateful to our alumni and supporters for their tremendous investment in the College of Engineering,” said Dean David B. Williams, the Monte Ahuja Endowed Dean’s Chair. “Their gifts will ensure educational opportunities and top-notch learning spaces for future generations of students, as well as support impactful research, scholarship and outreach.”

During the campaign, College of Engineering supporters established 161 new endowed funds, enabled the creation of a new Department of Engineering Education and six new research centers, and helped fund the new Chemical and Biomolecular Engineering and Chemistry Building.

Learn more about what you helped accomplish:
go.osu.edu/399reasons





Sixteen exceptional graduates receive alumni awards

One of the engineering heroes behind the safe return of the Apollo 13 astronauts, Honda's first female chief engineer in North America and a top Columbus architect were among the 16 college alumni honored during the 2016 Excellence in Engineering and Architecture Awards.

Lifetime Achievement Award for Leadership recipient Ralph A. Rockow (BS '58, MS '58, ME) is one of the engineers who designed and developed the Lunar Module Descent Engine that safely returned the Apollo 13 astronauts to Earth in 1970. He also played a major role in advancing the state-of-the-art air bag restraint systems in automobiles.

"But for Ohio State, I may not have received an education that allowed me to compete easily on the world's stage in the field of engineering," Rockow said.

Three additional signature awards were presented: George W. Acock (BS '63, ARCH) received the Benjamin G. Lamme Meritorious Achievement Medal; Daniel Kimmert (BS '71, MS '72, ME) was awarded the Meritorious Service Citation; and Jonathan Blank (BS '01, MS '02, PhD '08, MSE) received the Texnikoi Outstanding Alumni Award.

Twelve alumni received Distinguished Alumni Awards: John D. Bair (BS '91, CIS), Doug Baughman (BS '82, CHE), Colette Pierce Burnette (BS '80, ISE), Thomas J. Burns (BS '86, EE), James M. Dickey IV (BS '83, ISE), Steve Dunmead (BS '85, MS '87, CER), Lara Harrington (BS '90, AAE), Eric Lagerberg (M '88, ARCH), Tobias James Rittner (M '00, CR&P), Cynthia J. Roberts (MS '86, EE; PhD '89, BME), S.V. Sreenivasan (MS '88, PhD '94, ME) and Sugu Suguness (MS '85, CE).

Learn more: go.osu.edu/aa19

Joining efforts to advance vehicle sustainability

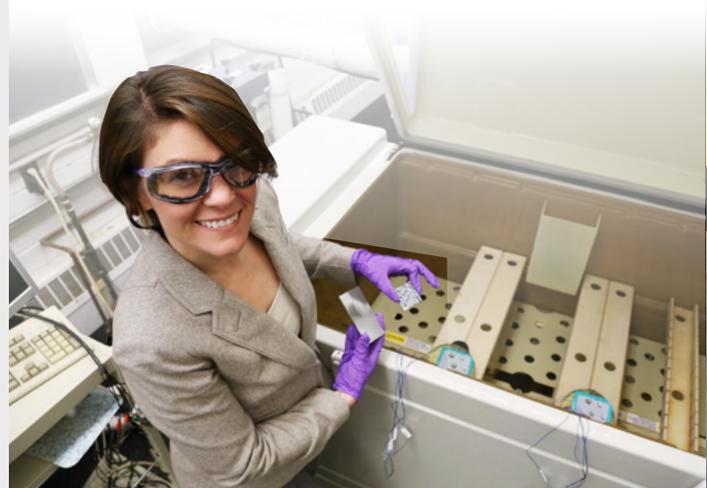
Materials science and engineering researchers at Ohio State are working to make vehicles lighter and more fuel-efficient—through the materials used and how they're joined—in order to reduce vehicle emissions and fuel consumption. Four faculty are leading or contributing to more than \$12 million in Department of Energy-funded research focused on advancing vehicle sustainability.

Professor Glenn Daehn and his colleagues received \$2.7 million to further develop vaporizing foil actuator welding, an energy-efficient joining technology that enables dissimilar metals to be joined via bonds that are 50 percent stronger.

Buckeyes are also working on three corrosion protection and dissimilar material joining projects. For one project, Assistant Professor Jenifer Locke (pictured) is collaborating with industry partners on a breakthrough resistance spot riveting (RSR) method for joining aluminum to steel and carbon fiber reinforced plastics. She's also examining the galvanic corrosion resistance of those RSR joints as well as how to best protect them against corrosion.

"Ohio State, with its Fontana Corrosion Center, is one of, if not the best, universities conducting research in the area of corrosion and environmental degradation," Locke said. "And it's the only university with world-renowned expertise in both corrosion and joining."

Learn how it all comes together:
go.osu.edu/joining



Buckeye supercar sets world record

At an average speed of 341.4 miles per hour, the all-electric Venturi Buckeye Bullet 3 (VBB3) shattered its own previous mark and set a new global, land-speed record in September on Utah's Bonneville Salt Flats. Designed and built by Ohio State engineering students, the streamliner is the latest in a series of electric racing vehicles built over the past 25 years at the university's Center for Automotive Research.

Learn more and watch: go.osu.edu/record

7,900

pounds
(without driver)

341.4

mph record-breaking
two-way average
speed

358

mph
top speed

100+

undergraduates have dedicated 20+
hours/week to the Buckeye Bullet
program since 2001

Wiring:

Over three miles of
control wire throughout

Body & Cockpit:

Carbon fiber skin with
a repurposed Indy car
chassis for driver's cockpit

Batteries:

2,000 lithium-ion cells
provide up to 2.7 MW
(3,600 horsepower)

Motors:

One of two custom electric
permanent-magnet motors

Measures:

38 feet long from tip to tail

briefs:

**Center for Automotive
Research celebrates 25 years**

go.osu.edu/25car

**Electric patch speeds
wound healing**

go.osu.edu/heal

**Engineering students steer
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go.osu.edu/give14

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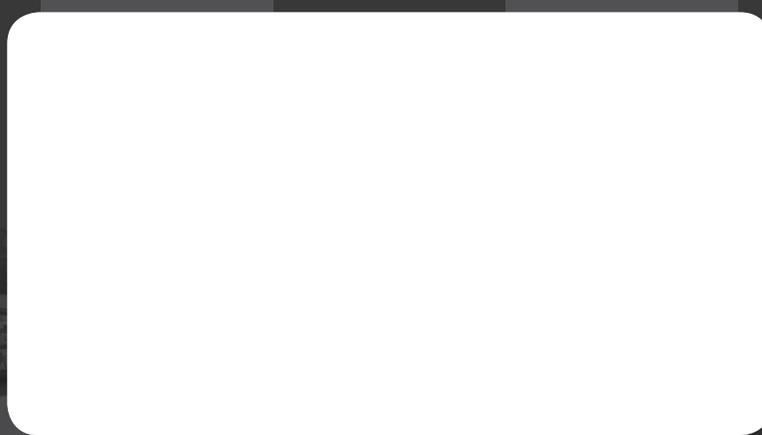
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