

Case Western Reserve appoints Venkataramanan "Ragu" Balakrishnan as engineering dean.

The former leader of one of the nation's top programs for electrical and computer engineering has been appointed the new dean of the Case School of Engineering at Case Western Reserve University.

An accomplished researcher in system and control theory, Venkataramanan "Ragu" Balakrishnan began his tenure as the Charles H. Phipps Dean of the Case School of Engineering on Sept. 1, after spending the last nine years as head of Purdue University's largest academic unit. Under his leadership, Purdue's School of Electrical and Computer Engineering experienced dramatic growth in a number of key areas, including a 56-percent increase in undergraduate enrollment and a 44-percent increase in research funding. He also championed increasing diversity among the faculty and spearheaded educational initiatives like flipped classrooms and integrating more experiential learning opportunities into the undergraduate curriculum.

Learn more about the new dean at engineering.case.edu/news/new-dean.

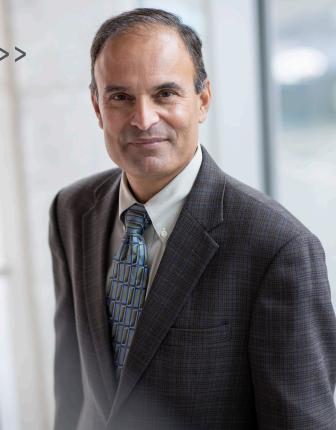
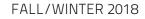


Photo by Russell Lee







Engineering researchers secure \$10.75M DOE grant to establish energy storage research center.

Renewables are catching up to traditional sources of power in terms of affordability. But advances in the technology needed to store and disperse that energy are lagging behind, creating a barrier to mass adoption of greener means of providing power.

Researchers at Case Western Reserve University received a \$10.75-million grant from the U.S. Department of Energy to establish a new Energy Frontier Research Center (EFRC) dedicated to developing new battery chemistries with the potential to provide large, long-lasting energy storage solutions for the power grid.

The Breakthrough Electrolytes for Energy Storage Center aims to create the next generation of electrolytes that could be incorporated into new, large-scale batteries that store energy more efficiently, more reliably and more cost-effectively, according to Robert Savinell, Distinguished University Professor and the George S. Dively Professor in the Department of Chemical and Biomolecular Engineering.

Savinell will lead the new center, collaborating with fellow chemical engineering faculty members Burcu Gurkan, Jesse Wainright and Rohan Akolkar, and colleagues at the university's College of Arts and Sciences, as well as researchers from seven institutions across the country.

Learn more at engineering.case.edu/news/breakthrough-energy-storage.

engineering.case.edu



CASE SCHOOL OF ENGINEERING CASE WESTERN RESERVE UNIVERSITY



NEW ISSACS DIRECTOR Nick Barendt is tapped to lead university's loT institute.

Nick Barendt has been named executive director of Case Western Reserve University's Institute for Smart, Secure and Connected Systems (ISSACS). The university launched the institute in 2016 to focus and enhance research efforts in the Internet of Things (IoT). More than 50 Case Western Reserve faculty members are now affiliated with the institute, which has funded six research projects in the IoT space, including point-of-care medical devices and smart fire fighting.

Barendt, president and founder of an IoT consulting and product-development firm, will play a lead role in strategic planning, attracting funding, operations and public relations for ISSACS, working closely with university leadership and other constituents to serve the institute's mission and ensure longterm sustainability. He will also co-direct the IoT Collaborative, a partnership with Cleveland State University, supported by the Cleveland Foundation, to lead and foster development of industrial IoT solutions in the public and private sectors in Greater Cleveland.

Learn more at engineering.case.edu/ISSACS-executive-director.

Research team wins wireless innovation competition for remote diagnostic device.

Umut Gurkan, assistant professor of mechanical and aerospace engineering, and his team won first prize in the Vodafone Americas Foundation Wireless Innovation competition for their remote diagnostic technology SMART.

SMART (Sickle and Malaria Accurate Remote Testing) is an integrated point-of-care technology platform that links with electronic health record systems to diagnose, track and monitor sickle cell disease and malaria patients in low-resource settings.

It is estimated that sickle cell disease affects nearly 25 million people around the world, and nearly 3.4 billion people are at risk for contracting malaria. The SMART device quickly screens for the diseases right in a physician's office or clinic setting, allowing clinicians to skip the wait time of traditional lab testing. The test can then wirelessly connect to a cloud database where disease metrics and treatment progress can be tracked. The sickle cell diagnostic technology was invented by Gurkan and his research team, and the malaria diagnostic component was invented by Brian Grimberg, assistant professor of international health at Case Western Reserve School of Medicine.

Learn more at engineering.case.edu/news/vodafone.

The Case School of Engineering launched a peer advising program to provide additional resources to help guide undergraduate students through their academic careers.

INSECT INSIGHT <<<<<<<<<>Neural implant inspired by mosquitoes.

Scientists at Case Western Reserve University have turned a pest into a potential solution for brain implants. Rigid, conventional implants can damage the soft tissue of the brain, but more malleable materials aren't sturdy enough. Biomedical engineering associate professor Jeffrey Capadona and postdoctoral researcher Andrew Shoffstall developed a prototype based on how mosquitoes bite their victims, which could hold the secret to smoother insertion of neural implants.

Learn more at engineering.case.edu/news/mosquito-implant.

RAPID-FIRE SCREENING

A new test screens plastics for flame retardancy fast.

Polymer researchers at Case Western Reserve developed a faster way to test flame retardants in plastics. Thanks to project lead Taneisha Deans, who began her career at Case Western Reserve as a high school student in the university's Polymer Envoys program, a dozen materials can be screened for flame retardancy in an afternoon—work that used to take an entire semester. Deans developed the technique as part of her PhD thesis while working in the lab of department chair David Schiraldi.

Learn more at engineering.case.edu/ Taneisha-Deans.

CLEANER WATER

Researcher develops new treatment technologies for water and wastewater.

Huichun (Judy) Zhang, associate professor of civil engineering, received two grants from the National Science Foundation and one grant from the U.S. Environmental Protection Agency, totaling more than \$820,000 to explore new ways to remove contaminants from water. Combined with two active NSF projects she brought with her to the university, she has received \$1.17 million in federal funding, which she is using to develop new water and wastewater treatment technologies and improve the understanding of the behavior of emerging contaminants in the environment.

METAL MATTERS New insights for alloy processing.

Materials scientists won a TechConnect Defense Innovation Award for research exploring the processing of thirdgeneration aluminum-lithium alloys for use in advanced manufacturing. John Lewandowski, the Arthur P. Armington Professor of Engineering II in the Department of Materials Science and Engineering, led Case Western Reserve's efforts on the project, in collaboration with other universities, industrial members and government labs with the support of Lightweight Innovations for Tomorrow (LIFT), a public-private partnership dedicated to advancing new lightweight materials manufacturing technologies.



Tobacco use remains the leading cause of death in the United States, and more than 16 million Americans are living with a disease caused by smoking, according to the Centers for Disease Control and Prevention. Now, thanks to researchers at Case Western Reserve, smokers may have a new high-tech tool to help them quit.

Ming-Chun Huang, assistant professor of electrical engineering and computer science, in collaboration with Monica Webb Hooper, associate director for cancer disparities research at the Case Comprehensive Cancer Center, have created a smoking behavior intervention platform. The system combines wearable technologies that detect specific hand and arm movements associated with smoking with a smartphone app that automatically texts reminders to quit to smokers for a holistic approach to smoking cessation.

Learn more at engineering.case.edu/news/anti-smoking-app.

>>> CWRUBOTIX WINS BIG University's robotics team dominates at national competitions.

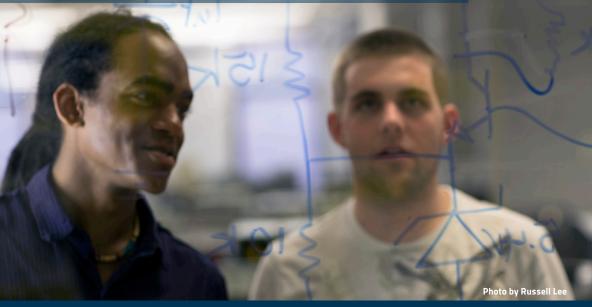
What's cooler than robots? Robots that defeat other robots in national competitions. CWRUbotix, Case Western Reserve's student robotics team, earned top finishes in several robotics competitions this year.



The club sent three teams to the National Robotics challenge, entering the six-pound combat, mini-sumo and autonomous vehicle contests. CWRUbotix' combat robot, Playbot, captured first place in its division for the second year in a row.

The team also placed fourth overall at NASA's annual Robotic Mining Competition, securing a top spot out of 44 other collegiate teams.

>>> BEST IN STEM >>>>



Forbes magazine ranked Case Western Reserve University among the nation's top universities that emphasize STEM—science, technology, engineering and math—in their curriculum, putting it in elite company along with MIT, Georgia Tech and Johns Hopkins University. Case Western Reserve was the top school in the Midwest, ranked at No. 13.

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