

## Robots to the rhino rescue

With just two northern white rhinos remaining in the world, zoologists are racing against the clock to rescue the species from the brink of extinction. Hope for their survival now rests on scientists' ability to develop innovative methods for repopulating the species, made even more challenging by the rhino's exceedingly complicated reproductive anatomy. Michael Yip, a professor of electrical and computer engineering at the Jacobs School, is partnering with San Diego Zoo Global to develop a flexible, snakelike robot that could make it easier for zoologists to perform artificial insemination and embryo transfer on rhinos, to repopulate the species and save it from extinction.



Learn more: [bit.ly/RobotsRhinoRescue](https://bit.ly/RobotsRhinoRescue)



## Blood substitute made from nanoparticles

Nanoengineering PhD student Jia Zhuang won the grand prize at the Jacobs School Research Expo for work to develop a red blood cell substitute that can store longer. It could help with blood transfusions in places that lack ideal storage conditions like remote villages or the battlefield. The team from the lab of professor Liangfang Zhang created nanoparticles that look and act like red blood cells, but have a longer shelf life. The approach removes all the perishable proteins inside the red blood cells but keeps the membranes, which are stable. "We replace the proteins with perfluorocarbons, which are also stable and known for their oxygen-carrying capability," said Zhuang.

Learn more: [bit.ly/ResearchExpo2019](https://bit.ly/ResearchExpo2019)

## Deep learning tool for personalized workouts

Computer scientists at UC San Diego led by professor Julian McAuley developed a recommendation tool powered by deep learning that is able to better estimate runners' heart rates during a workout and predict and recommend routes. Researchers trained the tool, called FitRec, on a dataset of more than 250,000 workout records for more than 1,000 runners. This allowed them to build a model that analyzed past performance to predict speed and heart rate given specific future workout times and routes. The team is among the first to collect and model a new massive fitness dataset for academic research.



Learn more: [bit.ly/ucsdFitRec](https://bit.ly/ucsdFitRec)



## Massimo Franceschetti is a 2019 Guggenheim Fellow

Massimo Franceschetti, an electrical and computer engineering professor, earned a 2019 Guggenheim Fellowship. Franceschetti's "big idea" is to think about information as a non-probabilistic quantity – a "deterministic wave." His approach aims to describe the behavior of engineering systems not only on average, but in all cases. The work has many potential applications including more reliable communications, remote sensing, robotics and safety-critical systems. Franceschetti joins chemistry and biochemistry professor Neal Devaraj and music professor Katharina Rosenberger as the three UC San Diego Guggenheim awardees for 2019.

Learn more: [bit.ly/Guggenheim2019](https://bit.ly/Guggenheim2019)

## Professors Meng, Alvarado, and Graeve honored

Jacobs School professors Shirley Meng, Christine Alvarado, and Olivia Graeve are being honored with UC San Diego Chancellor's Associates Faculty Excellence Awards for their extraordinary research, teaching and service contributions. Nanoengineering and materials science professor Shirley Meng is a pioneer in electrochemical energy storage and conversion materials, and advanced diagnosis for battery materials. Computer science professor Christine Alvarado is a world leader in computer science education and developer of the Early Research Scholars Program. Mechanical and aerospace engineering professor Olivia Graeve created and runs multiple programs to support the recruitment, retention, inclusion and success of engineering students. She is faculty director of the IDEA Engineering Student Center.



Learn more: [bit.ly/ChancellorAwards](https://bit.ly/ChancellorAwards)

## Andrew Kahng earns top Korean engineering honor



Andrew B. Kahng, a professor of computer science and of electrical engineering at the Jacobs School, has been awarded the 2019 Ho-Am Prize for Engineering, the highest award for engineering in Korea. Kahng is being recognized for the significant contributions he has made to the advancement of the semiconductor industry by developing design automation software for the realization of complex integrated-circuit systems in semiconductors. DAR-PA recently selected Kahng to lead a multi-institution project aimed at developing electronic design automation tools for 24-hour, no-human-in-the-loop integrated circuit hardware layout generation.

Learn more: [bit.ly/KahngHoAm](https://bit.ly/KahngHoAm)

## Haptics class expands robotics education offerings

UC San Diego engineering students got creative in the university's first class on haptic interfaces. The new course highlights the Jacobs School's growing strength in robotics research and education. Mechanical engineering professor Tania Morimoto created and taught the haptic interfaces class. Haptics refers to interactions with the sense of touch, including force, texture, motion, and vibration. "I wanted the class to be hands-on to teach students how to design, build, and program a haptic system," said Morimoto, a member of the Contextual Robotics Institute at UC San Diego.



Learn more: [bit.ly/ucsdhapticsclass](https://bit.ly/ucsdhapticsclass)



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