QI NEWS
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LATEST NEWS

Engineers for Exploration Invite Undergraduate Students to Join or Apply for Summer REU Program

University students have barely one week left to apply for a research internship at the University of California San Diego for summer 2017 to work on technologies that can be used by explorers in the lab or on field expeditions.

The university’s Engineers for Exploration student program receives funding from the National Science Foundation to run a Research Experiences for Undergraduates (REU) summer program. The deadline for online applications is Friday, February 17, 2017.

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Design Lab Researcher Awarded 2017 Adobe Research Fellowship

UC San Diego doctoral student C. Ailie Fraser has been awarded a 2017 Adobe Research Fellowship in only the second year of the company’s fellowship program. The third-year Ph.D. student in Computer Science and Engineering (CSE) is a researcher in the Design Lab at UC San Diego -- located in the Qualcomm Institute -- and she also works tirelessly as president of the campus chapter of Graduate Women in Computing (GradWIC).

Fraser’s one-year award comes with a $10,000 stipend and an internship this summer at Adobe. She also gets access to mentorship from an Adobe Research scientist for the year, as well as a free, year-long subscription and round-the-clock access to all of the software in Adobe’s Creative Cloud (including Adobe’s flagship products such as Photoshop and Acrobat Reader). Read more

QI Chats with Patrik Schmidle of CARI Therapeutics

CARI Therapeutics is one of the many members of the QI Innovation Space (QIIS), where a team led by CEO and co-founder Patrik Schmidle collaborates closely with experts in addiction research, biosensor engineering and entrepreneurship. CARI Therapeutics’ signature On the Go recovery program integrates cutting-edge smartphone technology with proven behavior-change techniques to address stress management and substance use. The program includes short, quick and powerful mobile app exercises dispersed throughout the day, designed to produce significant behaviors, and combines advanced mobile technology with evidence-based techniques for the most convenient and effective recovery available.

Patrik Schmidle

CARI recently received a Phase I Small Business Innovation Research (SBIR) grant from the National
Engineering Students Design Experiment to Test Whether Beer Can Be Brewed on the Moon

Can beer be brewed on the moon? A team of UC San Diego engineering students is hoping to find out. They are finalists in the Lab2Moon competition being held by TeamIndus, one of the four teams with a signed launch contract to send a spacecraft to the moon as part of the Google Lunar XPRIZE challenge. And they're using the Qualcomm Institute (QI) Prototyping Facility and Design Studio to make the magic -- or rather, the science -- happen. (Pictured: QI Prototyping Facility and Design Studio director Curt Schurgers, at left, meets with Srivaths Kaylan, a fourth year nanoengineering major and mechanical lead for the team.)

The experiment will test the viability of yeast on the moon—and result in a freshly brewed batch of beer. Understanding how yeast behaves on the moon isn’t just important for brewing beer in space. It's also important for the development of pharmaceuticals and yeast-containing foods, like bread. If the team is selected, the students will be the first to brew beer in space. Read more

Thin, Flexible, Light-absorbent Material for Energy and Stealth Applications

Transparent window coatings that keep buildings and cars cool on sunny days. Devices that could more than triple solar cell efficiencies. Thin, lightweight shields that block thermal detection. These are potential applications for a thin, flexible, light-absorbing material developed by engineers at the UC San Diego. The materials were combined and structured in a precise fashion using advanced nanofabrication technologies in the Nano3 cleanroom facility of the Qualcomm Institute.

The material, called a near-perfect broadband absorber, absorbs more than 87 percent of near-infrared light (1,200 to 2,200 nanometer wavelengths), with 98 percent absorption at 1,550 nanometers, the wavelength for fiber optic communication. The material is capable of absorbing light from every angle. It also can theoretically be customized to absorb certain

Science Foundation to perform R&D on a technology platform consisting of a biosensor connected to a mobile app with the goal of transforming the way substance misuse will be detected, monitored and treated. In addition, the company was just selected to participate in an NIH (National Institute of Health) I-Corps program, which involves a significant commitment.

We spoke with Patrik Schmidle about the mission of CARI Therapeutics, his innovation philosophy, and what he would do with $100,000, no strings attached.

What is the chief aim of CARI Therapeutics?
We are passionate about positively impacting the lives of people that suffer from drug or alcohol addiction.

What are you working on currently?
We are building a digital health solution that will transform the detection, monitoring and treatment of drug and alcohol misuse.

What drew you to the QI Innovation Space?
First and foremost, the opportunity to collaborate with experts in digital health, engineering, mobile application development, grant writing, and prototyping. Second, specifically related to the topic we are passionate about, UC San Diego employs some of the world’s foremost experts on addiction research and treatment and becoming part of QI allowed us to more
New York Times Echoes UC San Diego View of What's Needed for Leadership in Robotics

A top technology columnist for the New York Times, Farhad Manjoo, published a manifesto about America's declining position as a world leader in robotics. In doing so, he turned to a computer scientist and robotics expert at UC San Diego to make the case for why the U.S. needs to invest into robotics innovation. That QI-based expert is Henrik Christensen (pictured), director of the university's new Contextual Robotics Institute.

"If you look at the comparisons in investment between China and the U.S., we're going to lose," Christensen told Manjoo. "The investments in China are billions and billions. I'm not seeing that investment in the U.S. And without that investment, we are going to lose. No doubt." Read more

CNS Sets Deadline for Second Alan Turing Memorial Scholarship Applications

The Center for Networked Systems (CNS), which has close ties to the Qualcomm Institute, is once again looking for an undergraduate student who is interested in networked systems – and who is also active in supporting the LGBT community. "Our goal is to use this scholarship to further boost diversity and inclusiveness in the field of systems and networking and give undergraduates an opportunity to work on top-notch research projects before they get to grad school," said CNS co-director George Porter, a professor in the Computer Science and Engineering department.

CNS has invited undergraduates to apply for its Alan Turing Memorial Scholarship for the 2017-2018 academic year – named for the mathematician considered a founder of the fields of computer science and artificial intelligence (pictured). The scholarship will
be awarded this spring to a student majoring in a field that touches on networked systems, including computer science, computer engineering, public policy, communication or related programs. Read more

Swarm of Underwater Robots Mimics Ocean Life

Underwater robots developed by researchers at Scripps Institution of Oceanography and the Qualcomm Institute (QI) at UC San Diego offer scientists an extraordinary new tool to study ocean currents and the tiny creatures they transport. Swarms of these underwater robots helped answer some basic questions about the most abundant life forms in the ocean — plankton.

Scripps research oceanographer Jules Jaffe designed and built the miniature autonomous underwater explorers, or M-AUEs, to study small-scale environmental processes taking place in the ocean. The ocean-probing instruments are equipped with temperature and other sensors to measure the surrounding ocean conditions while the robots “swim” up and down to maintain a constant depth by adjusting their buoyancy. The M-AUEs could potentially be deployed in swarms of hundreds to thousands to capture a three-dimensional view of the interactions between ocean currents and marine life.

In a new study published in the Jan. 24 issue of the journal Nature Communications, Jaffe and Scripps biological oceanographer Peter Franks deployed a swarm of 16 grapefruit-sized underwater robots programmed to mimic the underwater swimming behavior of plankton, the microscopic organisms that drift with the ocean currents. The research study was designed to test theories about how plankton form dense patches under the ocean surface, which often later reveal themselves at the surface as red tides. The study’s coauthors include: Paul Roberts, principal development engineer at Scripps; Ryan Kastner, professor in the Department of Computer Science and Engineering and a QI affiliate; Diba Mirza, postdoctoral researcher in computer science; Curt Schurgers, principal development engineer at QI, and Scripps student intern Adrien Boch. Read more

QI Prototyping Facility
Build it Better

The QI Prototyping Facility is open to the UC San Diego community and provides professional-level expertise in electrical, mechanical and software design. From embedded electronics and mechanical devices to robotic contraptions, real-time/networking software and 3D printed structures, the Prototyping Facility is here to help with design, prototyping, programming and building systems. Read more

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UC San Diego Center at NSDI 2017: Innovating in Networked Systems

Researchers affiliated with the Center for Networked Systems (CNS) have been selected to present some of their most up-to-date research at the 14th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2017). The annual conference will take place March 27-29, 2017, in Boston, MA, and four papers with co-authors from CNS and the Computer Science and Engineering (CSE) department of the Jacobs School of Engineering have been accepted for submission to the prestigious meeting.

CNS co-director George Porter co-authored two of the papers. “NSDI is one of the most important conferences for us, because just like CNS, the symposium brings together researchers from across the networking and systems community,” said Porter, who is also affiliated with the Qualcomm Institute. “Our papers accepted to the 2017 symposium are in line with NSDI’s stated goal of pushing architectural boundaries of network services, and promoting the research dialogue on networked systems. Read more

UPCOMING EVENTS

QI Mixer -- Coffee, Tea and QI
Feb. 9, 9:30-11 a.m.
Calit2 Theater, Atkinson Hall
Meet and get to know fellow collaborators, staff, building residents and QI-affiliated researchers from across campus. Featured speakers this week: Vincent Leung, Technical Director of QI Circuits Labs, and Corey Baker, a postdoctoral fellow in ECE and QI. New this week: Trivia competition, with prizes! Read more

2017 Information Theory and Applications Workshop
Feb 12-17, all day
Catamaran Resort, Mission Bay, San Diego
IGNITE: Innovators and Entrepreneurs at UC San Diego
Feb. 22, all day
UC San Diego Price Center

Additional QI events

Want to be featured in this newsletter? Have other ideas for content? Email Tiffany Fox at tfox@ucsd.edu