LATEST NEWS

Research Sheds New Light on Ice Age American

Together with their colleagues, researchers at the Qualcomm Institute have announced new findings about a skeleton nicknamed “Naia,” the earliest mostly complete human found so far in the Americas.

Various studies and analyses carried out in laboratories in Mexico, the United States and Canada have revealed that the remains are those of a girl between 15 and 16 years old who lived almost 13,000 years ago in what is now Mexico’s Yucatan peninsula. Multiple lines of evidence, including pubic bone features, suggest that Naia may have given birth months before she died after falling into the 50-meter deep hole known as Hoyo Negro, a site near Tulum, Quintana Roo. Read more

Qualcomm Institute Invites Proposals for Tech-Infused Performing Arts Series

The Qualcomm Institute (QI) at the University of California, San Diego has launched its fifth annual invitation to faculty and students to propose residencies culminating in performances or presentations of works and research in visual arts, music, theatre and dance, as well as technology disciplines. The Call for Proposals was published online April 10 on the website of QI's Initiative for Digital Exploration of Arts and Sciences (IDEAS). The Call for Proposals for the 2017-2018 IDEAS season is now available online. All proposals must be submitted no later than 11:59PM Pacific time on Monday, May 15, 2016, and all proposals must be submitted through the Online Submissions Form. Read more

QI Chats with Manuel Tiglio of FASTech

FASTech is one of the many members of the QI Innovation Space (QIIS), where a team led by Manuel Tiglio develops cutting-edge technology in video compression and computer vision. Its two main products are an intelligent, content-adaptive video optimizer and next-generation video compression algorithms.

We spoke with Tiglio about the mission of FASTech, his innovation philosophy, and what he would do with $100,000, no strings attached.

Manuel Tiglio

What is the chief aim of FASTech?

To enable video distribution/streaming under any, possibly limited, connectivity: Better quality at lower bandwidths than conventional video compression technologies.
Neuron-Reading Nanowires Could Accelerate Development of Drugs to Treat Neurological Diseases

Thanks in part to funding from the Qualcomm Institute, a team led by engineers at the University of California San Diego has developed nanowires that can record the electrical activity of neurons in fine detail. The new nanowire technology could one day serve as a platform to screen drugs for neurological diseases and could enable researchers to better understand how single cells communicate in large neuronal networks. “We’re developing tools that will allow us to dig deeper into the science of how the brain works,” said the team’s lead investigator, Shadi Dayeh, an electrical engineering professor at the UC San Diego Jacobs School of Engineering and academic participant in the Qualcomm Institute (QI). Read more

Big Pixel Initiative Invites Public to Map our World

Urbanization and city expansion are transforming the world, and while the process itself can be positive — growing economies, enhancing opportunities for education and centralizing basic services — it also creates incredible challenges. Ecosystems are damaged, greenhouse gasses are concentrated and public infrastructure can cripple under increased demands.

Big Pixel Initiative researchers at the University of California San Diego are partnering with Columbia University and Arizona State University to create a continuous, global map of the urbanization process in order to address these challenges, and they’re looking to the public to help make it happen. Read more

‘Silent Music’ Sound Installation in Qualcomm Institute Mimics Living Organism

Silent Music, an installation by Canadian sound artist Robin Minard, What are you working on currently?

We have an average of 50 percent cost savings for full HD videos compared to standard approaches, with more than 90 percent of observers going through blind tests finding no differences whatsoever. From the R&D side we are extending our technology to other resolutions, both lower and higher — most notably 4k. From a strategic point of view we are focusing on business development, IP protection, and go-to-market.

What drew you to QIS and the Qualcomm Institute?

There were multiple reasons. First off, I was looking to move from commercial offices surrounded by non-tech companies to a high-tech environment such as that of QI, both in terms of its facilities and fantastic staff and researchers.

There were at least two options in campus to rent IP-protected office space at external rates which would have been a good fit for the kind of work that we do. What shifted the scale towards QI was that there was already a very active innovation space with other startups with which we can talk, share experiences, learn from and help each other.

I also have a position at the San Diego Supercomputer Center on the UC San Diego campus, but didn’t want to
is an ongoing work that mixes perceptions of nature and technology. The work is conceived for installation in quiet public areas or exhibition spaces, and the sounds of the installation are designed to color the silence of the existing space.

The installation is composed only of speakers and speaker wire, which are placed in a manner suggesting life, growth and a movement toward light. “The hardware inhabits the space much as a living organism would,” said Minard. Silent Music’s small, piezoelectric loudspeakers and their attached wires are arranged on surrounding walls to form plant-like structures (evoking an image of flowered vines climbing the walls of the gallery). Read more

Bermuda 100 Challenge: Preserving Shipwrecks, Pixel by Pixel

What if you could go on a digital dive to experience shipwrecks and other maritime heritage?

This is exactly what a team of engineers, scientists and archaeologists are planning to make reality as they launch the Bermuda 100 Challenge, an ambitious campaign to document at least 100 ships and artifacts as well as culturally and naturally significant sites in Bermuda’s shallow reefs.

Researchers from the University of California San Diego, collaborating with the Bermuda government, nonprofit agencies and other partners in the region, aim to create a comprehensive digital atlas of shipwrecks and natural habitats in Bermuda’s waters – an historical crossroads of shipping between the United States, Europe and the Caribbean. Using advanced underwater, aerial and satellite imaging tools, the team will record the wrecks and related artifacts to construct three-dimensional digital re-creations of the archaeological sites (including 3D video fly-throughs and interactive 3D computer models) without removing artifacts or disturbing the ecosystems. Read more

In addition, there are many opportunities at UCSD in general for entrepreneurship. Soon after joining QIIS we also joined the Pepper House, which has hosted 20+ UCSD interns we have had over the last 6 months. As another example, we were recently accepted at StartR, a non-profit accelerator at the Rady School of Management, for its next program starting later this month.

What is your personal “innovation philosophy”? I come from an academic background, where I have the chance to lead research groups and extraordinary students (both at the undergraduate and graduate levels) as well as postdocs. I’d say my innovation philosophy is fearless and ambitious, but realistic as well, and able to deliver step-by-step.

I launched a very ambitious program for the LIGO project around 2008 while starting a new research group. We identified the most important problems that we saw in the project at large within the analytics side, did exploratory analyses, and moved towards a program that turned out to be very successful.

For example, we replaced months of supercomputer simulations, in a lossless way, by 11 order of magnitudes,
Learning Equality Awarded $5 Million Through Google.org Global Education Commitment

Learning Equality has announced it will receive $5 million from Google.org to further develop Kolibri, a platform that provides access to a diverse set of learning resources to teachers and students in low connectivity environments. The non-profit company is based at the Qualcomm Institute Innovation Space on the University of California, San Diego campus and has raised a total of $9.5 million since its creation in 2013, including grants, donations and contracts.

Kolibri overcomes infrastructural barriers that prevent equitable access, increases the availability of relevant, aligned learning materials, and fosters innovative pedagogy and effective learning outcomes. Read more

UC San Diego Students, Alumni Launch Kickstarter Campaign for Smart Mirror

UC San Diego Computer Science and Engineering (CSE) alumnus Noah Martin (B.S. '16) got his start in hackathons as an undergraduate majoring in computer engineering. Together with three of his fellow students in CSE, Martin shared in the prize for Best iOS Hack for ezTouch, an app to lock and unlock your computer from anywhere, at the HackSC hackathon in 2014 at the University of Southern California (where Martin is now doing an M.S. in computer science). He also did internships as a software developer at Lab126, Yelp, Apple and Airbnb, and started a small company called ThnkDev in 2012 with UC San Diego economics major Josh Cohenzadeh (B.A. '15), who creates software with Martin. Their titles include QuickRes and Screenie.

Martin and Cohenzadeh ran across the concept of a voice-controlled smart mirror while looking for a way into the Internet of Things market. “We were particularly interested in Smart Home applications, and I began playing around with a smart mirror after with literally indistinguishable approaches that can instead run in less than a second (sometimes a millisecond) on a laptop, and even on a few seconds on a smartphone. We reduced data analysis from literally months of computing time to hours. All this has been critical for the LIGO project.

None of the results that we got took us by surprise, as unbelievable as they seemed at the time. Publishing in the most prestigious journals in the field -- as well as our track record -- helped a lot, I don’t think anyone ever challenged us by not believing us; any skepticism was in fact about how far we would be able to get. FASTech is in many ways a spinoff of that effort and shares the same innovation philosophy.

If you were given a $100,000 no-strings-attached grant, what would you do with it?

We have been bootstrapping and are awaiting the results of an SBIR proposal; thus we're delaying seeking external funding. In order to scale from a business point of view, at some point we will need investors. If that proposal comes through, we are good for a long while in terms of pushing the technology very fast. But it is limited to salaries (according to federal regulations), while we do many large-scale computational studies. We would like to file some, at least provisional, patents that we have on the pipeline, but need to be reviewed by legal IP
seeing a do-it-yourself version on the Internet,” remembered Martin. “The DIY version involved putting mirror glass over a PC screen, but I realized that we had some old tablets lying around, so we began experimenting with an iPad mini.” Read more

Alumnae, Students Behind IDEAS Performance in Qualcomm Institute

Graduate students at the University of California San Diego staged an original work and performance on Thursday, March 23, in the Qualcomm Institute on the university campus. Their interdisciplinary work, “The Burden of Selfhood,” explores the themes of feminism, identity and technology.

By using interactive technology and research from cognitive science, music, poetry, video and performance art, “The Burden of Selfhood” investigates the experience of viewing and being viewed as a gendered body.

“Technology has accelerated the recursive gaze to the point that we continually perform and project back onto each other our internalized expectations for unattainable perfection,” said artist Stefani Byrd, an MFA alumna in Visual Arts who is also a lecturer in the department's ICAM major. "This poly-vocal performance will use large-scale data visualizations and live performers to make explicit both the collective gaze and the implicit impact of being seen.” Read more

Internet of Things Specialization Among First Lab-Based Online Courses

More than 30,000 people from around the world have expanded the so-called Internet of Things (IoT) through a Coursera course taught by a team of researchers from the University of California, San Diego Qualcomm Institute.

The six-part course, titled “Build Your Own Internet of Things,” is part of Coursera’s new IoT specialization, one of the first such specializations
the online education company has rolled out over the past year. The on-demand massive open online course (MOOC) was designed to appeal to not only students of electrical and computer engineering, but also entrepreneurs, innovators and members of the DIY community who seek to develop skills in embedded systems with a focus on data sensing, actuation, processing and communication. So far, it has drawn the interest of 30,815 active users across the six courses, with 1,700 paying to receive a certification for the course. Read more

Researchers Explore Multimodal Technology for Assessing Stroke Victims

CSE research assistant professor Nadir Weibel is leading a small, interdisciplinary team that has been awarded a Frontiers of Innovation Scholars Program grant to pursue a sensor-based approach to multimodal stroke signature.

The so-called Stroke-Kinect team includes colleagues in bioengineering, computer science and the UC San Diego School of Medicine. Led by CSE's Weibel -- who is also a member of the Design Lab located in the Qualcomm Institute -- the project was awarded $50,000, which will fund two graduate students in Weibel's Human-Centered and Ubiquitous Computing Laboratory: Ph.D. student Vishwajith (Vish) Ramesh from Bioengineering, and CSE Ph.D. student Steven Rick on the project.

It was one of more than 400 high-caliber proposals submitted as part of this year's FISP grant solicitation by the university. Read more

Two New Faculty Members Join Center for Networked Systems

The Center for Networked Systems (CNS) at UC San Diego now has 22 faculty members following the addition of two new professors to its ranks. Both Naval Research and other funding agencies. She is available to support projects to be submitted through QI Business Office as well as through other business offices on campus. For more information, email Molly at mwofford@ucsd.edu.

Advancing the Science of Geriatric Palliative Care (R21) [PA-17-226]
Proposal Deadline: June 16, 2017

Hearing Health Care for Adults: Improving Access and Affordability (R21) [PA-17-227]
Proposal Deadline: June 16, 2017

NSF Small Business Technology Transfer Program Phase I (STTR) [NSF 17-545]
Proposal Deadline: June 14, 2017

Small Business Innovation Research Program Phase I (SBIR) - June 2017 Submission [NSF 17-544]
Proposal Deadline: June 14, 2017

Big Data Regional Innovation Hubs: Establishing Spokes to Advance Big Data Applications (BD Spokes) [NSF 17-546]
Proposal Deadline: Sept. 18, 2017
newcomers – Deian Stefan and Aaron Schulman – joined the Computer Science and Engineering (CSE) faculty as assistant professors recently, with Stefan starting to teach last fall, and Schulman this winter. CNS has longstanding affiliations and overlapping research interests with the Qualcomm Institute.

“Professors Schulman and Stefan both work in the systems area, but their research interests also go well beyond networked systems,” said CNS co-director George Porter. “Both share an interest in secure systems. Schulman’s interests extend to embedded systems and even operating systems, and Stefan’s other major research focus is on programming languages. Both have a lot to bring to CNS’s research agenda.”

**UPCOMING EVENTS**

**Diversity and Resilience in Robot Networks**
Tuesday April 18, 11 a.m.
Calit2 Auditorium, Atkinson Hall, UC San Diego
Speaker: Amanda Prorok, University of Pennsylvania

**Jacobs School of Engineering Research Expo 2017**
Thursday, April 20, 1:30-6 p.m.
Price Center, UC San Diego
Speakers: Laurel Riek, CSE; Darren Lipomi, NanoEngineering; Farinaz Koushanfar, ECE

**QI Monthly Mixer Happy Hour**
Tuesday, April 25, 3:30-5 p.m.
Calit2 Theater, Atkinson Hall, UC San Diego
Meet and get to know fellow collaborators, staff, building residents and QI-affiliated researchers from across campus. Snacks, beer and wine will be served. Featured speakers this month:
• Falko Kuester and Dominique Rissolo of the QI Cultural Heritage Engineering Initiative (CHEI). They will discuss the Bermuda 100 Challenge, their ambitious campaign to document at least 100 ships and artifacts as well as culturally and naturally significant sites in Bermuda's shallow reefs.
• QI Program Manager (and former Mixer host) Alexandra Hubenko, who will lead us through a 'guided tour' of the many QI projects she's worked on over the years.

Exploring Ethics: Self-Driving Cars
Wednesday, May 3, 5 p.m. reception; 5:30 p.m. talk
Fleet Science Center Community Forum, Balboa Park, 1875 El Prado, San Diego 92101
Speaker: Mohan Trivedi, UC San Diego
Read more

Center for Wireless Communications 5G & Beyond Forum
Thursday, May 4 to Friday May 5, all-day
Calit2 Auditorium, Atkinson Hall, UC San Diego
Speakers: Eugene Chi (Microsoft); Gene Dankster (Qualcomm Life); Tim Talty (GM)
Read more

Additional QI events

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