How can we best harness the advances of technology to address the most important challenges facing the world today? More than at any time in history, technological resources offer the opportunity to dramatically improve the quality of our health and planet by reducing the time it takes to cure diseases, anticipating natural disasters and their needed response, and developing cost-effective and energy-saving transportation for communities around the world.

Catalyzing our future

To make the most of technology’s greatest promise, we must tap into the power of collaboration. By empowering experts and visionaries to work together rather than in isolation and by partnering in the training of the next generation of leaders, we will change the world in unprecedented ways.

The success of UC San Diego’s Qualcomm Institute (QI) is exactly what we mean by continuing the nontradition. It has a distinguished 18-year history of promoting multidisciplinary imagination and a powerful team approach when assessing problems and the design of their solutions. This versatility is the deciding factor in QI’s extraordinary productivity. It is precisely the right aptitude for resolving grand challenges now and in the future.

With your support of QI through the Campaign for UC San Diego, we will bolster and grow powerfully original research and move to the next chapter in our history — an expansion into high-impact educational offerings for different stages of student development. We will train new generations of technologists to be purveyors of QI’s ethos and effect.
The density and diversity of research at the Qualcomm Institute has produced breathtaking results. Following are samples:

**Vital visualization**
Before the devastating Hurricanes Maria and Irma hit the Caribbean in 2017, QI engineer Eric Lo and partners across campus mobilized to document coastlines and architectural treasures at heightened risk of destruction. The team used drones, laser scanners, specialized cameras known as CAVEcams, and an imaging technique known as structure-from-motion photogrammetry. Their work will serve as an archive for restoration and coastline management, critically important in our era of climate volatility.

**Next-generation communication**
Alexander Vardy, a QI-affiliated faculty member, working in collaboration with Ido Tal, a former postdoctoral fellow, at QI’s Information Theory and Applications Center, developed a new method for improving the reliability of high-speed data transmission. Their work, which introduces a new decoding algorithm for polar codes along with a subtle modification of their structure, has been adopted as part of the worldwide 5G telecommunications standard.

**Interpreting discovery**
Innovative communications hold the power to reshape minds through heightened experience, from the level of the individual to masses in the millions. QI’s Digital Media Library provided foundational technical support to Birch Aquarium at Scripps during its R/V Sally Ride Exhibit from 2016-17. A live transmission from the R/V Sally Ride offered Birch Aquarium’s thousands of visitors a real-time view of expeditionary research and with it an indelible understanding of Scripps Institution of Oceanography’s global reach.

**Refocused innovation**
As neuroscientists learn more about autism spectrum disorder (ASD), leading innovators like QI researcher Leanne Chukoskie are opening their technology toolbox. At QI’s Power of NeuroGaming (PONG) lab, Dr. Chukoskie designs video games to improve the ability of players to shift their attention rapidly, a defining difficulty for individuals with ASD. In true QI spirit, Dr. Chukoskie has designed the work itself as an intervention, recruiting individuals who self identify as being on the ASD as game developers. Sharing their excitement for computing and animation helps interns develop their creative potential, critical to establishing productive careers.

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**A history of bright tomorrows**

Established nearly 20 years ago, the Qualcomm Institute (QI) is the UC San Diego division of the California Institute for Telecommunications and Information Technology (Calit2), one of four Gray Davis Institutes for Science and Innovation located on University of California campuses.

The institute’s strategic vision stresses collaborative, interdisciplinary research of immediate benefit to society. Our Atkinson Hall location offers state-of-the-art facilities for prototyping a wide range of technologies, including nanofabrication labs as well as visualization arrays, to nurture the development and application of novel devices, sensors, and augmented reality/virtual reality (AR/VR) systems.
Qualcomm Institute 2.0

At this point in our development, the Qualcomm Institute proposes a new mile marker of programmatic evolution — educational programs integrating core QI aptitudes for training new generations of technologists. QI centers and labs have involved students on their teams from day one, but we are now at a point where it makes sense to build out educational opportunities strategically designed to make the most of QI’s creative, collaborative culture.

QI scholars will be humankind’s technological pilots, steering endeavors that maximize resource efficiencies and connect distinct innovations as force multipliers of impact. For example, consider pioneering developments in sensing technology. Sensors designed by QI-affiliated researchers can measure touch pressure, pH levels, bioelectrical activity, and much more. Sensor-specializing engineers primed to collaborate can extend the reach of their projects to incorporate the latest findings in microchips, materials, wireless communications, and societal infrastructure.

New efforts will not supplant the important role of traditional academic departments — rather they will constitute an appealing destination for students not fully served by the traditional university path of deep specialization. As UC San Diego sets ambitious growth targets for both our undergraduate and graduate student populations, new educational options elevate the enterprise as a whole.

Our history proves the value of QI ingenuity. Our students are the bearers of its future. With your partnership, QI can bring our integrated impact to scale.
The means for aspiration

The Qualcomm Institute offers a number of opportunities for partnering philanthropists to serve catalyzing roles in our strategic evolution.

Endowed Centers and Labs
QI’s visionary research is conducted by faculty affiliates, research scientists and engineers, and students. Named endowments of new or existing centers and labs will provide maximum continuity for research teams and will enhance their ability to steer the direction of their research.

Next-Century Facilities
Atkinson Hall is the campus’s premiere location for technology exploration. It also serves as a focal point for high-profile campus and industry events, outfitted with standard-setting audio-visual equipment. Support of the Qualcomm Institute provides critical resources for updating and reconfiguring equipment to keep pace with QI discovery.

QI Industry Partnerships
Without question industry plays a critical role in innovation-fueled transformation, introducing users and systems to new products and services. QI’s partnerships with industry span the range from foundational science to gestation of startups. As we design new educational offerings, industry partners will share their unique perspectives with students on opportunities to reconfigure existing systems and structures for the better.

Educational Programs
Direct support of education programs will enable mentorship in the fluid, creative, wide-ranging exploration that conditions the Qualcomm Institute’s unique variety of innovation. Recognition of visionary giving will align a transformational donor’s legacy with a cadre of changemakers, an impact compounding over time.
Help us continue the nontradition.

It takes a collective effort to make the future of our dreams.

The world needs the power and productivity of QI scholars to solve problems of an unprecedented scale. And we need your watershed philanthropic support to achieve our strategic growth.

Through the support of visionary philanthropists, QI can continue our future-making nontradition by populating its world-class facilities with research professors, graduate scholars, and visiting researchers from partnering universities and industry.

As part of the Campaign for UC San Diego, we invite you to actualize QI’s aspirational future by considering substantial support of one or more of our solution-catalyzing initiatives. Through your high-impact investment, QI will educate generations of the world’s most effective innovators. You will develop the field that turns creative potential into world-changing creative achievement.
For more information about supporting the Qualcomm Institute at UC San Diego or making other contributions to advance our vital work, please contact:

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