Ramesh Rao
Director, Qualcomm Institute
(UCSD Division, Calit2)
Qualcomm Professor
Electrical and Computer Engineering
Jacobs School of Engineering
University of California San Diego
Calit2: 15 years of Institutional Innovation

- Reinventing Land Grant Mission for 21st Century
  - The University of Tomorrow, Here Today
  - Living Laboratories of the Future
  - Community Deployments of Leading Edge Technologies
  - Novel Partnerships with Industry
  - Preparing the Workforce of Tomorrow (Cross-Trained Students to CTOs)
  - Engaging the State, National, and International Institutions

- Complementing Departmental Capabilities:
  - Catalytic Cauldron for Multidisciplinary Team Formation
  - Broad Range of Full-Time Technical Professionals
  - Projects at Scale and Persistent Infrastructure
  - Multi-Departmental and Multi-Campus
  - Real-World Applications
  - Shared World-Class Facilities
  - System Integration of Faculty Research Components
Qi Creates Shared-Use Facilities

- **Nano3 Cleanroom Nanofabrication Facilities**
  - 7,000 sq. ft. of Class 100, 1000 and 10,000 rooms
  - 3,000 sq. ft. of analytical, design and materials characterization labs
  - E-beam lithography and photolithography, atomic layer deposition etc.
- **Circuits Labs / Design and Fabrication Laboratory**
- **Photonic Systems Laboratory**
  - Industry-scale lab modeled on Bell and AT&T Labs
  - 2,000 sq. ft. lab supports true terabit-scale networking and signal processing
- **Chip-Scale Photonic Testing Facility**
  - In-kind donations from Agilent Technologies
  - Part of Qi’s participation in Center for Integrated Access Networks ERC
- **Immersive Visualization Laboratory**
  - StarCAVE 3D, 360-degree virtual reality environment
  - NexCAVE
  - Virtulab
- **HIPerSpace / GRAVITY Lab**
Qi Nurtures Large-Scale Projects

- **Ocean Observatories Initiative Cyberinfrastructure**
  - $32M NSF
  - Will peak at 40 staff

- **Community Cyberinfrastructure for Advanced Microbial Ecology Research and Analysis (CAMERA)**
  - $24.5M from Gordon and Betty Moore Foundation
  - Over 4,500 registered users from over 80 countries

- **OptIPuter**
  - $13M NSF

- **King Abdullah University of Science and Technology**
  - $8M from KAUST for visualization at new campus

- **Wireless Internet Information System for Medical Response in Disasters (WIISARD and WIISARD SAGE)**
  - $7M NIH’s National Library of Medicine ($4M WIISARD, $3M WIISARD SAGE)

- **Responding to Crises and Unexpected Events (RESCUE)**
  - $3.5M NSF (plus $9M at Calit2 Irvine)
Qi Initiates New Centers

• **Center for Information Theory and Applications**
  – Study of Information Theory fundamentals and applications to communications, computer- and life-sciences, finance, statistics, and related disciplines
  – Alon Orlitsky

• **Center of Interdisciplinary Science for Art, Architecture and Archaeology CISA3**
  – Maurizio Seracini, Falko Kuester

• **Center for Algorithmic and Systems Biology**
  – Pavel Pevzner, Steve Briggs
C-School?

- **Founders**
  - Rene Cruz: Mushroom
  - Sujit Dey: Ortiva
  - Ingolf Krueger: LonoCloud

- **CEOs**
  - Cahit Akin: Mushroom
  - Kai Doer: HiPerworks

- **CTOs**
  - Rajesh Mishra: Mushroom
  - Don F. Kimball: MaxCentric
  - Doug Palmer: Intellisys
  - Babak Jafarian: SkyRiver
  - Per Johansson: MaxCentric
Qi : Path Forward