



SANTA CLARA UNIVERSITY

Department of Mechanical Engineering

Mechanical Engineering Seminar Series

Mobile phones as medical devices: Diagnosis of neglected diseases and beyond

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Date: Wednesday, February 1, 2017

Time: 4:00 – 5:00 pm

Location: Bannan Engineering, EC 326

Abstract

Light microscopy remains a critical tool for disease diagnosis throughout the world. Direct imaging of pathogens in blood, sputum, and stool samples can provide a rapid and definitive diagnosis of a broad range of diseases. However, microscopy also requires appropriate equipment and skilled technicians not routinely available in low-resource settings. In recent years, mobile phones have shown promise as disease diagnostic tools. The camera of mobile phones can be converted into a light microscope with sufficient resolution to identify causative agents of disease, and the continuously increasing computational power of mobile phones has opened the possibility of harnessing them for automated point-of-care diagnoses. This talk will describe ongoing work that combines high-resolution mobile phone microscopy with both hardware and software automation to enable disease diagnosis in low resource settings.

Biography

Dr. Dan Fletcher is the Chatterjee Professor of Engineering Biological Systems at UC Berkeley, where he also serves as Chair of the Bioengineering Department and Chief Technologist of the Blum Center for Developing Economies. Dr. Fletcher received a B.S. from Princeton University, a D.Phil. from Oxford University as a Rhodes Scholar, and a Ph.D. from Stanford University as an NSF Graduate Research Fellow. His bioengineering and biophysics research has been recognized with an NSF CAREER Award, a Tech Award from the San Jose Tech Museum, and a "Best of What's New" designation by Popular Science magazine. He served as a White House Fellow in the Office of Science and Technology Policy, is an elected Fellow of the American Institute for Medical and Biological Engineering, and was named one of Foreign Policy's 100 Leading Global Thinkers. Dr. Fletcher's mobile phone-based disease diagnostic devices are being tested in multiple countries with support from the Bill and Melinda Gates Foundation and USAID.