Computational Microscopy, Sensing and Diagnostics for Telemedicine and Global Health Applications



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Free Webinar

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Dr. Aydogan Ozcan, UCLA

With more than 6 billion cell phone users in the world, the majority of them in developing countries, there are opportunities for point-of-care diagnostics and/or microscopic imaging applications using state-of-the-art phone technology. This can improve health care, especially in the developing world where medical facilities and infrastructure are extremely limited or non-existent.



Dr. Ozcan will introduce new imaging and detection architectures that compensate digitally for the lack of complex optical components available in cell phones by using novel theories and algorithms to address the immediate needs of telemedicine for global health problems. Ozcan will present an onchip cytometry and microscopy platform that uses cost-effective and compact components to enable digital recognition and 3-D microscopic imaging of cells with subcellular resolution over a large field of view without the need for any lenses, bulky optical components or coherent sources such as lasers.

This modality has orders of magnitude improved light collection efficiency and is robust to misalignments, making it highly suitable for field use. Applications to high-throughput imaging and automated counting of whole blood cells, monitoring of HIV+ patients and detection of waterborne parasites will also be demonstrated. Ozcan will also discuss lensfree implementations of various other computational imaging modalities on the same platform such as pixel superresolution imaging, lensfree on-chip tomography, holographic optofluidic microscopy/tomography.

Dr. Aydogan Ozcan received his PhD at Stanford University Electrical Engineering Department. After a short post-doctoral fellowship there, he was appointed as a research faculty at Harvard Medical School, Wellman Center for Photomedicine in 2006. Dr. Ozcan joined UCLA in the summer of 2007, where he is currently an associate professor leading the Bio- and Nano-Photonics Laboratory at the electrical engineering and bioengineering departments.

Computational Microscopy, Sensing and Diagnostics for Telemedicine

Title: and Global Health Applications

Date: Wednesday, June 5, 2013

Time: 1:30 PM - 2:30 PM EDT

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System Requirements

PC-based attendees Required: Windows® 7, Vista, XP or 2003 Server

> Mac®-based attendees Required: Mac OS® X 10.6 or newer

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