Distinguished Lecture Series

EECS COLLOQUIUM

Fall 2015

Wednesday
September 9
4:00 - 5:00pm

Refreshments
served at 3:30pm

Hewlett-Packard Auditorium
306 Soda Hall

The Big Picture: CMOS Image Sensors From Zero to Billions and Beyond

Eric Fossum
Professor of Engineering, Director, Ph.D. Innovation Program, Dartmouth

Abstract

This talk will discuss the technology story behind CMOS image sensors, from invention to state of the art ubiquitous imaging. We will also discuss some of the fundamental scientific principles behind image sensor operation and limits. The Quanta Image Sensor, a new paradigm in image acquisition will also be introduced. The QIS moves the process of image formation from the physical pixel to a computational environment through the use of spatial and temporal oversampling, and the elimination of read noise.

Biography

Dr. Eric Fossum is a Professor at the Thayer School of Engineering at Dartmouth and Director of the School's Ph.D. Innovation Program. He is a semiconductor device physicist and engineer specializing in image sensor technology. He is best known for the invention of the CMOS image sensor now used in billions of cameras. He was inducted into the National Inventors Hall of Fame in 2011.

He received his B.S. in Physics and Engineering from Trinity College in 1979, his Ph.D. from Yale in 1984 and became an EE faculty member at Columbia University. In 1990 he was recruited to the NASA Jet Propulsion Laboratory at Caltech where he managed JPL's image sensor and focal-plane technology R&D and invented the CMOS image sensor. He then co-founded and led Photobit Corporation to commercialize the technology. Photobit was acquired by Micron in 2001. He later served as CEO of Siimpel Corporation to commercialize MEMS auto-focus actuators for camera phones. Siimpel was subsequently acquired by Tessera. He worked with Samsung Electronics before joining Dartmouth in 2010.

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