PTICAL SOCIETY OF SOUTHERN CALIFORNIA

Meeting Announcement

January 14, 2015

Lensless ultra-miniature computational sensors and imagers:
Using computing to do the work of optics

Dr. David G. Stork
Rambus Fellow
Rambus Labs

Abstract: We describe a new class of computational optical sensors and imagers that do not rely on traditional refractive or reflective focusing but instead on special diffractive optical elements integrated with CMOS photodiode arrays. Images are not captured, as in traditional imaging systems, but rather computed from raw photodiode signals. Because such imagers forgo the use of lenses, the sensor portions can be made unprecedentedly small—roughly as small as the cross-section of a human hair. Such imagers have extended depth of field, from roughly 1*mm* to infinity, and should find use in numerous applications, from endoscopy to infra-red and surveillance imaging, automotive imaging and more. Furthermore, the gratings and signal processing can be tailored to specific applications from visual motion estimation to barcode reading and others.

About our speaker: **David G. Stork** is Rambus Fellow and Research Director of the Computational Sensing and Imaging Group at Rambus Labs. A graduate in physics from MIT and the University of Maryland, Dr. Stork has published eight books/proceedings volumes, including *Pattern classification* (2nd ed.) and *Seeing the Light: Optics in nature, photography, color, vision and holography* and has held faculty appointments in eight disciplines variously at Wellesley and Swarthmore Colleges and Clark, Boston and Stanford Universities. He holds 45 issued patents and is Fellow of the International Association for Pattern Recognition (IAPR), of the International Academy, Research, and Industry Association (IARIA) and of SPIE.

Enter campus from Temple Avenue, turning right on University. Once on campus, turn right at sign for Kellogg West, and go up the hill. Parking is free in the Kellogg West lot.

Wednesday, January 14, 2015

Reception: 6:00; Dinner: 7:00; Talk: 8:00
Meal: Buffet Style
Cost: $35 for registration by Jan. 7, $40 after
(OSSC Student Members register free by Jan. 7, $10 after)

Kellogg West Conference Center
Cal Poly Pomona Campus
3801 Temple, Pomona, CA 91768
909-869-2222

On-line Registration: www.ossc.org or
Contact: Kenn Bates
Events@ossc.org, 562-634-1435