מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building
on Thursday, Jul 02, 2015
at 12:15

Kyros Kutulakos
University of Toronto

Transport-Aware Cameras

Abstract:

Conventional cameras record all light falling onto their sensor regardless of the path that light followed to get there. In this talk I will present an emerging family of video cameras that can be programmed to record just a fraction of the light coming from a controllable source, based on the actual 3D path followed. Live video from these cameras offers a very unconventional view of our everyday world in which refraction and scattering can be selectively blocked or enhanced, visual structures too subtle to notice with the naked eye can become apparent, and object appearance can depend on depth.
I will discuss the unique optical properties and power efficiency of these "transport-aware" cameras, as well as their use for 3D shape acquisition, robust time-of-flight imaging, material analysis, and scene understanding. Last but not least, I will discuss their potential to become our field's "outdoor Kinect" sensor---able to operate robustly even in direct sunlight with very low power.

Kyros Kutulakos is a Professor of Computer Science at the University of Toronto. He received his PhD degree from the University of Wisconsin-Madison in 1994 and his BS degree from the University of Crete in 1988, both in Computer Science. In addition to the University of Toronto, he has held appointments at the University of Rochester (1995-2001) and Microsoft Research Asia (2004-05 and 2011-12). He is the recipient of an Alfred P. Sloan Fellowship, an Ontario Premier's Research Excellence Award, a Marr Prize in 1999, a Marr Prize Honorable Mention in 2005, and three other paper awards (CVPR 1994, ECCV 2006, CVPR 2014). He also served as Program Co-Chair of CVPR 2003, ICCP 2010 and ICCV 2013.