Making ordinary cameras extraordinary

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The convergence of computations with optics and imaging that started a few decades ago has created high quality, high dynamic range, low-light, and high resolution images and videos and are in all our smart-phones today. In this talk, I will summarize current research that combines computing with existing CMOS sensors and has the potential to, quite simply, change what it means to be a camera. I will show cameras with extraordinary abilities that can see beyond the line of sight, see deep beneath the skin, see audio and mechanical vibrations, see better in poor weather and murky waters, see beneath the surface of crops, and much more. Much like the research during 1990-2010 transformed personal photography, current computational imaging research has the potential to impact many domains including healthcare, transportation, robotics and agriculture.

the CHAI talk series

Venue: Online*
Time: 7 PM IST
11th Oct 2023

About the Speaker

Srinivasa Narasimhan is a Professor of the Robotics Institute at Carnegie Mellon University. He served as Interim Director of the RI from Aug 2019 to Dec 2021. He obtained his PhD from Columbia University. His group focuses on novel techniques for imaging and illumination to enable applications in vision, graphics, robotics, agriculture, intelligent transportation and medical imaging. His works have received more than a dozen Best Paper or Best Demo or Honorable mention awards at major conferences. In addition, he has received the Ford URP, Okawa Research and the NSF CAREER Awards. He is the co-inventor of several technologies including programmable headlights, Aqualux 3D display, Assorted-pixels, Motion-aware cameras, Episcan360, Episcan3D, EpiToF3D, and programmable triangulation light curtains. He serves on the editorial board of the International Journal of Computer Vision and serves frequently as an Area Chair of top computer vision conferences (CVPR, ICCV, ECCV, BMVC, ACCV, 3DV).

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