

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: Cross-Channel Image Noise Modeling and Hyperspectral Imaging with Everyday Digital Cameras

Speaker: Seon Joo Kim
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Date/Time: 19 April 2016, Tuesday, 03:00 PM to 04:00 PM

Venue: MR6, AS6-05-10

Chaired by: Dr Brown, Michael Scott, Associate Professor, School of Computing
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Abstract:

In this talk, I will present two independent works that are related to computational photography. First, I will show the influence of the in-camera imaging pipeline on noise and propose a new noise model in the 3D RGB space to account for the color channel mix-ups. A data-driven approach for determining the parameters of the new noise model is introduced as well as its application to image denoising. In the second part of the talk, I will introduce a framework for reconstructing hyperspectral images by using multiple consumer-level digital cameras. Our approach works by exploiting the different spectral sensitivities of different camera manufacturers and this allows hyperspectral imaging at a fraction of the cost of most existing hardware.

Biodata:

Seon Joo Kim received the BS and MS degrees from Yonsei University, Seoul, Korea, in 1997 and 2001. He received the PhD degree in computer science from the University of North Carolina at Chapel Hill in 2008. He is currently an assistant professor in the Department of Computer Science, Yonsei University, Seoul, Korea. His research interests include computer vision, computer graphics/computational photography, and machine learning.