



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

How to Build a Smart Camera System

By

Dr. XUE Tianfan
Google Research, USA

Date : 11 March 2022 (Friday)

Time : 11:30am – 12:30pm

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Abstract

AI-empower smart cameras are widely used in our daily life, from the smart editing on mobile cameras, to scene understanding on self-driving cars. A smart camera is not simply applying AI algorithms to images captured by cameras, but redesigning the entire camera pipeline, including capturing, processing, editing and analysis. In this talk, I will share our recent efforts to improve each step using computational photography and machine learning techniques. I will present how to strengthen visual signals or remove visual obstruction by using multiple cameras and sensors at the capturing time. I will share how to train efficient image processing networks, including denoising and flare removal, using synthetic data. At last, I will discuss how to aggregate multi-modality information to better edit captured images.

Biography

Dr. Tianfan Xue is a researcher in the computational photography team at Google Research. He received his Ph.D. degree from the Computer Science and Artificial Intelligence Laboratory (CSAIL) of Massachusetts Institute of Technology in 2017 and M.Phil. degree from Department of Information Engineering in The Chinese University of Hong Kong in 2011. His research focuses on computational photography, computer vision and graphics, and machine learning. His work on reflection removal is used by Google Photoscan, with more than ten million users, and his work on fast bilateral learning is integrated into Google Tensor Chip. He also served as the web chair of the Conference on Computer Vision and Pattern Recognition (CVPR) 2020.

**** ALL ARE WELCOME ****