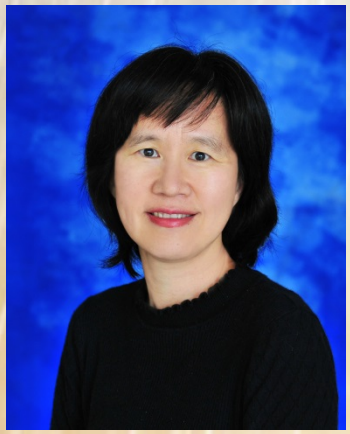
邱瀞德 教授



Ching-Te Chiu received her B.S. and M.S. degrees from National Taiwan University, Taipei, Taiwan. She received her Ph.D. degree from University of Maryland, College Park, Maryland, USA, all in electrical engineering. She was an Associate Professor with National Chung Cheng University, ChiaYi, Taiwan. She was member of technical staff with AT\&T, Murry Hill, New Jersey, and at Lucent Technologies, Murry Hill, New Jersey, and with Agere Systems. She is currently a Professor at the Computer Science Department and Institute of Communications Engineering, National Tsing Hua University, Hsinchu, Taiwan. Her research interests include High Dynamic Range Image and Video Processing, Super Resolution, Pattern Recognition, High Speed SerDes design, Multi-chip Interconnect, and Fault Tolerance for Network-on-Chip design. Dr. Chiu won the first prize award, the best advisor award, and the best innovation award of the Golden Silicon Award in 2006. She serves as a TC member of the IEEE Circuits and Systems Society, Nanoelectronics and Gigascale Systems Group, and the IEEE Signal Processing Society, Design and Implementation of Signal Processing Systems group. She is the program chair of the first IEEE Signal Processing Society Summer School at Hsinchu, Taiwan 2011 and technical program chair of IEEE workshop on signal processing system (SiPS) 2013. She serves as associate editor of IEEE Transactions on Circuits and Systems I and Journal of Signal Processing Systems.

陳煥宗 教授

Hwann-Tzong Chen received his PhD in Computer Science from National Taiwan University in 2006. He is currently an associate professor in the Department of Computer Science at National Tsing Hua University. His research interests include computer vision, image processing, and machine learning. He has served in the program committees of several international conferences, including CVPR, ICCV, ACCV, and ICME.

High Dynamic Range Imaging

Prof. Ching-Te Chiu

New generations of display technologies provide a significantly improved dynamic range compared to conventional display devices. Inverse tone mapping methods have been proposed to convert low dynamic range (LDR) images to HDR ones, and several of them require multiple exposure LDR images of the same scene as inputs. However, the vast majority of LDR images and videos available have only one single exposure. In this talk, we present a region-based enhancement of the pseudo-exposures to generate a HDR image. First, we present an exposure dependent S curve to convert one LDR image to the pseudo-multiple-exposures. Only certain regions of the pseudo exposures contain noticeable detail information. We propose a region-based enhancement on the pseudo-exposures to boost details in the most distinct region. Thereby the region-enhanced pseudo-exposures are fused into a HDR image. The fused image thus enhances details in the bright region of the dark image and the dark region of the bright image. Compared with other inverse tone mapped methods, our method generates lower total contrast error measured under the dynamic range independent image quality assessment method.

Prof. Hwann-Tzong Chen

In this talk I will review some recent patch-based methods for capturing high dynamic range (HDR) images and videos. One of the most practical way to acquire HDR images or videos is to capture multiple low dynamic range (LDR) frames under varying exposures. A big challenge of recovering HDR images or videos from the LDR frames is that the reconstruction results often suffer from unappealing artifacts for scenes with significant motion. I will describe in detail how this problem can be solved by patch-based synthesis and optical flow in an energy-minimization formulation.