



DISTINGUISHED LECTURE SERIES

Interpretable, Green, and High-performance Image Denoising and Single-Image Super-Resolution

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Electrical and Computer Engineering and
Computer Science, USC

Thursday, Dec 3, 2024 10:00am

Auditorium 106, at IIS new Building



Abstract

Image denoising and single-image super-resolution are two classical image-processing problems. They have been extensively studied for 60+ years, and numerous algorithms have been proposed to solve them. In the last decade, deep learning (DL) has become the dominating methodology at the cost of higher computational complexity and larger model size. A substantial performance gap exists between DL-based and non-DL-based methods. It is intellectually challenging to explain such a gap. It is also meaningful to find a non-DL-based method that strikes a good balance between interpretability, greenness, and high performance. We have pursued such solutions for a long time (more than four years) and recently obtained some encouraging results. I will present our findings and new solutions in this talk.

Biography

Dr. C.-C. Jay Kuo received his Ph.D. from the Massachusetts Institute of Technology in 1987. He is now with the University of Southern California (USC) as Ming Hsieh Chair Professor, Distinguished Professor of Electrical and Computer Engineering and Computer Science, and Director of the Media Communications Laboratory. His research interests are in visual computing and communication. He is a Fellow of AAAS, ACM, IEEE, NAI, and SPIE and an Academician of Academia Sinica. He is currently the Editor-in-Chief for the APSIPA Trans. on Signal and Information Processing (2022-2025). He has guided 178 students to their Ph.D. degrees and supervised 31 postdoctoral research fellows.

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