Objective Image Quality Assessment: Facing the Real-World Challenges

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VENUE G7315, 7th Floor, Green Zone
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ABSTRACT

There has been an incredible growing interest in recent years in the development of objective image quality assessment (IQA) models that are able to automatically predict the perceptual quality of images and benchmark the performance of image processing algorithms and systems. In practice, however, the wide usage of such models has been substantially hampered by a series of real-world challenges. For example, how to provide consistent quality assessment across end users' viewing devices, spatial resolutions, frame rates, and dynamic ranges has not been well addressed. Furthermore, a large body of applications require to use objective IQA models to guide the design and optimization of various algorithms and systems. Such design and optimization challenges encompass the greatest potentials of IQA research but have not been deeply exploited. In this talk, we show that the full chain of image acquisition, processing, coding, communication and display processes could greatly benefit from advanced research on IQA modeling and optimization. We will demonstrate the ideas using various examples from state-of-the-art research works.

BIOGRAPHY

Prof Zhou Wang is a Professor in the Department of Electrical and Computer Engineering, University of Waterloo. His research interests include image processing, coding, communication, and quality assessment; computational vision and pattern analysis; and multimedia coding and communications. He has more than 100 publications in these fields with more than 30,000 citations. His work on structural similarity (SSIM) based image and video quality assessment has received wide recognition in academia and broad usage in the industry. Prof Wang is a Fellow of IEEE, a Fellow of Canadian Academy of Engineering, and a recipient of 2009 IEEE Signal Processing Society Best Paper Award, 2013 IEEE Signal Processing Society Best Magazine Paper Award, 2014 Steacie Memorial Fellowship Award, 2015 Primetime Engineering Emmy Award, and 2016 IEEE Signal Processing Society Sustained Impact Paper Award.

All are welcome!