

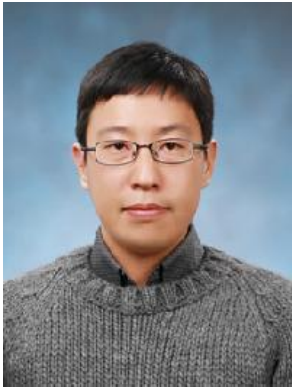
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Title: Neural Network-based Video Coding Techniques with Future Research Issues

Abstract:

Current neural network-based video coding techniques have been studied in two different directions: (1) integrating neural networks into the conventional codec framework for better prediction and (2) adopting auto-encoder structures for end-to-end image/video compression. While the results are promising, further research is required to develop the next generation of neural networks-based video codecs. In this presentation, we first explain the technical components and architectures of neural video compression methods, highlighting their challenges and some ideas to overcome the problems. Additionally, with the emergence of implicit neural representation (INR) for image/video, we discuss the developments in INR-based video compression techniques and future research directions.

Biography:



Dr. Je-Won Kang received his Ph.D degree in 2012 from the University of Southern California (USC), Los Angeles, USA. From 2011 to 2012, he was a visiting scholar at Tampere University and Nokia research center. From 2012 to 2014, he served as a senior engineer at the Multimedia RnD and Standard team in Qualcomm, San Diego, USA. He made significant contributions to the international 2D and 3D video coding standards. In 2014, he joined the Department of Electronic and Electrical Engineering at Ewha Womans University, where he now leads the Information Coding and Processing Lab as a full professor. He was a visiting professor in Harvard Medical School and Massachusetts General Hospital in 2021. He has published more than 100 peer-reviewed papers and holds more than 50 standard-essential patents. His research interests are in the areas of video compression, multi-modal content analysis, and computer vision.