**Bio-Inspired Image Quality Assessment: Bridging Human and Computer Vision**.

Abstract: Data Quality Assessment (DQA) aims to develop computational models that automatically estimate the quality of human-perceived data such as images, videos, and speech. Recent advancements in this field have leveraged bio-inspired approaches, drawing insights from computational neuroscience and biology to mimic aspects of the human visual system. This allows computers to "see" more like humans, bridging the gap between human and machine vision. A significant challenge in Image Quality Assessment (IQA) is evaluating the quality of a single image without or with a reference, as images often suffer distortions during acquisition, processing, transmission, compression, storage, and reproduction. This talk explores the latest developments in perception-guided quality assessment, including single-image. We question the continued reliance on traditional metrics like Mean Squared Error (MSE) and consider whether it's time to adopt more advanced methods. We discuss how models inspired by biological vision systems offer novel, robust, and computationally efficient techniques for assessing image quality. Additionally, we provide a synopsis of recent breakthroughs in single-image "blind" IQA and examine how these advancements will shape the future of visual technology, impacting areas from photography and video to medical imaging. We will showcase our latest research breakthroughs in IQA, comparing them to established benchmarks and illustrating how they enhance our understanding of biological visual systems. Participants will gain insights into how bio-inspired computation is revolutionizing image quality assessment and optimization, ushering in a new era of visual technology.