Department of Computer Science

香港城市大學
City University of Hong Kong

From Perception to Cognition: Psychology-Inspired Image Quality Assessment

SPEAKER **Prof. Baoliang CHEN**

Associate Professor
Department of Computer Science,
South China Normal University

DATE 9 Feb, 2026 (Mon)

TIME 1:30 PM - 2:30 PM

VENUE CS Seminar Room, Y6405, 6th Floor, Yellow Zone, Yeung Kin Man Academic Building, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon Tong

ABSTRACT

Traditional Image Quality Assessment (IQA) has long relied on perceptual signal modeling, yet it often fails to capture the complex cognitive mechanisms underlying human judgment, especially in the era of AI-generated content. This talk proposes a transformative paradigm that shifts IQA from basic perception to advanced cognition by integrating psychological and psychometric principles. By employing Prospect Theory, we introduce a "reference-dependent" framework that recalibrates Large Multimodal Models, shifting their focus from semantic dominance to quality-aware cognition. This psychological grounding is further strengthened by Graded Response Modeling and rank-consistency priors, which resolve semantic drift and unify disparate human subjective scales. Finally, we introduce Granularity-Modulated Correlation (GMC) to provide a multi-dimensional lens on model performance. Collectively, these innovations demonstrate that anchoring AI in human cognitive traits leads to more robust, interpretable, and human-centric evaluation systems.

BIOGRAPHY

Baoliang Chen is currently an Associate Professor in the Department of Computer Science at South China Normal University. He earned his Ph.D. in Computer Science from City University of Hong Kong in June 2022 under the supervision of Prof. Shiqi Wang. Previously, he received his M.S. degree in Intelligent Information Processing from Xidian University, supervised by Prof. Cheolkon Jung, in 2018, and his B.S. degree in Electronic Information Science and Technology from Hefei University of Technology in 2015. From 2022 to 2024, he was a postdoctoral researcher at City University of Hong Kong. His research focuses on image/video quality assessment and information forensics and security.

All are welcome!

In case of questions, please contact Prof. WANG Shiqi at shiqwang@cityu.edu.hk, or visit the CS Departmental Seminar Web at https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums.