



ARTISTE2025

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Keynote Speaker Bio



Yong Xia

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Write Your Bio Here (approximately 150 words)

Prof. Yong Xia is a Professor at the Department of Civil and Environmental Engineering of the Hong Kong Polytechnic University. He is the Director of the Guangdong-Hong Kong Joint Laboratory for Marine Infrastructure. Dr. Xia's main research area is structural health monitoring. He has developed advanced AI technologies and applied them to large-scale practical structures, including the 600-m tall Canton Tower, 632-m tall Shanghai Tower, 1377-m long main span Tsing Ma Bridge, 1018-m long main span Stonecutters Bridge, the world's longest 55-km long Hong Kong-Zhuhai-Macao Bridge, and PolyU Footbridge. He has published over 180 refereed international journal papers, co-authored three research books, and secured over 50 research projects totaling HK\$85 million (US\$11 million) as the PI. Dr. Xia is now the Co-Editor-in-Chief of *Advances in Structural Engineering*. He has been awarded The Nishino Prize, State Technological Innovation Award in China, PolyU President's Award, ASCE Greater China Award, among many others.

Keynote Title:

Computer Vision-based Full-field Vibration Measurement of Large-scale Structures

Write Your Abstract Here (approximately 150 words)

Full-field displacement measurement is essential in evaluating the structural performance of long-span bridges and high-rise buildings. This study develops a novel, cost-efficient, and high-resolution dynamic displacement monitoring method using one digital camera. The complex real environment and full-field motion are overcome by the developed phase-based optical flow algorithm. The technique is applied to a long-span bridge and a high-rise building. One camera was set at a far distance of over 600 m away to measure the full-field motion of the entire structure. Moreover, a Convolutional Bokeh tracking method is developed to measure the vibration of structures in the evening under low-light conditions.