

Advanced AI and Unmanned Systems for Infrastructure Inspection and Management

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Venue: P4302 (Purple Zone), 4/F,
Yeung Kin Man Acad Building

Abstract

In this talk, we aim to present the recent development of some unconventional unmanned systems and a fully autonomous infrastructure inspection and information management system with advanced AI and UAS technologies. The autonomous inspection system includes sophisticated unmanned hardware platforms and software systems for automatic flight control, task and motion planning, and AI techniques for RGB image and infrared data processing for defect detections. Topics on building information modeling (BIM) and management system integrated with detailed geographical information systems (GIS) and digital twin (DT) technologies will also be highlighted. Compared with the manual inspection, the autonomous inspection system that we have developed has the advantages of being more economical, safer, flexible and efficient. It can also be adopted for other industrial applications, including smart ocean and smart cities.

Biography

Ben M. Chen is currently a Professor of Mechanical and Automation Engineering at the Chinese University of Hong Kong (CUHK). Before joining CUHK in 2018, he was a Provost's Chair Professor in the Department of Electrical and Computer Engineering at the National University of Singapore, where he had worked for 25 years. He was an Assistant Professor in the Department of Electrical Engineering at the State University of New York at Stony Brook, USA, in 1992–1993, and was a Software Engineer at South China Computer Corporation, China, 1983–1986. His current research interests are in unmanned systems and their applications.

Professor Chen is an IEEE Fellow and Fellow of Academy of Engineering, Singapore. He has authored/co-authored hundreds of journal and conference articles, and ten research monographs in control theory and applications, unmanned systems and financial market modeling. He has served on the editorial boards of a dozen international journals including *Automatica* and *IEEE Transactions on Automatic Control*. He is currently serving as an Editor-in-Chief of *Unmanned Systems* and an Editor of *International Journal of Robust and Nonlinear Control*.

All are welcome

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