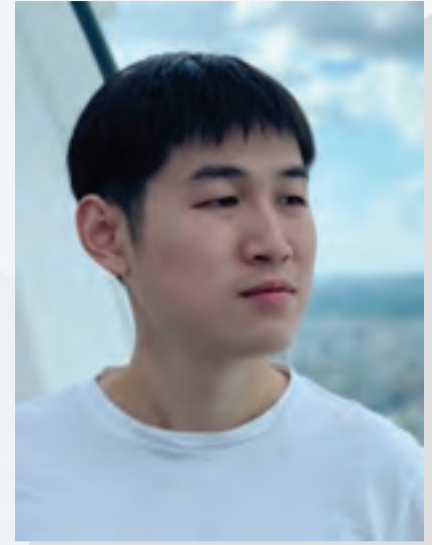




Department of
Systems Engineering

香港城市大學
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Robust Spatial Perception for Mobile Autonomy



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Lecturer

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22 February 2024 (Thu) | 10:30 am

Seminar Link: <https://cityu.zoom.us/j/98475435068>

Abstract

Spatial perception is the capacity to estimate one's location and movement, and understand surroundings through onboard sensors. This skill set comprises abilities like motion tracking, localization, environmental mapping, scene understanding, and dynamics modelling. Its robustness and reliability encounter challenges in real-world applications. Factors such as adverse weather conditions, complex lighting scenarios, camera occlusion, or sensor failures can render vision-based solutions fragile in dynamic environments. In this seminar, I will discuss our work in three main aspects, i.e., learned inertial odometry, robust visual perception and multimodal state estimation. Our research aims to develop robust and efficient spatial perception solutions for both human devices and intelligent unmanned systems, empowering them to operate safely and reliably in diverse environments.

About the Speaker

Changhao Chen is a Lecturer at College of Intelligence Science and Technology, National University of Defense Technology (NUDT), China. Before that, he conducted postdoctoral research and received Ph.D. degree from the Department of Computer Science, University of Oxford. His main research interests center on Robotics and Cyber-Physical Systems (CPS), with a specific focus on addressing the real-world challenges in robust localization, mapping, perception, and navigation for mobile agents. His research contributions have been featured in esteemed journals (e.g., *TNNLS*, *TMC*, *TIV*, *RA-L*) and conferences (e.g., *AAAI*, *CVPR*, *ICCV*, *ECCV*, *ICRA*, *IROS*, *WWW*, *MobiCom*, *MobiSys*, *SenSys*). Moreover, he was selected for China's Young Elite Scientist Sponsorship Program (2023) and the Robotics: Science and Systems (RSS) Pioneers (2020). His work received best paper nominees from IEEE DCOSS (2019) and ICGNC (2022).