

# LSGI RESEARCH SEMINAR

## Adaptive Decision-making of Autonomous Driving Vehicles for Smart Cities

 **19 DEC 2024 (THU)**

 **10:00 - 11:00 AM**

 **Z414, POLYU**

 **ENGLISH**

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*Professor  
York University, Canada*



### ABSTRACT

Autonomous driving vehicles (ADV) can positively contribute to smart cities. For autonomous driving vehicles (ADV), decision-making is crucial for safe and efficient driving. However, ADVs face significant challenges in coexisting with human road users, making fast and optimal driving decisions, and operating in unknown traffic environments with only incomplete information. Unsignalized intersection and lane-changing scenarios are particularly representative of such challenges, which involves complex dynamic interactions. ADVs need to assess and predict the driving preferences of nearby vehicles to optimize and adaptively adjust their own driving policies while considering uncertainties arising from incomplete observations. In this talk, recent developments on adaptive decision-making based on game-theory and learning-based methods will be presented.

### BIOGRAPHY

Prof. Jinjun Shan is an internationally recognized expert in the areas of dynamics, control and navigation. He is a Full Professor of Space Engineering at the Department of Earth and Space Science and Engineering, York University. Prof. Shan received his Ph.D. degree from Harbin Institute of Technology, China, in 2002. His research progress is demonstrated through over 200 peer-reviewed journal and conference publications and 2 issued patents. Prof. Shan's accomplishments in research and engineering education have seen him recognized with prestigious recognitions such as the Fellow of Canadian Academy of Engineering (CAE), the Fellow of Engineering Institute of Canada (EIC), the Fellow of American Astronautical Society (AAS), and a member of European Academy of Sciences and Arts (EASA). He serves the profession as the Associate Editor for several field-leading journals including IEEE Transactions on Industrial Electronics, IEEE/ASME Transactions on Mechatronics, and the Journal of Franklin Institute, as well as numerous conference chairs. He is the founding director of Spacecraft Dynamics Control and Navigation Laboratory (SDCNLab) at York University.

**Moderator: Prof. George LIU, LSGI**

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