

## RESEARCH SEMINAR

**City Intelligence: From Simulators to World Models****Dr Zhenhui LI Jessie**Chief Scientist  
Yunqi Academy of Engineering  
China**Date : 30 May 2025 (Fri)**  
**Time : 10:30 am - 11:30 am**  
**Venue : HJ304****Abstract**

Cities, humanity's greatest inventions, offer vast opportunities for innovation in science and technology. The increasing availability of big data paints a promising future for our cities. Over the past decade, my work has focused on applying AI to address real-world city challenges. Recent collaborations with city practitioners have deepened my understanding of these complexities and refined my vision for achieving city intelligence.

In this talk, I will present my work on advanced AI techniques for city transportation problems, such as reinforcement learning for traffic signal control. I will highlight the bottleneck in developing city intelligence using RL: the reality gap in existing traffic simulators. I will then introduce a new approach -- learning a world model, a compressed representation of simulator data that captures core traffic physics and is aligned with real-world data. I believe such world models are key to developing city intelligence, with methodologies that hold transformative potential for scientific fields beyond transportation.

**About the Speaker**

Dr Zhenhui (Jessie) Li currently serves as the chief scientist at the Yunqi Academy of Engineering, a non-profit institution situated in Hangzhou, China. Prior to this role, she held a tenured faculty position at Pennsylvania State University. She earned her doctoral degree in Computer Science from the University of Illinois at Urbana-Champaign. Her research primarily focuses on advancing computing technologies to harness data for interdisciplinary studies, including those in smart city, transportation, geoscience, social science, and ecology. For further information, you can visit her website at (<https://jessielzh.com/>).