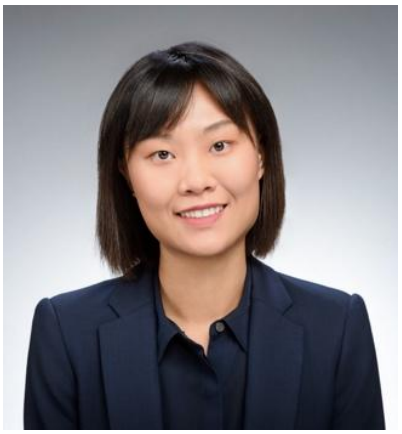
上海交通大学自动化系
Department of Automation
Shanghai Jiao Tong University

系统控制与信息处理教育部重点实验室
Key Laboratory of System Control and Information Processing, Ministry of Education

# 学术报告会

**时间：2023年11月1日 09:00**
**地点：**
**腾讯会议 525837764**
**密码 318328**



## Assured Abstraction for LLM-guided Hierarchical Planning

**Mengxue Hou**
**Assistant Professor，University of Notre Dame**

**摘要:**

To enable a smart and autonomous system to be cognizant, taskable, and adaptive in exploring an unknown and unstructured environment, robotic decision-making relies on learning a parameterized knowledge representation. However, one fundamental challenge in deriving the parameterized representation is the undesirable trade-off between computation efficiency and model fidelity. This talk addresses this challenge in the context of underwater vehicle navigation in unknown marine environments. To improve fidelity of the reduced-order model, we develop a learning method to generate a non-Markovian reduced-order representation of the environmental dynamics. Such abstraction guarantees to improve the modeling accuracy. Further, taking advantage of the abstracted model, we develop a Large-Language-Model-guided hierarchical planner to translate human specified missions directly to a set of executable actions with low computation cost.

**简介:**

Mengxue Hou received the PhD degree from Electrical and Computer Engineering at Georgia Institute of Technology in 2022, and B.S. degree from Electrical Engineering at Shanghai Jiao Tong University in 2016. She was the Lillian Gilbreth Postdoctoral Fellow at College of Engineering, Purdue University from 2022 to 2023. Since 2023, she is an Assistant Professor at Electrical Engineering, University of Notre Dame. Her research interests include robotics, AI, control theory, and shared autonomy.