YIWEN LU

E-mail: luyw20@mails.tsinghua.edu.cn ◇ Homepage: yluthu.github.io

EDUCATION

Ph.D. student, Control Science and Engineering, Tsinghua University Aug 2020 -
Advisor: Yilin Mo; GPA: 3.98/4 (rank 3/86)

B.E., Automation, Tsinghua University Aug 2015 - Jul 2020
GPA: 3.77/4 (rank 17/173)

Visiting student, Computer Science, University of Notre Dame Jun 2018 - Sep 2018

PUBLICATIONS AND PREPRINTS

1. **Y.Lu**, Y.Mo. Almost Surely Rate-Optimal Regret Bound for Adaptive LQR. *In preparation.*
2. **Y.Lu**, Y.Mo. Ensuring the Safety of Uncertified Linear State-Feedback Controllers via Switching, *2022 IEEE Conference on Decision and Control (CDC)*, 2022, Accepted. arxiv:2205.08817
3. B.Yang, **Y.Lu**, X.Yang, Y.Mo. A Hierarchical Control Framework for Drift Maneuvering of Autonomous Vehicles, *2022 International Conference on Robotics and Automation (ICRA)*, 2022.
4. **Y.Lu**, B.Yang, Y.Mo. Two-timescale Mechanism-and-Data-Driven Control for Aggressive Driving of Autonomous Cars, *2021 China Automation Congress (CAC)*, 2021.
5. Y.Zhang, **Y.Lu**, D.Zhang, L.Shang, and D.Wang. RiskSens: A Multi-view Learning Approach to Identifying Risky Traffic Locations in Intelligent Transportation Systems Using Social and Remote Sensing, *IEEE International Conference on Big Data*, 2018.

RESEARCH

Interests: adaptive linear-quadratic control, robotics control.

Safe and Efficient Design for LQ Adaptive Control

· Designed a switching controller for linear state-feedback control ensuring that the system is always closed-loop stable even if the feedback gain is destabilizing.
· Quantified the upper bound of LQ cost under the designed switching controller.
· Proofed a new *almost surely* rate-optimal regret bound for LQ adaptive control by applying the switching design.

Adaptive Control for RC Car Drift Maneuvering

· Designed planning, control and online system identification modules on a mini racing car platform.
· Achieved state-of-the-art performance in tracking 8-shaped drifting paths via data-driven control and primitive-based motion planning.

AWARDS & HONORS

Tsinghua University Laboratory Contribution Award 2022
Tsinghua University Academic Excellence Scholarship 2018
Tsinghua University Technology Innovation Scholarship 2016, 2017, 2018
Finalist Award in Mathematical Contest in Modeling 2017

TEACHING

TA, Convex Optimization (Tsinghua University, graduate) 2021
TA, Introduction to Intelligent Networked Systems (Tsinghua University, undergraduate) 2020

SKILLS

English Proficiency TOEFL: 111 (Reading: 30, Listening: 29, Speaking: 23, Writing: 29)
GRE: Verbal: 165, Quantitative: 168, Writing: 4.0

Programming Languages Python, Julia, MATLAB, C++