

Haitong Ma

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Education

Tsinghua University

Master student, Major: Autonomous driving in Automotive Engineering, School of Vehicle and Mobility

2019 – Present

- Advisor: Prof. Shengbo Eben Li & Prof. Sifa Zheng
- Interest: Safe exploration, Reinforcement learning, Autonomous driving

Tsinghua University

Bachelor, Automotive Engineering.

2015 – 2019

- GPA: 3.61/4.0
- Main Courses: Calculus A; Linear Algebra A-; Automotive Dynamics A-; Modern Control Theory A;

Tsinghua University

Bachelor (Second Major), Innovation and Leadership in Business Administration

2016 – 2019

Experience

Tsinghua University

Graduate student researcher

2019.8 – present

Suzhou Automotive Research Institute, Tsinghua University

Research Intern

2020.12 – 2021.1

Unity Drive Shenzhen (HKUST Autonomous Driving Lab)

Research Intern

2019.7 – 2019.8

Geely Powertrain

Summer Intern

2018.6 – 2018.7

Publications and Awards

Journal and conference papers

H. Ma, X. Zhang, S. E. Li, et, al. "Feasibility Enhancement of Constrained Receding Horizon Control Using Generalized Control Barrier Function." Accepted by 4th International Conference on Industrial Cyber-Physical Systems (**ICPS**), 2021.

H. Ma, J. Chen, S. E. Li, et, al. "Model-based Constrained Reinforcement Learning using Generalized Control Barrier Function." Submitted to IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2021.

Y. Guan, Y. Ren, **H. Ma**, et, al. "Learn collision-free self-driving skills at urban intersections with model-based reinforcement learning." Y. Guan, Y. Ren, S. E. Li, **H. Ma**, et, al. "Integrated Decision and Control: Towards Interpretable and Efficient Driving Intelligence." prePrint at arXiv:2103.10290.

Submitted to 24th IEEE International Conference on Intelligent Transportation (**ITSC**), 2021.

Z. Lin, J. Duan, S.E. Li, **H. Ma**, et, al. "Solving Finite-Horizon HJB for Optimal Control of Continuous-Time Systems" International Conference on Computer, Control and Robotics (**ICCCR**), 2021. **Best Presentation Award.**

Z. Lin, J. Duan, S.E. Li, **H. Ma**, et, al. "Continuous-time finite-horizon ADP for automated vehicle controller design with high efficiency." 3rd International Conference on Unmanned Systems (**ICUS**), 2020. **Best Paper Award.**

H. Gao, H. Yu, G. Xie, **H. Ma**, et, al. "Hardware and software architecture of intelligent vehicles and road verification in typical traffic scenarios." IET Intelligent Transport Systems.

Books

Section 8.6, 9.4 – 9.5 (**27 pages, about constrained RL and safe exploration**) in "Reinforcement Learning and Control", Tsinghua University Lecture Notes.

Awards

DiDi Scholarship of International Communication Award (2020), School of Vehicle and Mobility.

Scholarship of Comprehensive Excellence Award (2016, 2018) & Social Work Excellence Award (2017), Tsinghua University.

Leadership and Activity

Student Union of Department of Automotive Engineering (Previous SVM).

Vice President

2017.6 – 2018.5

Tsinghua University Bauhinia Energy Saving Racing Team

Chassis director winning first place of the 10th Honda Eco Mileage Challenge in Guangzhou, Nov. 2016.

2016.3 – 2016.11

Technical Skills

Programming: Python, Matlab, Java

Software and Platforms: Linux, TensorFlow, PyTorch, OpenGL, Ray, Git, Matlab, Simulink, SUMO.