

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: Reinforcement learning, Autonomous driving, Safe exploration

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, Y. Guan, S. E. Li, X. Zhang, S. Zheng, J. Chen (2021). Feasible Actor-Critic: Constrained Reinforcement Learning for Ensuring Statewise Safety. Submitted to **Journal of Machine Learning Research**, 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." Submitted to 24th IEEE International Conference on Intelligent Transportation (**ITSC**), 2021.

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.

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.