

HAITONG MA

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EDUCATION

Harvard University <i>PhD student in Electrical Engineering</i>	Aug. 2022 – Present Advisor: Prof. Na Li
Tsinghua University <i>Master of Engineering in Vehicle Engineering</i>	Aug. 2015 – June. 2022 Advisor: Prof. Shengbo Eben Li & Prof. Sifa Zheng
Tsinghua University <i>Bachelor of Engineering in Vehicle Engineering</i> <i>Bachelor of Management in Business Administration (Second Major)</i>	Aug. 2015 – July. 2019 Advisor: Prof. Sifa Zheng

HONORS AND AWARDS

Outstanding Graduate of Tsinghua University	2022
Outstanding Master Thesis of Tsinghua University	2022
National Scholarship (Less than 1% in Tsinghua University.)	2021
Best Student Paper Award at 24th IEEE International Conference on Intelligent Transportation	2021
DiDi Scholarship of International Academic Communication Award	2020
Best Paper Award at 3rd IEEE International Conference on Unmanned Systems	2020
Huang Qianheng Scholarship of Comprehensive Excellence Award at Tsinghua University	2018
Scholarship of Social Work Excellence Award at Tsinghua University	2017
Outstanding Individual in Student Association at Tsinghua University	2017
Scholarship of Academic Excellence Award at Tsinghua University	2016
First Place in the 10th Honda Eco Mileage Challenge	2016

PUBLICATIONS

Selected Journal and Conference Papers (* means equal contribution)

8. Dongjie Yu*, **Haitong Ma***, Shengbo Eben Li, Jianyu Chen. Reachability Constrained Reinforcement Learning. *Thirty-ninth International Conference on Machine Learning (ICML)*, 2022
7. **Haitong Ma**, Changliu Liu, Shengbo Eben Li, Sifa Zheng, Jianyu Chen. “Joint Synthesis of Safety Certificate and Safe Control Policy using Constrained Reinforcement Learning.” *The 4th Annual Learning for Dynamics & Control Conference (L4DC)*, 2022. **(Oral presentation, 16/176)**
6. **Haitong Ma**, Jianyu Chen, Shengbo Eben Li, Ziyu Lin, Yang Guan, Yangang Ren, Sifa Zheng. “Model-based Constrained Reinforcement Learning using Generalized Control Barrier Function.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.
5. Yang Guan*, Yangang Ren*, **Haitong Ma**, Shengbo Eben Li, Qi Sun, Yifan Dai, Bo Cheng. “Learn collision-free self-driving skills at urban intersections with model-based reinforcement learning. *24th IEEE International Conference on Intelligent Transportation (ITSC)*, 2021. **(Best Student Paper Award, 2/597)**
4. **Haitong Ma**, Xiangteng Zhang, Shengbo Eben Li, Yao Lyu, Sifa Zheng. “Feasibility Enhancement of Constrained Receding Horizon Control Using Generalized Control Barrier Function.” *4th IEEE International Conference on Industrial Cyber-Physical Systems*, 2021.
3. Yang Guan, Yangang Ren, Shengbo Eben Li, **Haitong Ma**, Jingliang Duan, Yifan Dai, Bo Cheng. “Integrated Decision and Control: Towards Interpretable and Efficient Driving Intelligence.” *IEEE Transactions on Cybernetics*, 2022.
2. Ziyu Lin, Jingliang Duan, Shengbo Eben Li, **Haitong Ma**, Jie Li, Jianyu Chen, Jun Ma, and Bo Cheng. “Policy-iteration-based finite-horizon approximate dynamic programming for continuous-time nonlinear optimal control.” *IEEE Transactions on Neural Network and Learning Systems* (under review), 2021.

1. Ziyu Lin*, Jingliang Duan*, Shengbo Eben Li, **Haitong Ma**, Yuming Yin, Bo Cheng. “Continuous-time finite-horizon ADP for automated vehicle controller design with high efficiency.” *3rd IEEE International Conference on Unmanned Systems*, 2020. **(Best Paper Award)**

INVITED TALKS

2021.10.24, “Joint Synthesis of Safety Certificate and Safe Control Policy using Constrained Reinforcement Learning.” *MECC Workshop on Safe Control and Learning under Uncertainty*, Online.

2021.10.5, “Model-based Constrained Reinforcement Learning using Generalized Control Barrier Function.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Online.

2021.5.12, “Feasibility Enhancement of Constrained Receding Horizon Control Using Generalized Control Barrier Function.” *4th IEEE International Conference on Industrial Cyber-Physical Systems*, Online.

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant, Tsinghua University

Graduate 70150372: Reinforcement Learning and Control

Mar. 2021 - June. 2021

Lecturer: Prof. Shengbo Eben Li

Undergraduate Student Research Training Program

Mentor of Xiangteng Zhang (undergraduate in Tsian Distinguished Class, Tsinghua University)

Oct. 2020 - July. 2021

- Current: PhD student at Tsinghua University.

ACADEMIC SERVICES

Reviewer of IROS 2021, ITSC 2021, ICML 2022, NeurIPS 2022

EXTRACURRICULAR ACTIVITIES

Student Association of School of Vehicle and Mobility

Vice Chair in charge of academics

June. 2017 – May. 2018

- Provided academic advice to first-year students and organizing academic experience-sharing activities.

Bauhinia Energy Saving Racing Team, Tsinghua University

Chassis Director

Mar. 2016 – Nov. 2016

- Won the **championship** in the 10th Honda Eco Mileage Challenge in Guangzhou, Nov. 2016.

SKILLS

Programming: Python, Matlab, C++, Java, Julia

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

Hobbies: Badminton, Billiards, Sim-Racing.