

# Haitong Ma

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## EDUCATION

<b>Tsinghua University</b> <i>Master of Engineering in Vehicle Engineering</i>	Aug. 2019 – June. 2022 <i>Advisor: Prof. Shengbo Eben Li &amp; Prof. Sifa Zheng</i>
<b>Tsinghua University</b> <i>Bachelor of Engineering in Vehicle Engineering</i>	Aug. 2015 – July. 2019 <i>Advisor: Prof. Sifa Zheng</i>
<b>Tsinghua University</b> <i>Bachelor of Management in Business Administration (Second Major)</i>	Aug. 2016 – July. 2019

## HONORS AND AWARDS

National Scholarship (Less than 1% in Tsinghua University.)	2021
Best Student Paper Award at 24th IEEE International Conference on Intelligent Transportation (2/500+)	2021
DiDi Scholarship of International Academic Communication Award (3/102)	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. [ICML'22] Dongjie Yu\*, Haitong Ma\*, Shengbo Eben Li, Jianyu Chen. Reachability Constrained Reinforcement Learning. *Thirty-ninth International Conference on Machine Learning (ICML)*, 2022
7. [L4DC'22] 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) [\[Paper\]](#) [\[Slides on MECC'21 workshop\]](#)
6. [IROS'21] 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*, 2021. [\[Paper\]](#) [\[Code\]](#) [\[Video\]](#)
5. [ITSC'21] 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*, 2021. (Best Student Paper Award) [\[Paper\]](#) [\[Video\]](#)
4. [ICPS'21] 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. [\[Paper\]](#) [\[Slides\]](#)
3. [TCyber'21] 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*, 2021. [\[Paper\]](#) [\[Video\]](#)
2. [TNNLS'21] 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. [ICUS'20] 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**)[\[Paper\]](#)

## Book Chapter

1. Chapter 9 (**60 pages about tutorials on constrained RL and safe control**) in “Reinforcement Learning and Control” by Shengbo Eben Li. *Springer (to be published)*, 2021.

## CONFERENCE PRESENTATIONS

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“Joint Synthesis of Safety Certificate and Safe Control Policy using Constrained Reinforcement Learning.” *MECC Workshop on Safe Control and Learning under Uncertainty*, **10min long presentation**, 2021.10.24.

“Model-based Constrained Reinforcement Learning using Generalized Control Barrier Function.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, **4min highlight presentation**, 2021.10.5.

“Feasibility Enhancement of Constrained Receding Horizon Control Using Generalized Control Barrier Function.” *4th IEEE International Conference on Industrial Cyber-Physical Systems*, **12min long presentation**, 2021.5.12.

## TEACHING AND MENTORING EXPERIENCE

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<b>Teaching Assistant, Tsinghua University</b>	Mar. 2021 - June. 2021
<i>Graduate 70150372: Reinforcement Learning and Control</i>	<i>Lecturer: Prof. Shengbo Eben Li</i>

<b>Undergraduate Student Research Training Program</b>	Oct. 2020 - July. 2021
<i>Mentor of Xiangteng Zhang (undergraduate in Tsian Distinguished Class, Tsinghua University)</i>	
• Current: Incoming PhD student at Tsinghua University.	

## ACADEMIC SERVICES

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

## EXTRACURRICULAR ACTIVITIES

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<b>Student Association of School of Vehicle and Mobility</b>	June. 2017 – May. 2018
<i>Vice Chair in charge of academics</i>	

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

<b>Bauhinia Energy Saving Racing Team, Tsinghua University</b>	Mar. 2016 – Nov. 2016
<i>Chassis Director</i>	

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

## SKILLS

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

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

**Hobbies:** Badminton, Billiards, Sim-Racing.