Wenhao Ding

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Education

2019 – 2024 **Ph.D. Mechanical Engineering**, *Carnegie Mellon University*, Pittsburgh, the U.S.

2019 – 2021 **M.S. Mechanical Engineering**, *Carnegie Mellon University*, Pittsburgh, the U.S.

2021 – 2022 **Secondary M.S. Machine Leaning**, *Carnegie Mellon University*, Pittsburgh, the U.S.

Honors: 2019 Graduate Student Assembly/Provost Conference Funds

2014 – 2018 **B.Eng. Electronic Engineering**, *Tsinghua University*, Beijing, China.

Honors: Outstanding Undergraduate Thesis Award
34th Tsinghua University Academic Challenge Cup (*Second prize*)
Tsinghua University Technology Innovation Excellence Award (*2016, 2017*)

Publications

2021.1 **Semantically Controllable Scene Generation with Guidance of Explicit Knowledge**,
Wenhao Ding, Bo Li, Kim Ji Eun, Ding Zhao,
Preprint arXiv:2106.04066.

2020.10 **Multimodal Safety-Critical Scenarios Generation for Decision-Making Algorithms Evaluation**,
Wenhao Ding, Baimimng Chen, Bo Li, Kim Ji Eun, Ding Zhao,
IEEE Robotics and Automation Letters (RA-L)
IEEE International Conference on Robotics and Automation (ICRA) 2021, Xi'an, China.

2020.10 **Context-Aware Safe Reinforcement Learning for Non-Stationary Environments**,
Baiming Chen, Zuxin Liu, Jiacheng Zhu, Mengdi Xu, Wenhao Ding, Liang Li, Ding Zhao,
IEEE International Conference on Robotics and Automation (ICRA) 2021, Xi'an, China.

2020.6 **Task-Agnostic Online Reinforcement Learning with an Infinite Mixture of Gaussian Processes**,
Mengdi Xu, Wenhao Ding, Jiacheng Zhu, Zuxin Liu, Baiming Chen, Ding Zhao,
Neural Information Processing Systems (NeurIPS) 2020, Vancouver.

2020.6 **Deep Probabilistic Accelerated Evaluation: A Certifiable Rare-Event Simulation Methodology for Black-Box Autonomy**,
Mansur Arief, Zhiyuan Huang*, Guru Kumar, Yuanlu Bai, Wenhao Ding, Henry Lam, Ding Zhao*,
Artificial Intelligence and Statistics (AISTATS) 2021.

2020.3 **Learning to Collide: An Adaptive Safety-Critical Scenarios Generating Method**,
Wenhao Ding, Baiming Chen, Minjun Xu and Ding Zhao,
IEEE International Conference on Intelligent Robots and Systems (IROS) 2020, Las Vegas.

2019.11 **Adaptive Multi-scale Detection of Acoustic Events**,
Wenhao Ding and Liang He,
IEEE/ACM Transactions on Audio, Speech, and Language Processing (T-ASLP).

2019.9 **CMTS: Conditional Multiple Trajectory Synthesizer for Generating Safety-critical Driving Scenarios**,
Wenhao Ding, Mengdi Xu and Ding Zhao,
IEEE International Conference on Robotics and Automation (ICRA) 2020, Paris, France.

2019.5 **Prior Knowledge-based Regularization for Sound Event Localization and Detection**,
Wenhao Ding, Jingyang Zhang* and Liang He*,
Detection and Classification of Acoustic Scenes and Events Challenge 2019 (Task 3).

2019.2 **Multi-Scale Time-Frequency Attention for Acoustic Event Detection**,
Jingyang Zhang, Wenhao Ding, Jintao Kang and Liang He,
Interspeech 2019, Graz, Austria.

2018.7 **A New Multi-vehicle Trajectory Generator to Simulate Vehicle-to-Vehicle Encounters**,
Wenhao Ding, Wenshuo Wang and Ding Zhao,
IEEE International Conference on Robotics and Automation (ICRA) 2019, Montreal, Canada.

2018.1 **MTGAN: Speaker Verification through Multitasking Triplet Generative Adversarial Networks**,
Wenhao Ding and Liang He,
Interspeech 2018, Hyderabad, India..

2018.4 **Hierarchical Reinforcement Learning Framework towards Multi-agent Navigation**,
Wenhao Ding, Shuaijun Li and Huihuan Qian,
IEEE International Conference on Robotics and Biomimetics (ROBIO) 2018, Malaysia.

2017.6 **Vehicle Pose and Shape Estimation through Multiple Monocular Vision**,
Wenhao Ding, Shuaijun Li, Guilin Zhang, Xiangyu Lei and Huihuan Qian,
IEEE International Conference on Robotics and Biomimetics (ROBIO) 2018, Malaysia.

Work experience

2018.11 **Bosch Center for Artificial Intelligence, Pittsburgh, USA**,
Machine Learning Research Intern.
Worked on the topic of traffic semantic understanding.

2018.11 **Tsinghua University, Beijing, China**,
Research Engineer.
Worked on the topic of acoustic event detection, especially abnormal sound detection in factories and railways.

2018.1 **HongKong University of Science and Technology, HongKong, China**,
Research Assistant.
Worked on the memory-based reinforcement learning methods for robots navigation.

2017.7 **Chinese University of HongKong, HongKong, China**,
Research Assistant.
Worked on robot localization in the Robotics and Artificial Intelligence Laboratory.

Technical ability

English: TOEFL: 108(S: 25), GRE: 151(V)+168(Q)+3.0

Languages: C/C++, Python, Matlab, Verilog

Technologies: ROS, CARLA Simulator, PyTorch, Altium Designer, STM32