




# WENHAO DING

 <https://github.com/GilgameshD>  [www.wenhao.pub](http://www.wenhao.pub)  [wenhaod@andrew.cmu.edu](mailto:wenhaod@andrew.cmu.edu)

## EDUCATION

**Carnegie Mellon University, Pittsburgh, USA**

*Aug 2019 - May 2024 (Expected)*

*Ph.D. Mechanical Engineering*

**Carnegie Mellon University, Pittsburgh, USA**

*May 2021 - Dec 2022 (Expected)*

*M.S. Machine Learning*

Curriculum: Advanced Machine Learning, Deep Reinforcement Learning, Graduate Artificial Intelligence, etc

**Tsinghua University, Beijing, China**

*Aug 2014 - July 2018*

*B.Eng. Electronic Engineering*

## RESEARCH INTERESTS

<b>Deep Generative Models:</b>	Generating safety-critical scenarios for robust robots development.
<b>Adversarial Machine Learning:</b>	Creating semantically understandable examples to evaluate robustness.
<b>Causal Reinforcement Learning:</b>	Making generalizable decisions by discovering the underlying causality.

## ACADEMIC SERVICES

<b>Conference Reviewer:</b>	ICML 2022, CVPR 2022, ICLR 2022-2023, NeurIPS 2021-2022, ICCV 2021, ICRA 2020-2021, IROS 2020-2021, ICME 2020-2022
<b>Journal Reviewer:</b>	TMLR, IEEE RA-L, IEEE Access, IEEE T-ITS, IEEE TII, IEEE MM

## HONORS & AWARDS

2022 Qualcomm Innovation Fellowship Winner, North America  
2019 CMU Graduate Student Assembly/Provost Conference Funds  
Tsinghua University Outstanding Undergraduate Thesis Award  
34th Tsinghua University Academic Challenge Cup (*Second prize*)  
Undergraduate Academic Recommendation Program Fund  
10th Tsinghua University Science and Technology Innovation Training Program “Spark”  
Tsinghua University Technology Innovation Excellence Award

## PUBLICATION

**Generalizing Goal-Conditioned Reinforcement Learning with Variational Causal Reasoning**

*Wenhao Ding, Haohong Lin, Bo Li, Ding Zhao*

Preprint arXiv:2207.09081

**SafeBench: A Benchmarking Platform for Safety Evaluation of Autonomous Vehicles**

*\*Chejian Xu, \*Wenhao Ding, Weijie Lyu, Zuxin Liu, Shuai Wang, Yihan He, Hanjiang Hu, Ding Zhao, Bo Li*

Preprint arXiv:2206.09682

**A Survey on Safety-critical Scenario Generation for Autonomous Driving – A Methodological Perspective**

*Wenhao Ding, Chejian Xu, Haohong Lin, Bo Li, Ding Zhao*

Preprint arXiv:2202.02215

**CausalAF: Causal Autoregressive Flow for Goal-Directed Safety-Critical Scenes Generation**

*Wenhao Ding, Haohong Lin, Bo Li, Ding Zhao*

Preprint arXiv:2110.13939

**Semantically Controllable Scene Generation with Guidance of Explicit Knowledge**

*Wenhao Ding, Bo Li, Kim Ji Eun, Ding Zhao*

Preprint arXiv:2106.04066

**Certifiable Deep Importance Sampling for Rare-Event Simulation of Black-Box Systems**

*Mansur Arief, Yuanlu Bai, Wenhao Ding, Shengyi He, Zhiyuan Huang, Henry Lam, Ding Zhao*

Preprint arXiv:2111.02204

**Multimodal Safety-Critical Scenarios Generation for Decision-Making Algorithms Evaluation**

*Wenhao Ding, Baiming Chen, Bo Li, Kim Ji Eun, Ding Zhao*

IEEE Robotics and Automation Letters (RA-L)

**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

**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

**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

**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

**Adaptive Multi-scale Detection of Acoustic Events**

*Wenhao Ding and Liang He*

IEEE/ACM Transactions on Audio, Speech, and Language Processing (T-ASLP)

**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

**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

**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)

**Multi-Scale Time-Frequency Attention for Acoustic Event Detection**

*Jingyang Zhang, Wenhao Ding, Jintao Kang and Liang He*

Interspeech 2019

**MTGAN: Speaker Verification through Multitasking Triplet Generative Adversarial Networks**

*Wenhao Ding and Liang He*

Interspeech 2018

**Hierarchical Reinforcement Learning Framework towards Multi-agent Navigation**

*Wenhao Ding, Shuaijun Li and Huihuan Qian*

IEEE International Conference on Robotics and Biomimetics (ROBIO) 2018

## **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

### **WORK EXPERIENCE**

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**Amazon Lab126, Sunnyvale, CA, USA**

*Applied Scientist Intern*

*May 2022 - Aug 2022*

**Bosch Center for Artificial Intelligence, Pittsburgh, PA, USA**

*Machine Learning Research Intern*

*May 2021 - Aug 2021*

**Tsinghua University, Beijing, China**

*Research Engineer*

*July 2018 - Aug 2019*

**HongKong University of Science and Technology, HongKong, China**

*Research Assitant*

*Jan 2018 - Mar 2018*

**Chinese University of HongKong, HongKong, China**

*Research Assitant*

*July 2017 - Sep 2017*