

WENHAO DING

<https://github.com/GilgameshD> www.wenhao.pub wenhaod@andrew.cmu.edu

EDUCATION

Carnegie Mellon University, Pittsburgh, USA *Aug 2019 - May 2024 (Expected)*
Ph.D. Mechanical Engineering

Carnegie Mellon University, Pittsburgh, USA *Jan 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

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

ACADEMIC SERVICES

Conference Reviewer: ICML 2022, ICLR 2022-2023, NeurIPS 2021-2022, CVPR 2022, ICCV 2021, ECCV 2022, ICRA 2020-2021, IROS 2020-2021, ICME 2020-2022
Journal Reviewer: 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

Conference on Neural Information Processing Systems (NeurIPS) 2022

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*

Conference on Neural Information Processing Systems (NeurIPS) 2022

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

Conference on Robot Learning (CoRL) 2022

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

| | |
|---|-----------------------------|
| Amazon Lab126, Sunnyvale, CA, USA <i>Applied Scientist Intern</i> | <i>May 2022 - Aug 2022</i> |
| Bosch Center for Artificial Intelligence, Pittsburgh, PA, USA <i>Machine Learning Research Intern</i> | <i>May 2021 - Aug 2021</i> |
| Tsinghua University, Beijing, China <i>Research Engineer</i> | <i>July 2018 - Aug 2019</i> |
| HongKong University of Science and Technology, HongKong, China <i>Research Assitant</i> | <i>Jan 2018 - Mar 2018</i> |
| Chinese University of HongKong, HongKong, China <i>Research Assitant</i> | <i>July 2017 - Sep 2017</i> |