


WENHAO DING

 <https://github.com/GilgameshD>

 www.wenhao.pub

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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

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

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

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