Zihan Ding

Curriculum Vitae

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⌂ *https://quantumiracle.github.io/webpage/*

Education

Incoming– **Princeton University**, Princeton, NJ, U.S..
  ○ **Ph.D.** in Electrical Engineering

2018.09– **Imperial College London**, London, U.K..
2019.09

  ○ **M.Sc.** in Computing (Machine Learning Specialism) with **Distinction** degree
  ○ Robot Learning Laboratory
  ○ Advisor: Edward Johns

2014.09– **University of Science and Technology of China**, Hefei, Anhui, China.
2018.07

  ○ **B.Sc.** in Photoelectric Information Science and Engineering (Physics)
  ○ **B.Eng.** in Computer Science and Technology
  ○ Advisor: Jinming Cui, Yunfeng Huang

Research Interests

Deep Reinforcement Learning, Robot Learning, Simulation-to-Reality, Explainablility of Machine Learning Methods, Optimization.

Publications

2020 **Deep Reinforcement Learning: Foundamentals, Research and Applications**, *Hao Dong, **Zihan Ding**, Shanghang Zhang Eds.*, Springer 2020 ISBN 978-981-15-4094-3, 1st ed..
Textbook [Homepage]

2020 **CDT: Cascading Decision Trees for Explainable Reinforcement Learning**, ***Zihan Ding**, Pablo Hernandez-Leal, Gavin Weiguang Ding, Changjian Li, Ruitong Huang* .
Preprint [Paper][Code]

2020 **RLzoo: A Comprehensive and Adaptive Reinforcement Learning Library**, ***Zihan Ding**, Tianyang Yu, Yanhua Huang, Hongming Zhang, Luo Mai and Hao Dong* .
Preprint [Paper][Code]

2020 **Probabilistic Mixture-of-experts for Efficient Deep Reinforcement Learning**, *Jie Ren, Yewen Li, **Zihan Ding**, Wei Pan, Hao Dong*.
Preprint

2020 Preprint	**Bayesian Optimization for Wavefront Sensing and Error Correction**, *Zhonghua Qian, **Zihan Ding**, Mingzhong Ai, Yongxiang Zheng, Jinming Cui, Yunfeng Huang, Chuanfeng Li, Guangcan Guo.*
2020 Preprint	**DROID: Minimizing the Reality Gap using Single-shot Human Demonstration**, *Ya-Yen Tsai, Hui Xu, **Zihan Ding**, Chong Zhang, Edward Johns, Jie Shao, and Bidan Huang.*
2020 Preprint	**Improved Demand Response with Centralized Deep Multi-agent Reinforcement Learning**, *Bingchan Zhao, Jie Fu, Yunbo Wang, **Zihan Ding**, Di Wu, Romain Laroche, Chris Pal, Hao Dong.*
2020	**Crossing The Gap: A Deep Dive into Zero-Shot Sim-to-Real Transfer for Dynamics**, *Eugene Valassakis, **Zihan Ding** and Edward Johns*, International Conference on Intelligent Robots and Systems (IROS) 2020. [Paper][Website][Video]
2020	**Sim-to-Real Transfer for Optical Tactile Sensing**, ***Zihan Ding**, Nathan F. Lepora and Edward Johns*, International Conference on Robotics and Automation (ICRA) 2020. [Paper][Code][Video]
2020	**Arena: A General Evaluation Platform and Building Toolkit for Multi-Agent Intelligence**, *Yuhang Song, Jianyi Wang, Thomas Lukasiewicz, Zhenghua Xu, Mai Xu, **Zihan Ding**, and Lianlong Wu*, The Thirty-Fourth AAAI Conference on Artificial Intelligence 2020. [Paper][Code]
2019	**Fast and High-Fidelity Readout of Single Trapped-Ion Qubit via Machine-Learning Methods**, ***Zihan Ding**, Jinming Cui, Yunfeng Huang, Chuanfeng Li, Tao Tu, Guangcan Guo*, Physical Review Applied. [Paper][Code]
2019	**Tensor Super-Resolution with Generative Adversarial Nets: A Large Image Generation Approach**, ***Zihan Ding**, Xiao-Yang Liu, Miao Yin*, International Joint Conference on Artificial Intelligence (IJCAI), Human Brain Artificial Intelligence 2019. [Paper][Code]
2018	**Deep Reinforcement Learning for Intelligent Transportation Systems**, *Xiao-Yang Liu, **Zihan Ding**, Sem Borst, Anwar Walid*, NeurIPS Workshop on Machine Learning for Intelligent Transportation Systems 2018. [Paper][Code]
2018	**Accelerated Exhaustive Eye Glints Localization Method for Infrared Video Oculography**, ***Zihan Ding**, Jiayi Luo, Hongping Deng*, Proceedings of the 33rd Annual ACM Symposium on Applied Computing, SAC '18. [Paper][Code]

Open-Source Projects

2019	**TensorLayer Reinforcement Learning Tutorials**, *main contributor*, [Repo].

2019   **RLzoo**, *main contributor*, [Repo].

Work Experiences

2020.02–
2020.06   **Research Intern**, Borealis AI, Toronto, ON, Canada.

- Explainable Reinforcement Learning Based on Differentiable Decision Tree.

2020.09–
2021.01   **Research Intern**, Tencent Robotics X, Shenzhen, Guangdong, China.

- Sim-to-real Methods for Robotics Control.

Research Experiences

2019.09–
2020.01   **Research Intern**, Imperial College London, Robot Learning Lab, under supervision of Dr. Edward Johns.

- Sim-to-real Reinforcement Learning for Robotic Arm Control with Tactile Sensor

2017   **Undergraduate Research**, USTC, Immersive Multimedia Communication Laboratory, under supervision of Prof. Zhibo Chen.

- Competition of NeurIPS 2017: Learning to Run

2016–2018   **Undergraduate Research**, USTC, CAS Key Laboratory of Quantum Information, under supervision of Dr. Jinming Cui and Prof. Yunfeng Huang.

- Machine Learning assisted Qubit Readout in Trap-ion System.

Honors & Awards

2018   **Best Undergraduate Thesis Award at USTC 2018**, **top 2** in the major.

2017   **NeurIPS 2017: Learning to Run Competition**, 4th/**479** .

2016   **DJI RoboMaster AI Challenge 2016**, 3rd/**40**.

Academic Services

- NeurIPS 2020 Quantum Tensor Networks in Machine Learning Workshop: Reviewer
- NeurIPS 2019 Autonomous Driving Workshop: Reviewer, PC Member
- IEEE Access: Reviewer

Skills

- **Languages**
  Python, C++, C#, Verilog
- **Frameworks**
  PyTorch, TensorFlow (v1.&v2.), TensorLayer
- **Tools**
  git, LaTeX, ROS, MuJoCo, Unity3D, PyRep, SolidWorks, AutoCAD, Mathematics, MATLAB, OpenCV