Zihan Ding

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Personal Website: https://quantumiracle.github.io/webpage/

Github: https://github.com/quantumiracle

Google Scholar: [Link]

Education/Internship

PhD – Electrical Engineering, Princeton Sep. 2020 -

Machine Learning Research Intern – Borealis AI, Canada Feb. 2020 - May 2020

Advisor: Matthew E. Taylor

Internship – Imperial College London Sep. 2019 - Jan. 2020

Robot Learning Lab, Advisor: Dr. Edward Johns

Master Degree – Imperial College London Sep. 2018 - Sep. 2019

Master of Science (**Distinction**)

Major degree: Computing, Machine Learning Specialism

Bachelor Degree – University of Science and Technology of China (USTC) Sep. 2014 - June 2018

Bachelor of Science

Major degree: Photoelectric Information Science and Engineering, School of Physics

Best Undergraduate Thesis Award at USTC 2018

Bachelor of Engineering

Dual degree: Computer Science and Technology

Research Interests

Primary interests: deep reinforcement learning, robot learning, simulation-to-reality, meta-learning.
General interests: transfer learning, imitation learning, explainability of deep models, neuroscience, quantum computation, quantum machine learning.

Academic Experience

Publications:

Book:

* Deep Reinforcement Learning: Fundamentals, Research and Applications. Hao Dong, **Zihan Ding**, Shanghang Zhang. *Springer*, 2020. [**Book Link**] [**Website**]

Published Papers:

* **Zihan Ding**, Nathan F. Lepora and Edward Johns. Sim-to-Real Transfer for Optical Tactile Sensing. *International Conference on Robotics and Automation 2020.* [**Paper Link**] [**Website**]

* Yuhang Song, Jianyi Wang, Thomas Lukasiewicz, Zhenghua Xu, Mai Xu, **Zihan Ding**, and Lianlong Wu. Arena: A General Evaluation Platform and Building Toolkit for Multi-Agent Intelligence. *The Thirty-Fourth AAAI Conference on Artificial Intelligence 2020.* [**Paper Link**] [**Project Link**]

* **Zihan Ding**, Jinming Cui, Yunfeng Huang, Chuanfeng Li, Tao Tu, Guangcan Guo. Fast and High-Fidelity Readout of Single Trapped-Ion Qubit via Machine-Learning Methods. *Physical Review Applied.*
[**Paper Link**] [**Github Project**]

* **Zihan Ding**, Xiao-Yang Liu, Miao Yin. Tensor Super-Resolution with Generative Adversarial Nets: A Large Image Generation Approach *International Joint Conference on Artificial Intelligence, Human Brain Artificial Intelligence 2019 (IJCAI-HBAI).*
[**Paper Link**] [**Github Project**]

* Xiao-Yang Liu, **Zihan Ding**, Sem Borst, Anwar Walid. Deep Reinforcement Learning for Intelligent Transportation Systems. *NeurIPS Workshop on Machine Learning for Intelligent Transportation Systems 2018.*
[**Paper Link**] [**Github Project**]

* **Zihan Ding**, Jiayi Luo, Hongping Deng. Accelerated Exhaustive Eye Glints Localization Method for Infrared Video Oculography. *Proceedings of the 33rd Annual ACM Symposium on Applied Computing, SAC '18.*
[**Paper Link**] [**Github Project**]

Preprints:

* Eugene Valassakis, **Zihan Ding**, Edward Johns. Bridging the Gap: A Deep Dive into Zero-Shot Sim-to-Real Transfer for Dynamics. (*Under review at International Conference on Intelligent Robots and Systems 2020*).

Open-Source Projects:

* **TensorLayer**: Reinforcement Learning Tutorials. [**Project Link**]
Contributions in implementation of several reinforcement learning algorithms, common interfaces and code structure, using Tensorlayer2 and Tensorflow2.

* **RLzoo**: Reinforcement Learning Baseline with Industrial-level API. [**Project Link**]
Contributions: main author.

* **Arena**: A General Evaluation Platform and Building Toolkit for Multi-Agent Intelligence. [**Project Link**]
Contributions in design some of multi-agent game environments for reinforcement learning.

* **TensorLet**: [**Project Link**]
Contributions in TSRGAN project.

Services:

* NeurIPS 2019 Autonomous Driving Workshop: Program Committee Member

* IEEE Access: Reviewer

Competitions:

Reinforcement Learning - *NIPS2017: Learning to Run* (**Ranked 4th/479**) June 2017 - Nov 2017

Robot Competition - DJI RoboMaster AI Challenge 2016 (Ranked 3rd/40) Apr 2016 - Aug 2016

Lab Experience:

* Robot Learning Lab *Advisor*: Dr Edward Johns, Imperial College London (2018-2020)
  - Benchmarking sim-to-real methods for robot learning.
  - Sim-to-real Reinforcement Learning for Robotic Arm Control with Tactile Sensor.
  - Meta-Learning for Initialising Policies in Deep Reinforcement Learning.

* Immersive Multimedia Communication Laboratory *Advisor*: Zhi-Bo Chen Professor, USTC (2017)
  - Competition of *NIPS2017: Learning to Run*.

* CAS Key Laboratory of Quantum Information *Advisor*: Yun-feng Huang Professor, Jin-Ming Cui Associate Research Fellow, USTC (2016 - 2018)
  - Quantum Computation, Quantum Information, Trap-ion System, Machine Learning assisted Qubit Readout, etc.

* Robotics Laboratory *Advisor*: Shi-wu Zhang Professor, USTC (2014 - 2015)
  - Robots Manufacture.

Skills

* **Familiar with:** Python, Tensorflow, PyTorch, C/C++.

* **Experience in:** C#, Verilog, MATLAB, Mathematics, OpenCV, SolidWorks, AutoCAD, Single-chip programming.