Yang Qian

PhD · quantum machine learning

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Education

The University of Sydney (USYD) *Sydney, Australia*

PhD candidate in quantum machine learning *Oct 2020 - Aug 2024*

- Advisor: Prof. Dacheng Tao

Institute of Automation Chinese Academy of Sciences (CASIA) *Beijing, China*

M.S. in Pattern Recognition and Intelligent System *Sep 2016 - Jul 2019*

- Advisor: Prof. Hong Qiao

Huazhong University of Science and Technology (HUST) *Wuhan, China*

B.S. in Automation *Sep 2012 - Jun 2016*

- Ranking: 1/65
- Graduation thesis advisor: Prof. Yang Xiao

Research and Working Experience

The University of Sydney (USYD) *Sydney, Australia*

PhD candidate *Oct 2020 - Aug 2024*

- Multi-modal learning for quantum cross-platform verification
- Enhance quantum approximate optimization algorithm by automatically generating mixer Hamiltonian
- Shuffle-QUDIO: accelerate distributed VQE with trainability enhancement and measurement reduction
- Quantum circuit architecture search on a superconducting processor
- Accelerating variational quantum algorithms with multiple quantum processors
- The dilemma of quantum neural networks

JD Explore Academy *Beijing, China*

Research Intern *Oct 2020 - Mar 2022*

- Quantum machine learning
- Quantum error mitigation

Aibee Inc. *Beijing, China*

Algorithm Engineer *Jul 2019 - Oct 2020*

- Model compression: Develop network pruning and knowledge distillation algorithm on ReID model
- Poseface: Pose-invariant features and pose-adaptive loss for face recognition
- Shopping event detection
- Virtual try-on: develop a new virtual try-on algorithm to improve quality of synthetic images

The State Key Laboratory of Management and Control for Complex Systems (SKL-MCCS). *Beijing, China*

postgraduate *Sep 2016 - Jul 2019*

- Robust Form-closure grasp planning for 4-pin gripper usingl learning-based attractive Region in environment
- Deep learning-based fine-grained image recognition
- Understand deep neural network by filter sensitive area generation network
- Pose estimation of assemblies

Publications

Published

Qian Y, Du Y, He Z, et al. Multimodal deep representation learning for quantum cross-platform verification[J]. arXiv preprint arXiv:2311.03713, 2023. Accepted to Physical Review Letters (PRL).

Qian Y, Du Y, Tao D. Shuffle-QUDIO: accelerate distributed VQE with trainability enhancement and measurement reduction[J]. Quantum Machine Intelligence, 2024, 6(1): 1-22.

Qian Y, Wang X, Du Y, et al. The dilemma of quantum neural networks[J]. IEEE Transactions on Neural Networks and Learning Systems, 2022.

Du Y, **Qian Y**, Wu X, et al. A distributed learning scheme for variational quantum algorithms[J]. IEEE Transactions on Quantum Engineering, 2022, 3: 1-16.

Li Y, Qian Y, Yang X, et al. Activity and relationship modeling driven weakly supervised object detection[C]//2020 25th International Conference on Pattern Recognition (ICPR). IEEE, 2021: 9628-9634.

Li X, Qian Y, Li R, et al. Robust form-closure grasp planning for 4-pin gripper using learning-based attractive region in environment[J]. Neurocomputing, 2020, 384: 268-281.

Li Y, Jia L, Wang Z, et al. Un-supervised and semi-supervised hand segmentation in egocentric images with noisy label learning[J]. Neurocomputing, 2019, 334: 11-24.

Qian Y, Qiao H, Xu J. Understanding deep neural network by filter sensitive area generation network[C]//Neural Information Processing: 25th International Conference, ICONIP 2018, Siem Reap, Cambodia, December 13-16, 2018, Proceedings, Part I 25. Springer International Publishing, 2018: 192-203.

In Review

Linghu K, Qian Y, Wang R, et al. Quantum circuit architecture search on a superconducting processor[J]. arXiv preprint arXiv:2201.00934, 2022.

Meng Q, Xu X, Wang X, Qian Y, et al. PoseFace: Pose-invariant features and pose-adaptive loss for face recognition[J]. arXiv preprint arXiv:2107.11721, 2021.

Honors and Awards

2020 - 2024 **the Faculty of Engineering Research Scholarship**,
2015 & 2016 **National second prize in RoboMaster**,
2014 **Special Award in Undergraduate Electronics Design Contest in Hubei Province**,
2014 **Second prize in Central China Mathematical Modeling Invitational Competition**,
2014 **National Encouragement Scholarship**,
2013 **National Scholarship**,