

Mingrui Jing, (M.Sc. of Physics)

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Employment History

- 2022 – 2023 📌 **Internship Researcher.** Institute for Quantum Computing, Baidu Research, Beijing.
Working on: Quantum machine learning, trainability of quantum neural networks and quantum information theory.
Mentor: Dr. Xin Wang
Research Project:
1st. *Explaining and resolving trainability issues in scalable quantum neural networks;*
2nd. *Designing quantum algorithms solving quantum state learning and quantum many-body physics;*
3rd. *Studying on circuit knitting, non-local simulations and LOCC protocols.*
Development Project:
1st. *Participating in developing Paddle-Quantum, quantum machine learning platform and GitHub launching. Particularly in speeding up and new functionality development.*
- 2021 – 2022 📌 **Lab Demonstrator.** Physics 1 and 2, School of Physics, The University of Melbourne.
- 2018 – 2020 📌 **Victorian Certificate of Education (VCE) Tutor.** Le-Learning Institution, Melbourne, VIC, Australia.
- 2016 – 2017 📌 **Math and Science Teacher.** GAPPER International Voluntary Project.




Education

- 2020 – 2021 📌 **M.Sc. Physics, University of Melbourne**
GPA: 85.4 (First Class Honours)
Topic: on Quantum Computing research with Prof. Lloyd Hollenberg.
Thesis title: *New pathways towards quantum sequence alignment with quantum neurons and quantum machine learning.*
- 2016 – 2019 📌 **Bachelor of Sci., University of Melbourne**
GPA: 83.3 (First Class Honours)
Major in: Mathematical Physics
Vacation research: *Laby Research Scholar on optic tweezers with Prof. Kenneth Crozier*




Research Publications

- 1 **M. Jing**, G. Liu, H. Ren, and X. Wang, “quantum sequential scattering model for quantum state preparation”, 2023.
- 2 Y. Wang, C. Zhu, **M. Jing**, and X. Wang, *Ground state preparation with shallow variational warm-start*, 2023. arXiv: 2303.11204 [quant-ph].
- 3 H.-k. Zhang, C. Zhu, **M. Jing**, and X. Wang, “statistical analysis of quantum state learning process using quantum neural networks”, 2023.

Patents (under review)




- 2023.01.20  **Method, apparatus, electronic device and medium for determining system characteristic information. (2022110585849)**
Inventor: **M. Jing**, C. Zhu and X. Wang.
- 2022.12.09  **Quantum circuit processing method, quantum state preparation method, device, apparatus and medium. (2022109941503)**
Inventor: X. Wang, **M. Jing**, and G. Liu.
- 2022.11.15  **Method for determining system feature information, electronic equipment and medium. (2022110649338)**
Inventor: X. Wang, **M. Jing**, and C. Zhu.

Skills



- Languages  Strong reading, writing and speaking competencies in English, and Mandarin Chinese.
- Coding  Python, Matlab, Mathematica, \LaTeX , ...
- Misc.  Academic research, teaching, training, consultation, \LaTeX typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

- 2022  **Melbourne Research Scholarship**, University of Melbourne.
- 2020  **Science Graduate Scholarship**, University of Melbourne.
- 2019  **Laby Research Scholarship**, Machine Learning on nano-optical tweezers with Prof. Kenneth Crozier.

Certification

- 2021  **M.Sc. of Science (Physics) (with Distinction)**, University of Melbourne.
- 2019  **Outstanding Undergraduate Student Performance certificate from Faculty of Science**, University of Melbourne.

Journal Review


- 2023  **Subreviewer for Quantum journal and AQIS conference.**

References

Dr Xin Wang

Staff Researcher – Institute for Quantum Computing at Baidu Research.
Baidu Technology Park, Haidian District, Beijing, 100193, CHINA
University of Technology Sydney
 wangxinfelix@gmail.com
Relationship: Research and internship mentor at Baidu.

Prof Lloyd C.L. Hollenberg

Director – IBM Quantum Hub @ The University of Melbourne Deputy Director, Centre of Excellence for Quantum Computation and Communication Technology.
University of Melbourne
Victoria 3010, AUSTRALIA
 lloydch@unimelb.edu.au
Relationship: M.Sc. degree supervisor