Jonquil Zhongling Liao

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Education

University of Wisconsin–Madison **CGPA: 4.0/4.0**
Doctor of Philosophy in Statistics *Sept. 2021 - Expected 2026*
Master of Science in Statistics, Speciality in Data Science *Sept. 2020 - May 2021*
Visiting International Student *Sept. 2019 - May 2020*

Zhejiang University **CGPA: 3.8/4.0**
Bachelor of Natural Sciences in Statistics *Sept. 2016 - Jun. 2020*

Publications

Testing for latent structure via the Wilcoxon–Wigner random matrix of normalized rank statistics
Jonquil Z. Liao, Joshua Cape,
Biometrika (2026), https://doi.org/10.1093/biomet/asag003

Robust spectral clustering with rank statistics
Joshua Cape, Xianshi Yu, **Jonquil Z. Liao**,
Journal of Machine Learning Research (2024), vol. 25, no. 398, pp. 1–81.

Robust data matrix analysis by ranking
Jonquil Z. Liao, Joshua Cape,
Submitted to SIAM Journal on Mathematics of Data Science.

Tracy–Widom distribution for rank-tranformed random matrices with applications
Zeyue Yin, **Jonquil Z. Liao**, Xiaoyu Lei, Joshua Cape,
In progress.

Work Experience

Software Engineer Intern, Machine Learning
Meta Platforms, Inc. *May. 2025 - Aug. 2025*

- Established and implemented a multi-model multitask sparse neural network recurring training validation framework for identity matching; Designed and implemented a multi-model offline bulk evaluation workflow.

Selected Projects

Meta Inference Compilation: Learning Transferable Proposals for Universal Probabilistic Programs
Collaborator: Professor Maja Waldron, University of Wisconsin–Madison *Sept. 2025 – present*

- Built an inference compilation network with pretrained language model encoding program aware representation to improve zero-shot proposals for Universal Probabilistic Programs.
- Tools: PyProb, PyTorch, HuggingFace, CHTC.

Exploratory Data Analysis and Feature Engineering for Educational video data
Course project: Computer Vision *Feb. 2024 – May 2024*

- Designed an algorithm for temporal segmentation of video data and performed hand gesture recognition using MediaPipe on selected gesture chunks. (https://orc-dev.github.io/cs766-final-project/)
- Tools: Python, MediaPipe, OpenCV, Pandas.

Selected Awards

May 2025 UW–Madison SRGC Travel Award (declined)
Jun. 2024 2024 IRSA Poster Presentation Award
Aug. 2020 Academic Excellence Award, UW-Madison, Department of Statistics
Oct. 2019 Hailiang First Class Scholarship (Ranked 2nd), Academic First Class Scholarship, Zhejiang University
Sept. 2018 Outstanding Student Leaders, Zhejiang University

Skills

Languages and Tech skills: Python, SQL, R, Matlab, Git, Shell Script, Vim.
Experience in distributed high-throughput computing with HTCondor on Linux.