Runqian (Ray) Wang

Email: raywang4@mit.edu Website: https://raywang4.github.io

Education

Massachusetts Institute of Technology, Bachelor of Science. Sep 2022 – May 2026

Double Major in Artificial Intelligence & Mathematics

- Relevant Coursework (G for graduate level):
  - *Artificial Intelligence*: Computer Vision (G), Machine Learning (G), Distributed Algorithms (G), Natural Language Processing, Design and Analysis of Algorithms, Representation Inference and Reasoning in AI
  - *Mathematics*: Probability (G), Linear Algebra, Information Theory, Topology, Differential Equations, Numerical Methods, Discrete Mathematics
- GPA:5.0/5.0

Research Experiences

MIT He Vision Group Apr 2024 - Present

PI: Kaiming He

- Introduces Dispersive Loss, a self-contained representation regularizer to improve Diffusion model training
- First-author submission under review

Harvard University Du Lab May 2025 - Present

PI: Yilun Du

- Proposes a equilibrium-based generative model that supports optimization-driven sampling, exceeds Diffusion/Flow in generation quality, and offers flexibility for downstream tasks
- First-author submission under review

MIT-IBM-Watson AI Lab Sep 2023 - May 2024

PI: Rogerio Feris

- Develops data-free transferrable parameter efficient fine-tuning (PEFT) methods for LLMs
- First-author paper accepted at NeurIPS 2024 main conference

Microsoft Research Asia May 2023 - Aug 2023

PI: Zhirong Wu

- Analyze and design state-of-the-art adaptive optimization methods in deep learning
- Work spotlighted on Microsoft official social media and nominated as “Star of Tomorrow” researcher

MIT CSAIL Medical Vision Group Sep 2022 - May 2023

PI: Polina Golland

- Designs a new deep-learning approach to intravascular ultrasound image analysis
- Paper accepted at Second International AMAI Workshop

Academic Services

Teaching Assistant for 6.7900 Graduate Course in Machine Learning Sep 2024 - Dec 2024

- As the only undergraduate TA admitted, assisted with answering questions, writing exams, grading, and logistics

Reviewer of NeurIPS, ICLR 2024 - Present

Selected Awards & Programs

USA Computing Olympiad National Camp Qualifier May 2021

- Ranked top 14 among all US high school students in algorithmic design and competitive programming

MIT BattleCode Programming Competition 2nd Place Feb 2023

- Entered final tournament as 1st seed out of 456 teams (1321 competitors) worldwide and ranked 2nd in the finals

Terminal Programming Competition 3rd Place Apr 2023

- Won 3rd place among all east coast college contestants

Jane Street First Year Trading and Technology Program Mar 2023

Selected Publications

Wang, Runqian, and Yilun Du. "Equilibrium Matching: Generative Modeling with Implicit Energy-Based Models." *arXiv preprint arXiv:2510.02300* (2025).

Wang, Runqian, and Kaiming He. "Diffuse and Disperse: Image Generation with Representation Regularization." *arXiv preprint arXiv:2506.09027* (2025).

Wang, Runqian, et al. "Trans-LoRA: towards data-free Transferable Parameter Efficient Finetuning." *Advances in Neural Information Processing Systems* 37 (2024): 61217-61237.

Kashyap, Satyananda, et al. "Feature selection for malapposition detection in intravascular ultrasound-a comparative study." *International Workshop on Applications of Medical AI*. Cham: Springer Nature Switzerland, 2023.

Chen, Chong, et al. "An efficient algorithm to compute the X-ray transform." *International Journal of Computer Mathematics* 99.7 (2022): 1325-1343.

Wang, Runqian. "Comparing Grover's quantum search algorithm with classical algorithm on solving satisfiability problem." *2021 IEEE Integrated STEM Education Conference (ISEC)*. IEEE, 2021.