Yiran (Jenny) Shen

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EDUCATION

University of California San Diego — La Jolla, CA, US
Ph.D. in Computer Science and Engineering (GPA: 4/4)); Advisor: Prof. Prithviraj Ammanabrolu — *Sep. 2024 - Now*

Duke University — Durham, NC, US
M.S. in Interdisciplinary Data Science (GPA: 3.86/4) — *Sep. 2022 - May. 2024*

University of Melbourne — Melbourne, VIC, AUS
B.Comm. in Economics and Finance, Minor in Statistics (First-Class Honors) — *Mar. 2019 - Dec. 2021*

RESEARCH EXPERIENCE

Human-Centered AI Alignment via Reinforcement Learning — La Jolla, CA, US
Graduate Student Researcher @ UC San Diego Advised by Prof. Prithviraj Ammanabrolu

- Developed a unified framework for aligning LLMs across verifiable and non-verifiable rewards using standardized PRM training and Multi-Action-Head DPO, improving multi-domain performance and enabling fine-grained user control at inference.

Dynamic Reasoning of Language Modeling Through Multi-Role Discussion — Hangzhou, China
Research Scientist Intern @ Alibaba Tongyi Lab advised by Dr. Liuyi Yao

- Designed a multi-character LLM discussion system with structured interactions and automated scene generation, improving reasoning and error correction.

Interpretable Alignment of LLMs with Multi-Dimensional Reward Signals — Durham, NC, US
Graduate Student Researcher @ Duke Computer Science Department Advised by Prof. Brandon T. Fain

- Developed an interpretable LLM alignment framework using an LLM-as-judge for sub-dimension scoring and fine-tuned with PPO, achieving comparable performance with greater transparency in RLHF.

Simulating and Optimizing Hospital Scheduling Through Machine Learning — Durham, NC, US
Graduate Student Researcher @ Duke Rhodes Information Initiative Advised by Prof. Ethan Fang and Prof. Yehua Wei

- Leveraged XGBoost and simulated annealing to optimize surgical schedules, cutting bed usage variance by about 20%.
- Built an interface for simulating schedule changes, helping Duke Hospital experts test and improve scheduling policies.

SELECTED PUBLICATIONS

- **Yiran Shen**, Yu Xia, Jonathan D. Chang, Prithviraj Ammanabrolu. Simultaneous Multi-objective Alignment Across Verifiable and Non-verifiable Rewards. **Under Review**.
- Yu Xia, **Yiran Shen**, Junda Wu, Tong Yu, Sungchul Kim, Ryan A. Rossi, Lina Yao, and Julian McAuley. SAND: Boosting LLM Agents with Self-Taught Action Deliberation. **EMNLP 2025**.
- Junda Wu, Rohan Surana, Zhouhang Xie, **Yiran Shen**, Yu Xia, Tong Yu, Ryan A. Rossi, Prithviraj Ammanabrolu, and Julian McAuley. In-context Ranking Preference Optimization. **COLM 2025**.
- Zhouhang Xie, Junda Wu, **Yiran Shen**, Yu Xia, Xintong Li, Aaron Chang, Ryan Rossi, Sachin Kumar, Bodhisattwa Prasad Majumder, Jingbo Shang, Prithviraj Ammanabrolu, and Julian McAuley. A Survey on Personalized and Pluralistic Preference Alignment in Large Language Models. **COLM 2025**.

AWARDS

- Duke University - Dean's Research Award
- University of Melbourne - Melbourne International Undergraduate Scholarship (50% fee remission); International Graduate Merit Scholarship; Melbourne Graduate Scholarship; Leaders in Communities Award; DJI RoboMaster 2021 University AI Challenge Third Prize

MISCELLANEOUS

Technical Projects: LLM Network Acceleration and Compression Research (1yr Capstone Project with Proofpoint) [Link], Domain Adaptive Ophthalmic Image Segmentation [Link], Real-Time Emotion Detection from Occluded Faces [Link].

Frameworks: Sklearn, PyTorch, Tensorflow, Numpy, Pandas, Dask, Flask, MySQL, Git, OpenCV, AWS, Streamlit.

Interests: Hiking, traveling, watching soccer, sudoku, taekwondo, documentaries.