Jiatai Li

412-933-9376 | lijiatai0704@gmail.com | linkedin.com/in/jiatai-li-3106a0222

Education

Carnegie Mellon University — Pittsburgh, PA

Master of Science in Machine Learning, QPA 4.09/4.0 — Expected graduation in 12/2024

- Major Courses: Advanced NLP, Probabilistic Graphical Models, Advanced CV, Deep Learning Systems

Bachelor of Science in Artificial Intelligence, QPA 4.0/4.0 — Graduated in 12/2023

- Major Courses: Algorithm Design & Analysis, Operating System, Multimodal Machine Learning, Probability Theory, Modern Regression
- Teaching Assistant for Introduction to Computer Systems (Fall 2022), Advanced Deep Learning (Spring 2024)

Work Experience

Canfield Scientific — Parsippany, NJ

Software Development Intern — 05/2024 – 08/2024

- Developed a new image editing panel using C++ and Qt, enabling users to annotate, rotate, crop, and adjust image colors efficiently.
- Collaborated with developers, UI designers, testers, and business teams to refine control logic, UI, and data management based on feedbacks.
- Presented a working prototype to the development team; delivered a final presentation to the entire company upon product update release.

IMC Trading — Chicago, IL

Quant Trader Intern — 06/2023 – 08/2023

- Analyzed six months of trade data to assess strategy performance during NASDAQ closing auctions; identified key factors affecting execution cost.
- Provided daily updates to mentor and weekly reports to manager; delivered a final presentation with data visualizations to enhance trading insights.

NoRILLA — Pittsburgh, PA

Software Development Intern — 06/2022 – 08/2022

- Worked with UI/UX teams to develop logic and layouts for a weight-balancing game, improving gameplay and user experience.
- Optimized Java-based UI engine, isolated core functions from game logic, improved testing efficiency by 40x for faster development cycles.

Selected Projects

VesselMapper @ University of Pittsburgh, GPN Lab — 09/2021 – Present

- Developed iterative vessel segmentation using Hessian features; reduced intensity variation by 35%, improving accuracy of vessel analysis.
- Published 3 abstracts and presented at OHBM and AAIC regarding the method and statistical analysis on the features of vascular structures.
- Integrating segmentation data to train a transformer-based 3D U-Net for more robust results and faster inference.

TicTacTOS @ Carnegie Mellon University, Operating Systems — 10/2023 – 12/2023

- Implemented a UNIX-inspired preemptive kernel on x86 architecture from scratch that provides a system call interface to the user.
- Developed a Pthreads-like thread library and a thread management interface that allows users to run multithreaded C programs.
- Collaborated with a teammate, met twice a week to update progress, coordinate tasks, solve problems and divide work; finished the project on time.

Self-Reflective WebArena @ Carnegie Mellon University, Advanced NLP — 04/2024 – 05/2024

- Improved LLM performance on WebArena subset by 10% with self-generated critiques on trajectory, enhancing long-term reasoning abilities
- Conducted ablation studies that found the ability of critic model is more effective to improve the performance of self-reflection agent.

Towards Scene-Aware ALFRED @ Carnegie Mellon University, Multimodal Machine Learning — 02/2023 – 05/2023

- Introduced more vision-language interaction into SoTA model on ALFRED dataset; increased task success rate by 2.8% (seen) and 2.5% (unseen).
- Trained a ViLT and a BLIP to integrate the instructions into the semantic map generation module; decreased KL divergence from 0.62 to 0.59.
- Few-shot prompted GPT-4 and fine-tuned ada to improve subtask decomposition accuracy from 80% to 92%.

EXCALIBUR @ Carnegie Mellon University, CLAW Lab — 09/2022 – 05/2023

- Designed and developed a question-answer generation pipeline based on CLEVR for new question types regarding relationships between objects.
- Co-authored and published the free-form exploration benchmark *EXCALIBUR: Evaluating and Encouraging Embodied Exploration* in CVPR 2023.

Skills

Programming Languages: Proficient: Python, C++, R, C, x86 Assembly, Java; Competent: Swift, Standard ML

Programming Libraries: NumPy, pandas, PyTorch, OpenCV, scikit-learn, Tensorflow, Qt, Insight Toolkit (ITK), Visualization Toolkit (VTK)