YILIN JIA

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Homepage: yilin jia's homepage
Google Scholar ◇ Github

EDUCATION

University of Michigan (Umich) *Sep 2024 - May 2026 (expected)*
M.S. in Computer Science
Related courses: Computer Graphics, Parallel Computing, Randomness and Computation

University of Michigan (Umich) *Sep 2022 - May 2024*
B.S. in Computer Science
Related courses: NLP, Computer Vision, Database, Embedded System, Algorithmic Robotics

Shanghai Jiao Tong University (SJTU) *Sep 2020 - May 2024*
B.S. in Electrical and Computer Engineering
Related courses: Analog Circuit, Digital Circuit, PDE, Probabilistic Methods, Discrete Mathematics

RESEARCH EXPERIENCE

Research Intern, Microsoft Research Asia NLC Group [1] [2] Feb 2024 - Aug 2024
Supervisors: Dr. Lei Cui

- Add support for Kosmos-2.5 to huggingface's transformers library.
- Collect a large OCR benchmark to assess the model's hallucination and document understanding capabilities for text-intensive images.
- Build a page-level OCR model with Mamba (subquadrative attention).

Research Assistant, Umich LIT Group [3] [4] May 2023 - Aug 2024
Supervisors: Prof. Rada Mihalcea

- Worked on efficient training by developing a task-adaptive tokenizer.
- Build a high-order theory of mind benchmark for the LLM.

PUBLICATIONS

[1] Y. Jia, T. Lv, Y. Huang, L. Cui, and F. Wei, *Mambaocr: Mamba-based end-to-end optical character recognition*, submitted to AAAI, 2024.
[2] T. Lv, Y. Huang, J. Chen, Y. Jia, L. Cui, and F. Wei, *Kosmos-2.5: A multimodal literate model*, 2024. arXiv: 2309.11419 [cs.CL]. [Online]. Available: https://arxiv.org/abs/2309.11419.
[3] Y. He, Y. Wu, Y. Jia, R. Mihalcea, Y. Chen, and N. Deng, *Hi-tom: A benchmark for evaluating higher-order theory of mind reasoning in large language models*, 2023. arXiv: 2310.16755 [cs.CL]. [Online]. Available: https://arxiv.org/abs/2310.16755.
[4] S. Liu, N. Deng, S. Sabour, Y. Jia, M. Huang, and R. Mihalcea, *Task-adaptive tokenization: Enhancing long-form text generation efficacy in mental health and beyond*, 2023. arXiv: 2310.05317 [cs.CL]. [Online]. Available: https://arxiv.org/abs/2310.05317.

SELECTED PROJECTS

llama2.mojo
Mojo community project Github

- Inference a baby Llama 2 model in pure Mojo, a high-performance systems programming language.

Light Strider
Final Project of Game Design (VG100) Github

· Light Strider is a Parkour-like game built with elm, which is a functional programming language.

LoRACSE: Contrastive Learning of Sentence Embedding using LoRA
Final Project of NLP (EECS487) Github

· Proposed LoRACSE, a novel contrastive learning method for sentence embedding using LoRA. With 0.067% parameters of the SOTA model, it remains comparable performance. Enhanced training efficiency while reducing computational resources.

A Pet-like Flowerpot
Final Project of Embedded System (EECS373) Github

· Developed an intelligent flowerpot using STM32 that autonomously waters plants based on soil moisture levels and moves to optimal light conditions. Key challenges included developing an Adafruit touchscreen driver for STM32, integrating multiple sensors, and implementing PID control for the movable platform. Coded in C, this project showcases advanced embedded systems and sensor integration skills.

ACHIEVEMENTS

Dean's Honor List, awarded by University of Michigan *Winter 2023*
Dean's Honor List, awarded by University of Michigan *Fall 2022*
UM-SJTU JI Student Development, awarded by Shanghai Jiao Tong University *Winter 2022*
Undergraduate Excellent Scholarship, awarded by Shanghai Jiao Tong University *Winter 2022*

OUTREACH

Grader, EECS376 Foundation of Computer Science, University of Michigan *Winter 2023*

SKILLS/HOBBIES

Programming Languages Python, C/C++, MATLAB, elm
Machine Learning Tools Pytorch, Transformers, Pandas, Numpy
Hobbies badminton and hiking