SHANGRONG WU

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RESEARCH INTEREST

Human-AI Interaction/Collaboration, Information Retrieval, Large Language Models (LLM) Reasoning

EDUCATION

National University of Singapore
Master of Computing (General Track) | GPA: 4.0/5.0 — Jan 2025 - May 2026 (Expected)

Hong Kong Polytechnic University
Bachelor of Science in Enterprise Engineering with Management | GPA: 3.45/4.30 — Sept 2020 - May 2024
Department of Industrial and Systems Engineering
Second Class Honours Division 1
Honor: Dean's Honors List, Faculty of Engineering

PUBLICATION

Shangrong Wu, Yanghong Zhou, Yang Chen, Feng Zhang, and P.Y. Mok (2025). Chain-of-Thought Re-ranking for Image Retrieval Tasks. arXiv preprint arXiv:2509.14746., Submitted to ICASSP 2026

RESEARCH EXPERIENCE

Investigate Human-AI Collaboration through Crowdsourcing — Aug 2025 – Present
National University of Singapore | Advisor: Prof. Varun Karamshetty — *Singapore*

- **Objective**: Investigate the relationship between human's delegation skills and willingness to delegate tasks to an AI in image classification problem, aiming to optimize human-AI collaboration performance.
- **Methodology**: Designed a novel experimental framework to quantify delegation behaviors. Currently overseeing data collection from participants on Amazon Mechanical Turk.
- **Next Step**: Poised to analyze the collected dataset to identify key factors influencing effective task delegation.

Enhancing VLM-Based Image Retrieval by Reranking With MLLMs — May 2025 - Aug 2025
Hong Kong Polytechnic University | Advisor: Prof. Yanghong Zhou — *Hong Kong*

- Proposed CoTRR, a novel chain-of-thought re-ranking method that enhances the ranking of target images and is compatible with various retrieval tasks.
- Introduces a query deconstruction prompt and a listwise ranking prompt, along with an image evaluation paradigm, to better understand user intention and to more effectively evaluate, analyze, and re-rank the retrieved results.
- Achieved a 10% improvement in Recall@1 on multiple Image Retrieval datasets, including Flickr30k, MSCOCO, CIRR, CIRCO, and VisDial, establishing a new state-of-the-art on three image retrieval tasks.
- One paper submitted to ICASSP 2026.

Enhancing Multimodal Fashion Retrieval in Applications — Jun 2024 - Dec 2024
Computer Aided Fashion Intelligence Research Group, HK PolyU | Advisor: Prof. P. Y. Mok — *Hong Kong*

- Investigated cross-modal retrieval techniques using Vision-Language Model (VLM) to enhance fashion intelligence applications.
- Fine-tuned foundational AI models on Fashion IQ, Fashion200K and DeepFashion datasets for fashion retrieval and achieved state-of-the-art performance.
- Evaluated model performance using precision and recall metrics, visualizing retrieval results to facilitate in-depth analysis.
- Built proof-of-concept application and deployed it for presentation.

Web-based multimodal retrieval system for e-commerce platform Sept 2023 - Apr 2024
Department of Industrial and Systems Engineering, HK PolyU | Advisor: Prof. Roy W.C. Law *Hong Kong*

- Conducted literature review on e-commerce economics and state-of-the-art retrieval techniques.
- Designed and developed a full-stack web-based system integrating OpenAI's CLIP model.
- Built front-end and backend components using Python, HTML, CSS, and JavaScript.

WORK EXPERIENCE

Computer Aided Fashion Intelligence Research Group - HK PolyU Jun 2023 - Dec 2024
Full Stack Developer *Hong Kong*

- Developed interactive Web and Mobile APPs in front-end.
- Built and maintained backend service using FAST API with Python.
- Modified and Maintained MySQL database.
- Maintained a Linux server environment for production.
- Collaborated with project managers, UI/UX designers, and other developers.
- Utilized Git for version control to streamline development workflows.

PROGRAMMING SKILLS AND TOOLS

Programming Languages: Python / Pytorch / Java / C++/ JavaScript / HTML / CSS
Front-End Development: Angular / React
Back-End Development: FastAPI / Linux / MySQL

LANGUAGE SKILL

English (IELTS: 7.5), Mandarin Chinese(Native), Cantonese