SHANGRONG WU

+65 89425882 ◇ Singapore ◇ johnwu8815@outlook.com ◇ wushangrong.info

EDUCATION

National University of Singapore
Master of Computing (General Track) | GPA: 4.0/5.0 Jan 2025 - May 2026 (Expected)
Courses: Artificial Intelligence, Database Design and Programming, Enterprise Systems Architecture Fundamentals, Big-Data Analytics Technology, Computer Systems and Applications

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
Courses: Industrial Engineering Techniques and Methods, Operation Research, Programming Fundamentals, Data Structure, Quality Engineering, Statistics, Resources Planning and Analysis, Enterprise Resources Planning

RESEARCH INTEREST

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

RESEARCH EXPERIENCE

Human-AI Collaboration for Image Classification 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: Dr. Yanghong Zhou *Hong Kong*

- Proposed a plug-and-play re-ranking method that significantly enhances Vision-Language Model (VLM)-based image retrieval by using a Multimodal Large Language Models (MLLMs)
- Introduced a novel Chain-of Thought (CoT) prompting strategy to guides the MLLM to deconstruct user query and perform a list-wise re-ranking.
- Achieved a 10% improvement in Recall@1 on multiple Text-to-Image Retrieval datasets including Flickr30k, MSCOCO, CIRR, CIRCO, and VisDial, establishing a new state-of-the-art.
- One paper submitted to ICASSP'2026.

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 a 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.

PUBLICATION

S. WU, Y. Zhou, Y. Chen, F. Zhang, and P. Mok, "Chain-of-Thought Re-ranking for Image Retrieval Tasks ," Submitted to ICASSP 2026. (First Author)

WORK EXPERIENCE

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

- **Research Focus**: Investigated cross-modal retrieval techniques using Vision-Language Model (VLM) to enhance fashion intelligence applications.
- **Multimodal Evaluation**: Fine-tuned and evaluated model performance using precision and recall metrics, visualizing retrieval results to facilitate in-depth analysis.
- **Software Development**:
  - *D*eveloped interactive Web and Mobile APPs in front-end
  - *B*uilt and maintained backend service using FAST API with Python.
  - *M*odified and Maintained MySQL database
  - *M*aintained a Linux server environment for production.
  - *C*ollaborated with project managers and UI/UX designers.
  - *U*tilized Git for version control to streamline development workflows.

AWARDS AND HONORS

Dean's Honors List in 2021/22 Academic Year, Faculty of Engineering, HK PolyU

SKILLS

Languages: English (IELTS:7.5), Mandarin (Native), Cantonese
Programming Languages: Python / Pytorch / Java / C++/ JavaScript / HTML / CSS
Front-End Development: Angular / React
Back-End Development: FastAPI / Linux / MySQL