Yuhang YAN (Henry)

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Education

The Chinese University of Hong Kong (CUHK) Sep. 2021 - Jul. 2025 (expected)
Bachelor of Science in Computer Science (CSCI) Hong Kong SAR, China

- CGPA: **3.757**; Senior GPA: **3.894**/4.000 (**Dean's List, Top 10%**)
- **ELITE Stream** of Faculty of Engineering; A member of **S.H. Ho College**
- **Spring semester exchange** to École Polytechnique Fédérale de Lausanne (**EPFL**), 2023-24
- **Spring semester exchange** to Yuanpei College, Peking University (**PKU**), 2022-23

Research Experience

Fact or Fairness? Identifying Over-Balanced Issues *(Capstone Project)* Apr. 2024 - present
Supervised by Prof. Michael R. Lyu (CUHK) Hong Kong SAR, China

- **Bias Detection in Generative Models**: Analyzed biases in generative models across 19 social statistics, focusing on the representation of various races and genders, and identifying disproportionate predictions related to demographics.
- **Cognitive Bias Performance Evaluation**: Refined prompts based on psychological research to evaluate generative models' performance in scenarios involving common cognitive biases, assessing their ability to mitigate biased outputs.
- **Fairness Quantification and Trade-off Exploration**: Established metrics to quantify fairness in model outputs, investigating the trade-off between content accuracy and equitable representation across different demographic groups.

Evaluation on the Vulnerability of Current Generative Models Feb. 2024 - Jun.2024
Supervised by Prof. Sabine Süsstrunk (EPFL) Lausanne, Switzerland

- **"Jailbreak" Analysis & Defense Mechanism Development**: Identified vulnerabilities in current generative models through ten "jailbreak" techniques and developed defense mechanisms, enhancing model security and reliability.
- **Content Moderation and Bypass Detection**: Applied reinforcement learning and greedy search to detect alternative expressions of sensitive terms, significantly improving content moderation and bypass prevention.
- **Safety and Fine-Tuning for Resilience**: Conducted simulations and fine-tuned models to reinforce vulnerabilities, optimizing defense strategies and enhancing resilience against biased content while maintaining high performance.

Efficient Video Analytics Jun. 2023 - Sep. 2023
Supervised by Prof. Eric Lo (CUHK) Hong Kong SAR, China

- Won the **Best Project Award 2023** among 58 undergraduate projects.
- **Multi-modal AI System for Lost-and-Found**: Developed a system using CLIP and OWL-ViT models to search large-scale airport video data via text and images, significantly improving AI's role in lost-and-found services.
- **Custom Dataset & Model Evaluation**: Created a custom airport video dataset and established evaluation standards, selecting high-performing Zero-Shot Object Detection and NLP models, reducing processing time by 80%.
- **Frame Detection Optimization**: Designed an algorithm to detect frames of lost items with improved tolerance levels, increasing efficiency in searching large video footage while maintaining high accuracy and recall rates.

Work Experience

AiMall Technology Co., Ltd Jun. 2024 - Aug. 2024
Algorithm Engineer Intern Shenzhen, China

- **Cloud-Based Video and Audio Embedding Storage**: Embedded video and audio frames as vectors and stored them in a cloud database, enabling seamless query-based retrieval and reducing search time from 30+ hours to minutes.
- **Fine-tuned Vision-Language Models (VLMs)**: Applied Swift and LoRA to enhance object detection in the company's surveillance system, fine-tuning VLMs and achieving a 30% improvement in fune-tuning processing speed.
- **Model Quantization for Efficiency**: Implemented AWQ and GPTQ techniques to optimize large language models (LLMs) for deployment, improving data processing efficiency by 60% and streamlining large-scale search operations.
- **LLM Self-Recognition Fine-Tuning**: Fine-tuned large language models (LLMs) using open-source datasets such as Alpaca and Swift/self-cognition to enhance self-awareness and recognition capabilities.

AIJobTech, Ltd Mar. 2024 - present
Co-founder & CTO Hong Kong SAR, China

- **Co-founded AI-driven Job Matching Startup**: Led the creation of a startup company focused on automating and personalizing job searches using AI, with the mission to improve job matching and job-seeking efficiency.
- **Technical Leadership and Product Development**: Directed the development of AI tools for resume polishing and job matching, delivering personalized recommendations and enhancing user success in job searches.

Skills

Languages	English (Proficient), Mandarin (Native) and Cantonese (Intermediate).
Programming	C/C++, Java, JavaScript, MATLAB, Python{Flask, PyTorch, TensorFlow} and SQL.
Tools	LaTeX, Conda, Git, Linux and Spark.