Yifei (Vincent) Yue

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Education

University of Sydney **Jul. 2023 – Jun. 2024**
BSc in Computer Science (Honours) *Sydney, New South Wales*

- Cumulative Weighted Average Mark: 87 (Honours Class I)
- Thesis: Cross-domain Mitochondria Segmentation in Electron Microscopy Images

University of New South Wales **Sep. 2021 – May 2023**
BSc in Computer Science *Sydney, New South Wales*

- Cumulative Weighted Average Mark: 85 (High Distinction)
- Student Exchange Engineering Award

University of Nottingham Ningbo China **Sep. 2018 – Jun. 2021**
BSc in Computer Science (Honours) *Ningbo, Zhejiang*

- Cumulative average before transfer: 71% (First Class)
- The Dean's Scholarship 2019-2020

National University of Singapore **Jan. 2023 – May 2023**
Exchange *Singapore*

Professional Experiences

Cyber Partner AI Inc. **Apr. 2024 – present**
Full Stack Engineer

- Developed a real-time dialogue system integrating large language models, custom knowledge bases and long-term memory, achieving seamless character role-playing capabilities.
- Fine-tuned a BERT-based safety detection model for content moderation system, effectively filtering inappropriate content in both input and output streams with 95% accuracy.
- Implemented a multi-threaded, interruptible audio streaming system on Raspberry Pi, delivering low-latency audio responses synchronized with motor movements to enhance realistic toy interactions.

Hangzhou Hikvision Digital Technology Co., Ltd. **Jun. 2023 – Aug. 2023**
AI Algorithm Intern

- Developed a real-time vehicle tracking system using DeepSORT and YOLOv5 to accurately detect and track vehicles, achieving a precision of 92.5% and a recall of 72.3%.
- Implemented algorithms to analyze vehicle behavior patterns over time, including traffic flow statistics, lane change detection, and vehicle clustering analysis.
- Participated in refactoring and optimizing the backend vehicle detection management system by implementing Redis caching and microservices architecture, reducing API response time from 800ms to 300ms.

NVIDIA Joint-Lab on Mixed Reality, NVIDIA Technology Centre **Jun. 2021 – Oct. 2021**
Research Intern

- Investigated the use of machine learning-based emotion classifiers in enhancing emotional transmission during remote verbal communication compared to text-based interactions.
- Developed a virtual chatroom that replaced video feeds with real-time facial expression recognition results to protect user privacy while maintaining emotional content.
- Conducted comparative analysis between listeners and readers to evaluate the effectiveness of machine learning-assisted emotion transfer in different storytelling formats.

UNNC-NFTZ Blockchain Laboratory **May. 2020 – Aug. 2020**
Data Mining Intern

- Developed web crawlers for major commercial databases, creating custom frameworks for each and employing techniques like User-Agent pools and behavior simulation to bypass anti-scraping mechanisms.
- Contributed to the creation of a new green financial database by preprocessing and cleaning over 200,000 enterprise data records, which became a key data source for the database.

Research Experiences

Automatic Keyword Detection in Social Media **Sep. 2020 – Nov. 2021**

- Developed a crawler algorithm to extract social media posts related to a specific keyword, along with corresponding attributes such as likes, comments, and reposts.
- Proposed a novel approach combining the LDA topic model with word embeddings and key attributes of social media for more effective keyword detection.
- Presented the project at the 2021 Sigma Xi Student Research Showcase, with a poster presentation at the 2021 Annual Meeting and Student Research Conference.

Constructing an Intelligent Virtual Human for User Interaction **Sep. 2020 – Jun. 2021**

- Constructed an intelligent virtual human in Unity3D, integrating real-time facial and body motion recognition, speech recognition and synthesis, and lip synchronization.
- Designed and implemented a central decision system to manage multiple simultaneously running deep learning processes, enhancing the interaction capabilities of the virtual human.
- Implemented a rock-paper-scissors game that enabled simultaneous multi-user interaction, demonstrating robust real-time processing and seamless integration of recognition and synthesis systems.

The Robot Team of the University of Nottingham **Sep. 2019 – Jun. 2021**

- Responsible for the visual development (automatic aiming system) of land robots and drones and promoting the development progress of the team.
- Developed a high-performance aiming system for infantry robots, leveraging OpenCV for real-time image processing and deep learning-based target classification, achieving precise target locking at 120 FPS with an 8-meter recognition range.
- Participated in the largest robotics competition RoboMaster in China sponsored by DJI and served as the leader of the robot vision development team and won the second prize in the 2021 competition.

Papers

Content-Aware Residual Asymmetric Convolution Network for Adaptive Mitochondria Segmentation
Yifei Yue, Zhuonan Liang, Dongnan Liu, Weidong Cai Submitted to IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2025

Utilizing Social Media Attributes for Enhanced Keyword Detection: An IDF-LDA Model Applied to Sina Weibo
Yifei Yue *Sigma Xi Student Research Showcase, 2021*

Leadership / Extracurricular

University of New South Wales **Aug. 2024 – Oct. 2024**

Student Mentor

- Mentored junior CS students in career development, providing guidance from professional experience and helping them identify growth opportunities and technical skill gaps.
- offered constructive criticism and suggestions for action to help my mentees construct a career road-map.

University of Nottingham Ningbo China **Sep. 2019 – Jun. 2020**

Peer Mentor

- Responsible for the electing of class committee, hosting class meetings and other activities, sorting out student profiles and helping students with academic and life issues.

University of Nottingham Ningbo China **Nov. 2018 – May 2019**

Student Representative

- Managed class leaders of CS classes, conducted biweekly meetings to gather feedback from computer science students and reported to staff representatives for course improvement discussions.

Sri Lanka International Volunteer Project **Jan. 2019 – Feb. 2019**

International Volunteer

- Responsible for teaching English and campus renovation for kindergartens in a Sri Lanka village.