



# YIFEI YUE

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## Education

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### University of Sydney

Sep. 2023 – Present

*BSc in Computer Science (Honours)*

*Sydney, New South Wales*

- Cumulative Weighted Average Mark: 83 (First Class)
- Supervisor: A/Prof. Weidong (Tom) Cai
- Honours Project: 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)
- The Dean's Honours List 2022; Student Exchange Engineering Award
- Relevant Modules:  
Machine Learning & Data Mining; Computer Vision; Neural Networks & Deep Learning; Database Systems & Implementation; Algorithm & Programming Techniques; Software Engineering Fundamentals

### 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*

- Relevant Modules:  
Information Security; Probability & Statistics; Information Retrieval; Computational Media Literacy

## Experiences

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### Stanford University

Jun. 2023 – Aug. 2023

*Research Assistant*

- Responsible for the development of web scraping algorithms for collecting and preprocessing data from multiple Chinese news platforms.
- Developed a BERT-based word embedding model to train a detector for analyzing user speech, identifying sentiment, bias, and compliance with regulations or signs of radicalism.

### Hangzhou Hikvision Digital Technology Co., Ltd.

Jun. 2023 – Aug. 2023

*Front End Developer Intern*

- Currently responsible for development and maintenance of various subsystems and device drivers within embedded Linux Kernel.

### NVIDIA Joint-Lab on Mixed Reality, NVIDIA Technology Centre

Jun. 2021 – Oct. 2021

*Research Intern*

- Explored the use of machine learning-based emotion classifiers to facilitate the transfer of emotions and expressions in verbal communication in an AR environment.
- Developed a virtual chatroom to simulate an AR environment and implemented a real-time facial emotion recognition system.
- Integrated the emotion recognition system into the chatroom and used emojis to represent users' emotions while protecting user privacy.

### The Robot Team of the University of Nottingham

Sep. 2019 – Jun. 2021

*Visual development Leader*

- 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.
- Responsible for the visual development (automatic aiming system) of land robots and drones and promoting the development progress of the team.

## Projects

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### Brain MRI Image Segmentation

Sep. 2022 – Nov. 2022

- Implemented a convolutional network for brain MRI image segmentation using TensorFlow, incorporating ideas from UNet, Attention-based UNet, and Deep Residual UNet.
- Trained and evaluated models on an augmented dataset of 4000 images, achieving IoU scores of around 0.99 and Dice coefficients of around 0.7.

### Elo Merchant Category Recommendation

May 2022 – Aug. 2022

- Developed machine learning models to predict user loyalty in the ELO merchant category recommendation project, utilizing 1.05 million user transaction records and approximately 330,000 merchant records.
- Implemented data preprocessing techniques including stitching, feature extension, and feature selection using filter and wrapper methods.
- Trained and tuned machine learning models using random forest, LightGBM, and XGBoost, applying cross-validated grid search and TPE hyperparameter optimization for parameter tuning.
- Improved model accuracy and stability by ensemble learning techniques, including voting and averaging.

### Real-time Pedestrian Tracking and Behavior Analysis

May 2022 – Aug. 2022

- Developed a real-time video tracking system using DeepSORT and YOLOv5 to accurately detect and track pedestrians, achieving a precision of 88.5% and a recall of 68.5%.
- Implemented algorithms to analyze pedestrian behaviour over time, including counting the number of pedestrians walking in groups and alone, and tracking group formation and destruction.
- Demonstrated the effectiveness of the tracking system through a MOTA score of 49.5%.

### Automatic Keyword Detection in Social Media

Sep. 2020 – Nov. 2021

- Crawled all posts containing the keyword "Trump" in January 2020 and some corresponding attributes, such as the number of likes, comments and reposts, for a total of 18,399 posts.
- Proposed a novel approach that combines the distinct attributes of social media with the LDA topic model.
- Achieved higher precision and recall than several baseline models for the task of keyword detection.
- The project was accepted by the 2021 Sigma Xi Student Research Showcase, and a poster presentation was given at the following 2021 Annual Meeting and Student Research Conference.

### Constructing an Intelligent Virtual Human for User Interaction

Sep. 2020 – Jun. 2021

- Constructed an intelligent virtual human using Unity3D, including the implementation of facial expressions, body movements, speech synthesis, and lip synchronization.
- Developed a central decision-making system that integrates other virtual human functions, such as facial, speech, hand and body gesture recognition.
- Implemented stable interaction between the virtual human and users, including calling a user by name and initiating conversations, playing the game of rock-paper-scissors, and engaging in basic conversation, resulting in a smooth and seamless experience.

## Papers

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**Utilizing Social Media Attributes for Enhanced Keyword Detection: An IDF-LDA Model Applied to Sina Weibo**

Yifei Yue arXiv:2306.07978

## Leadership / Extracurricular

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### 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.