Youjing Yu

(+44) 7745986849 | yy471@cam.ac.uk | yuyoujing99@163.com

Education

Computational and Biological Learning Lab, University of Cambridge   *Oct. 2023 - PRESENT*
ENGINEERING   PhD in Training

Trinity College, University of Cambridge   *Oct. 2019 – Jun.2023*
ENGINEERING   Bachelor of Arts, Master of Engineering

> First Year Grades: *Unofficial* due to COVID-19; 85% Overall.
> Second Year Grades: *Unofficial* due to COVID-19; 77% Overall; **Awarded Senior Scholar.**
> Third Year Grades: 78% Overall;
>> **ranked 19/285 (top 6%)**; **Awarded Senior Scholar.**
> Fourth Year (Masters) Grades: 80% Overall;
>> **ranked 3/285 (top 1%) of general engineering;**
>> **ranked top of Information and Computer engineering.**

Hwa Chong Institution, Singapore   *Jan. 2017 - Dec. 2018*
Singapore A level Physics (A), Mathematics (A), Chemistry (A), Economics (A), Modern Physics (Distinction)

Awards & Prizes

Cambridge University Research Scholar - Oct 2023
Trinity College Internal Graduate Scholarship – Aug 2023;
Trinity College Mathison Prize - Aug 2023;
Trinity College Richard and Valery Garrett Prize - Aug 2023;
Trinity College Prince of Wales Student Award - July 2023;
Trinity College Examination Prize - July 2023;
Department of Engineering AT&T Prize - June 2023;
Trinity College Senior Scholar - July 2022;
Trinity College Examination Prize - July 2022;
Trinity College Summer Studentship - Mar 2022;
Trinity College Senior Scholar - July 2021;
Trinity College Examination Prize - July 2021;
Cambridge Trust Overseas Scholarship - Mar 2019;
Trinity College Overseas Bursary - Mar 2019;
Hwa Chong Diploma with Distinction - 2018;
Singapore Science and Engineering Fair Silver Award - March 2018**;**
Singapore Youth Festival Gold Award - May 2017;

Publications

- Yu, Youjing, Zhengxiang Shi, and Aldo Lipani. "Understanding Users' Confidence in Spoken Queries for Conversational Search Systems." In *International Conference on Engineering Applications of Neural Networks*, pp. 405-418. Cham: Springer Nature Switzerland, 2024.
- Yu, Youjing, Rui Xia, Qingxi Ma, Máté Lengyel and Guillaume Hennequin (in press). " Second-order forward-mode optimization of recurrent neural networks for neuroscience " In *Advances in Neural Information Processing Systems.*

Experience

Research Intern at the Department of Engineering   **University of Cambridge**

Student Assistant Researcher   *Oct.2022-Jun.2023*

- Joined the Neural Dynamics and Control (NDC) group directed by Dr Guillaume Hennequin. Our task is to implement a webcam-based eye tracker to track the user's eye movements on screen in psychophysical experiments to better understand human thinking when solving challenges.
- Using ideas from human physiology, we Implemented a real-time webcam-based lightweight eye tracker that runs in browsers. We proposed a novel algorithm that combines deterministic physical setup inference and probabilistic eye rotation angle estimation using a Gaussian Process regressor.
- Our implementation shows a 22% reduction in error in prediction of gaze location of user compared to the original WebGazer.

Research Intern at the Department of Computer Science   **University College London**

Student Assistant Researcher   *Dec.2021-Oct.2022*

- Joined the Web Intelligence Research Group and supervised by Dr Aldo Lipani.
- Worked on speech and text-based user confidence and expertise detection and measurement on conversational search systems (CSS) in Natural Language Processing (NLP) using transformer-based multimodal deep neural networks.
- ***Paper published at International Conference on Engineering Applications of Neural Networks (EANN).***

Research Intern at the Department of Engineering   **University of Cambridge**

Team Leader   *Jul.2021-Oct 2021*

- Successfully developed a web-based interface for Natural Language Processing (NLP) text corpora that runs two bias detection algorithms and enables gender biases to be revealed visually and interactively. Implemented a novel debiasing feature and natural language query understanding.

MAGIC Research Group at the Department of Engineering   **University of Cambridge**

Research Intern   *Mar.2021- Apr.2021*

- Joined a research group named the Managing Air for Inner Greater Cities (MAGIC). The subgroup directed by Professor Adam Boies targets identifying modes of pollution resulting from different car models. Identified car plate numbers using OpenCV and Pytesseract with computer vision techniques.

Spacept project at Hackbridge   **University of Cambridge**

Team member   *Oct.2020-Dec 2020*

- Identified and predict building damage and forest fires from satellite images. Built an ML-Enhanced Computer Vision Change Detector System for Satellite Images Analysis. Team leader of the unsupervised learning team.

Research Group at the Department of Electrical and Electronic Engineering   **University of Hong Kong**

Student Assistant researcher   *Jul.2020-Sep.2020*

- Did a ten-week internship programme on deep-learning generated holography. Built various neural networks such as convolutional neural networks (CNN), ResNet, Wide ResNet, DenseNet and SqueezeNet with Generative Adversarial Network (GAN) structures on hologram images with Tensorflow .

Research Group under the Department of Building   **National University of Singapore**

Assistant researcher; Student team leader   *Mar.2017-Jan.2018*

- Produced nano encapsulated organic particles for coating. Our Cadmium Orthostannate nanoparticles with 3-(mercaptopropyl)trimethoxysilane suspended in organic solution were shown to have effective thermal insulation abilities, which can save massive amounts of energy if painted on windows.

Teaching

Trinity College   **Trinity College, University of Cambridge**
Oct.2023 – Present

- Engineering Tripos 1A Mathematics

Extra-curricular Activities

Trinity College Badminton Club   **Trinity College, University of Cambridge**
President   *Oct.2022 – Jun.2023*

- Overseeing Women's Team, Men's First, Second and Third Team.
- Organise coaching, league matches, cuppers matches, field court bookings, stash designs and orders.

Hwa Chong Girls' Tennis Team   **Singapore**
Member   *Jan.2017 – Dec.2018*

- Represented Hwa Chong Junior College in inter-collegiate tennis matches.
- **First Runner-Up** in 2017; Second Runner-Up in 2018.

Hwa Chong Junior College Chinese Orchestra   **Singapore**
Member   *Jan.2017 – June.2017*

- Represented Hwa Chong Junior College Chinese Orchestra.
- **Gold Award** at Singapore Youth Festival.

Son-rise Singapore   **Singapore**
Member   *Jan.2017 – Dec.2018*

- Responsible for interacting and playing with an autistic child four hours a week. Taught the child basic words and maths.
- This experience taught me the value of empathy and the importance of always respecting and helping people living on the margins of society, which I am highly grateful for. I have also developed a positive mindset and a passion for serving.

Anderson Secondary School Choir   **Singapore**
Member   *Jan.2015 – Dec.2016*

- Represented Anderson Secondary School Choir
- **Gold Award** at Singapore Youth Festival.

Personal Website: https://youjingyu99.github.io/

Referees

Dr Flavia Mancini
fm456@cam.ac.uk
Department of Engineering, Cambridge

Dr Guillaume Hennequin
gjeh2@eng.cam.ac.uk
Department of Engineering, Cambridge