

# Youjing Yu

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## Education

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Computational and Biological Learning Lab, University of Cambridge  
ENGINEERING

Oct. 2023 - *PRESENT*  
PhD in Training

Trinity College, University of Cambridge  
ENGINEERING

Oct. 2019 – Jun. 2023  
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

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**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;**

American Mathematics Competition Distinction - 2017;

Australian Mathematics Competition High Distinction - 2017;

Euclid Mathematics Contest Distinction - 2017;

**Singapore Junior Physics Olympiad Silver Award - Oct 2016;**

**UNSW English Writing Competition High Distinction - 2016;**

UNSW Mathematics Competition High Distinction - 2016;

**OAAS Scholarship Award - 2016;**

**Singapore Youth Festival Gold Award - 2015;**

**Singapore Mathematical Olympiad Silver Award -2015;**

## Publications

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- 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.

## Experience

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### Research Intern at the Department of Engineering

Student Assistant Researcher

University of Cambridge

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

Student Assistant Researcher

University College London

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 under review at Special Interest Group on Information Retrieval (SIGIR).*

### Research Intern at the Department of Engineering

Team Leader

University of Cambridge

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. *Paper under review at Digital Scholarship in the Humanities.*

### MAGIC Research Group at the Department of Engineering

Research Intern

University of Cambridge

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

Team member

University of Cambridge

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

Student Assistant researcher

University of Hong Kong

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.

## Extra-curricular Activities

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### 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

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Dr Flavia Mancini

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Dr Guillaume Hennequin

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