

ZHAOYU LIU

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Johns Hopkins University

EDUCATION

The Johns Hopkins University

Masters Student, Biomedical Engineering

Whiting School of Engineering, Biomedical Engineering

August 2023 - July 2025(expected)

Overall GPA: 3.90/4.0

Chinese University of Hong Kong

Undergraduate, Bachelor of Biomedical Engineering

Faculty of Engineering, Department of Biomedical Engineering

September 2019 - July 2023

Overall GPA: 3.72/4.0

First Honor

ETH Zürich (Eidgenössische Technische Hochschule Zürich)

Term Exchange

Faculty of Engineering, Department of Information Technology and Electronic Technology

February 2022 - September 2022

Highschool Affiliated to Shannxi Normal University

Higher Secondary Education

2016-2019

RESEARCH EXPERIENCE

Johns Hopkins University

Department of Chemical and Biomolecular Engineering, Prof. David H. Gracias's Lab

Present

Baltimore, MD, USA

September 2023 -

- Developing foldable **microelectrode arrays** for organoid research
- Conducting **3D mapping** of cardiac organoids

Chinese University of Hong Kong

Department of Biomedical Engineering, Prof. Raymond Tong's Lab

Hong Kong, China

September 2022 - April 2023

- Final Year Project: Developed a **Virtual Reality** system for stroke rehabilitation using Unity3D and Oculus Quest 2
- Project awarded Silver Award at the 48th Geneva International Exhibition of Inventions

Chinese University of Hong Kong

Department of Psychology, Prof. Urs Maurer's Lab

Hong Kong, China

September 2022 - April 2023

- Implemented **Graph Neural Network** code for EEG data processing

University of Zürich

Clinic for Child and Adolescent Psychiatry and Psychotherapy, Prof. Silvia Brem's Lab

Zürich, Switzerland

June 2022 -

- Intern in Developmental Neuroimaging
- Explored EEG and fMRI data processing techniques
- Investigated correlation between dyslexia classification accuracy using **Riemannian Classifier** and subjects' reading abilities

Chinese University of Hong Kong

Department of Biomedical Engineering, Prof. GAO Zhaoli's Lab

Hong Kong, China

September 2021 - December 2021

- Student Helper
- Assisted in sweat sensor fabrication
- Developed MATLAB program for heart rate data collection from wearable devices

Chinese University of Hong Kong

Department of Biomedical Engineering, Prof. Raymond Tong's Lab

Hong Kong, China
May 2021 - August 2021

- Summer Research Student
- Gained expertise in EEG signal processing, deep learning, machine learning, and Riemannian-based classifiers
- Participated in a group study comparing Chinese and English language processing using **EEG**

Chinese University of Hong Kong

Department of Biomedical Engineering, Prof. DUAN Liting's Lab

Hong Kong, China
March 2020 - March 2021

- Student Helper
- Acquired skills in cell culture, transfection, amplification, Southern blot, Western blot, and imaging
- Gained knowledge in optogenetics

PUBLICATIONS

Jan, H.*, **Zhaoyu, L.***, Tommaso, S., & Pietro, P*. (2022). A Trainable Sequence that Learns and Recognizes Two-Input Sequence Patterns. *TENCON 2022*, November 2022.

Yang, Yaqi; **Liu, Zhaoyu**; Wong, Brian W.L.; Huo, Shuting; Wang, Jie; Lee, Tan; Hoeft, Fumiko; Maurer, Urs[‡]. Screening for Developmental Dyslexia in Hong Kong Chinese Children Using Resting- and Task-State EEG with Convolutional Neural Networks. *Under review at Journal of Child Psychology and Psychiatry*.

Liu, Zhaoyu; Chen, Jingxun; Xu, Mingkun; Gracias, David H.; Yong, Ken-Tye[‡]; Wei, Yuanyuan[‡]; Ho, Ho-Pui[‡]. (2024). Advancements in Programmable Lipid Nanoparticles: Exploring the Four-Domain Model for Targeted Drug Delivery *arXiv preprint at <https://doi.org/10.48550/arXiv.2408.05695>*.

[‡]Corresponding authors

* Indicates equal contribution

PRESENTATIONS

Presenter: Zhaoyu Liu. Jan, H.*, **Zhaoyu, L.***, Tommaso, S., & Pietro, P*. (2022). A Trainable Sequence that Learns and Recognizes Two-Input Sequence Patterns. PowerPoint presented at *TENCON 2022*, November 2022.

Presenter: Yang, Yaqi. Yang, Yaqi; **Liu, Zhaoyu**; Wong, Brian W.L.; Huo, Shuting; Wang, Jie; Lee, Tan; Hoeft, Fumiko; Maurer, Urs. Screening for Developmental Dyslexia in Hong Kong Chinese Children Using Resting- and Task-State EEG with Convolutional Neural Networks. Poster presented at *The Association for Reading and Writing in Asia (ARWA) 8th Annual Conference*, February 29 - March 1, 2024.

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HONORS AND AWARDS

1. Received **Academic Excellence Scholarship for Non-local Fee-paying Students 2022/23** at the Chinese University of Hong Kong, on **June, 2023**
2. Received **Silver Award** in 48th Geneva International Exhibition of Inventions for my final year project, on **May, 2023**

3. Received **Chung Chi College Departmental Prize Biomedical Engineering** at the Chinese University of Hong Kong, on **March, 2023**
4. Received **BME Outstanding Achievement Scholarship 2021-22** at the Chinese University of Hong Kong, on **Aug, 2022**
5. Received **Yasumoto Int'l. Exchange Scholarship.(NL)** at the Chinese University of Hong Kong, on **Aug, 2021**
6. Selected as **Dean's List, 2020-2021** at the Chinese University of Hong Kong, Faculty of Engineering, on **July, 2021**
7. Received **Class of 1977 Fortieth Graduation Anniversary Scholarship** at the Chinese University of Hong Kong, Chung Chi College, on **April, 2021**
8. Received **Chung Chi College Class Scholarship** at the Chinese University of Hong Kong, Chung Chi College, on **Oct, 2020**
9. Selected as **Dean's List, 2020-2021** at the Chinese University of Hong Kong, Faculty of Engineering, on **Jan, 2020**

RELEVANT COURSES

1. At CUHK

Separately in the transcript.

2. At ETH Zürich

Neural Systems

Neuromorphic Engineering

Semiconductors

Optics and Photonics

3. Others

Machine learning by Andrew Ng

Deep learning by Andrew Ng

Probability and Statistics

Python Programming

SKILLS

Programming skills:

Python, C, Matlab, HTML and JavaScript, LaTeX, Unity (C#)

Electrical Engineering:

Cadence Virtuoso

Micro-fabrication and Photo-lithography

Biomedical Engineering skills:

EEG and fMRI signal processing

Biology knowledge exposure (Physiology, Ethology, etc.)

Deep learning and Principle of statistics

Cell Culture and related techniques

Extracurricular:

Public Speaking, Swimming, Table Tennis.

Languages:

Chinese (Native), English (C1, IELTS: 7.5).

MISCELLANEOUS

I love traveling, trekking, hiking, singing, playing sports, playing video games, and thinking about psychology-related phenomena.

Past President of Chung Chi College Toastmasters Club

last updated on 2024, Sept 2nd