

YI-SHAN HUNG

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EDUCATION

University Of Sydney

B.Eng. in Biomedical Engineering & B.S. Medical Science: Human Anatomy and Histology; Microbes, Infection and Immunity; Biomedical Design and Technology; Computational Analysis for Biomedical Signals;

Sydney, Australia

Aug. 2022 – Present

Denmark Technical University (DTU)

Exchange student in Bachelor of Biomedical Engineering: Biomedical Product development; Vaccine design and development

Lyngby, Denmark

Aug. 2024 – June.2025

RESEARCH AND PROFESSIONAL PROJECT

Water Tower Maintenance App, Engineers without boarder DK

Feb.2025-Jun.2025, DTU, Denmark

Co-designed a low-literacy, AI-guided mobile platform enabling community-led water tower maintenance in Sierra Leone; applied sustainability and accessibility principles to support long-term impact with websites for health education regarding water.

Hormonal IUD Development

Feb.2025-Jun.2025, DTU, Denmark

Go through process of developing Mirena hormonal IUD, including **ISO 13485** application, **FDA 510(k)**, documentations, **risk assessments**, and **intellectual property processes**.

Vaccine Design and Development

Feb.2025-Jun.2025, DTU, Denmark

Final project in MRSA vaccine innovative design, paper-based antibody, adjuvants, and immunomodulators selection process with toxicology, efficacy, and post-marketing surveillance experiment design.

Computational Analysis for Biomedical Signals

Aug.2023-Nov.2022, USYD, Australia

Heart rate reading and signal analysing by using **Arduino** combine with LED light indication on health status and monitoring Dashboard **UI/UX design** by **Python**.

RELEVANT EXPERIENCE

Human-centric artificial intelligence centre, University of Technology Sydney

Sydney, Australia

Student Researcher Intern

Dec. 2023 – Jun. 2024

- Collected Brain wave data and identified biomarkers related to driving performance under different levels of automation, enhancing experimental design and data processing.
- Assisting in deep-learning model development to predict driving performance using multimodal data fusion to improve efficiency and accuracy.

Department of Biomedical Engineering, National Taiwan University

Taipei, Taiwan

Research Intern

Dec. 2022 – Feb. 2023

- Designed a novel data collection proposal for whole mice retina single cell mapping and providing mapping data after ischemia reperfusion injury (I/R) after different days by using 2-photon, leading to see clear 3-D retina single cell photo.
- Interpreted the results of new cell type retina death after I/R injury and presented research progress every week, which outlined possible gene for immunofluorescent staining.

Institute of Molecular Biology, Academia Sinica

Taipei, Taiwan

Student Researcher

Feb. 2021 – Aug. 2022

- Utilized fluorescent staining and confocal imaging by dissecting over 500 drosophila's brains, detecting low level of a tubulin type in mushroom body, which correlates with high-salt diet induced learning defect regarding tubulins.
- Collaborated with PhD student to experiment with new ideas that critical cells of olfactory sensation engaging in decision making for appetitive training using optogenetic.
- Implemented insect crawling timer and related paper web crawler by Python, improving the data analysis efficiency about 30% and accuracy improve around 7% in two months.

CORE COMPETENCIES

- **Programming:** CSS/HTML, Python, R – developed as an Intern in UTS and University projects. Engineering Computing course received HD.
- **Tools:** Confocal, 2-photon microscopy, Arduino, CAD and 3D printing design, animal behavior study – developed in University project and Research Intern in NTU and Academia Sinica. CAD courses received Credit (SolidWorks, Usyd) and 7(Creo, DTU).
- **Laboratory:** PCR, Immunostaining, genetic transformation, gram staining, cell/bacterial culture, electrophoresis, ELISA, drosophila brain dissection, mouse retina dissection. - developed as a research intern in NTU and Academia Sinica.
- **Medical Device Regulations:** Patent application, Relevant Documentations for ISO13485, CE marking, FDA guidelines, Annex classification – developed in University Project.

SELECTED HONORS AND AWARDS

- **First Award** of Animal Science in 2022 Regeneron International Science and Engineering Fair (ISEF) - [Novel mechanism of High-Salt diet induced learning deficit in Drosophila](#).
- **Presidential Young Scientist Award & First Award** of Animal Science in 2022 Taiwan International Science Fair