YI-SHAN HUNG

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EDUCATION

University Of Sydney — *Sydney, Australia*
B.S. in Biomedical Engineering (Honor) & Medical Science — Aug. 2022 – Present

Taipei Municipal Zhong Shan Girls' High School — *Taipei, Taiwan*
Graduated with **Prominent Mayor's Award** of Extraordinary Academic Performance, GPA: 3.78/4 — Sep. 2019 – June 2022

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.
- **Study Abroad Scholarship** for Excellent Students Participating in the International Mathematics and Physics Olympiad Competition and ISEF from Ministry of Education, Taiwan
- **Sigma Xi Scientific Research Honor Society**
- **Presidential Young Scientist Award** & **First Award** of Animal Science in 2022 Taiwan International Science Fair
- **Second Award** in Research Grant Program for Secondary School Students
- **Honorable Mentioned Award** in 2021 Macronix Science Awards

RESEARCH EXPERIENCE

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.

Department of Life Science, National Taiwan University — *Taipei, Taiwan*
Student Researcher — Dec. 2020 – Mar. 2021

- Evaluated the sleep fragmentation of fruit flies after consuming a high-salt diet using a DAM machine.
- Interpreted salt concentration in food as a "high-salt diet" for drosophila, which had never been defined in related works before.

SKILLS

- **Programming:** CSS/HTML, Python, R
- **Tools:** Confocal, 2-photon microscopy, Arduino, CAD and 3D printing design, animal behavior study, Excel VBA
- **Laboratory**: PCR, Immunostaining, genetic transformation, gram staining, cell/bacterial culture, electrophoresis, ELISA, drosophila brain dissection, mouse retina dissection, cre protein

EXTRACURRICULAR ACTIVITIES

Boundless Education (Website) — *Virtual*
Student Volunteer — Aug. 2022 – Present

- Having official collaboration with Taiwanese Mandarin School in Sydney and applying for a plan under overseas community affairs council, Taiwan in 4 months.
- Organized a group grown from 5 people to 12 people in 6 months, providing free online tutoring for Taiwanese rural area and underprivileged students one to two times a week, having around 10 to 15 students attended.

2023 Taiwan International Science Fair — *Taipei, Taiwan*
Student Volunteer — Jan. 2023

- Assisted foreign participants and provided linguistic support during judgement and other activities.

Masters Associate Animal Hospital — *Taipei, Taiwan*
Veterinary Assistant, Apprenticeship — Sep. 2020 – Feb. 2021

- Developed professional animal physiology knowledge and examination results analysis, increasing medical analytical skills.
- Assisted pet care, Euthanasia performance preparation, ultrasound examination, urine and stool examination, blood examination, and X-ray examination, decreasing 20% of veterinary's workload every month.