WEBER **LIU**

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https://ouibaa.github.io

Objectives

Education

2018 – 2021 **Doctor of Medicine**
University of Sydney
- Achieved High Distinction average in pre-clinical years and distinctions in Medicine (2020), Community Health (2020), Perinatal and Women's health (2020), and MD Research (2021).
Awards
- Deans list of Academic Excellence
- Vice Chancellor's Scholarship

2019 – 2021 **Master of Science in Medicine (Clinical Epidemiology)**
University of Sydney
- Achieved overall high distinction average, with high distinctions in Clinical Epidemiology (2019), Systematic Reviews (2019), Writing and Reviewing medical papers (2020), Advanced Statistical Modelling (2021) and distinctions in Advanced Epidemiology (2019) and Biostatistical Modelling (2020).

2015 – 2017 **Bachelor of Science (Advanced)**
University of Sydney
- Achieved overall high distinction average, undertaking research projects with NSW Brain Bank, Westmead Children's Hospital and presentations under the Dalyell Scholars program (previously TSP).
Awards
- Deans List of Academic Excellence
- Vice Chancellor's Scholarship
- Sydney Medical School Summer Research Scholarship

2009 – 2014 **Higher School Certificate**
Sydney Boys High School
Awards
- 99.95 ATAR, 19th in the NSW (Chemistry), Australian Student's Prize, Premier's All Rounders Award
- Lennie Basser Award for Scientific initiative for co-development and management of peer mentoring program

Skills
- Programming: Java, C#, Python, MATLAB, R/R-Studio with knowledge of querying REST API frameworks
- Front-end development in HTML/CSS/JS with competency in frameworks such as ReactJS
- Unity3D Development – Certification ID: 201708UCD2659, Blender3D
- qGIS and familiarity with open source mapping software and APIs

Professional work experience

January 2022 – Current	**Junior Medical Office** *NSW Health (Central Coast Local Health District)*
October 2021 – December 2021	**Assistant in Medicine** *NSW Health (Western Sydney Local Health District)* - Westmead Hospital Emergency Department - Vaccination Worker and clinical support roles in Qudos Bank Arena mass vaccination hub
July 2017 – Current	**Demonstrator, tutor and curriculum developer** *University of Sydney, SoMS/SoLES*

Introduction to Clinical Epidemiology (CEPI5100)
- Assignment marking for the Introduction to Clinical Epidemiology unit of study in the Masters of Medicine, Masters of Public Health and Masters of Science (Clinical Epidemiology) units

Research Methods for Honours (SOMS4101)
- Biostatistics tutorial on data visualisation and Kaplan-Meier curves/survival analysis and development of Google Colab notebooks for data analysis and visualisation in Python and R

Doctor of Medicine
- Presentation of Arduino-based workshop demonstrating Muscle-contraction and feedback loops using programmable LEDs and muscle activity detection

Medical Science Interdisciplinary Project (MEDS3888)
- Consulted and assisted with conceptualisation and development of student-led Unity-based edugames, with focus on asset generation and sourcing relevant MOOC resources.

From Molecules to Ecosystems (BIOL1X01)
- Co-created tutorial series involving protein visualisation in Virtual Reality (Blender 3D, ePMV, Unity and Oculus) and analysed student unit feedback
- Redesigned tutorial series based on prior feedback and survey analysis, taught game design principles

Human Biology (BIOL1X07/MEDS1X01)
- Developed and coordinated a tutorial series on science communication (Adobe Slack) and data visualisation and java programming (Processing) to over 200 students involving live programming workshops
- Ran a weekly 'Ask Weber' tutorial series to support students in understanding concurrent lectures and concepts in human biology via Zoom (throughout 2020-2021 lockdown) - https://ouibaa.github.io/pages/educational_resources/ask_weber
- Attended multidisciplinary curriculum development meetings with Educational designers and researchers (including Professor Peter Reimann, Dr. Babak Sarrafpour and Professor Philip Poronnik, Dr Melissa Cameron, Peter Goodyear, Dwayne Ripley) to optimise workshop structure and learning for the new curriculum
- Developed Github Pages and Materalize-based anatomy web-page as a supplementary online guide for students - https://meds1x01.github.io/anatomy/
- Deployed and consulted on a Unity-based VR workshop involving development of museum artefacts and a virtual time capsule (COVID-19 era) in VR

Key concepts in Physiology (PHSI2X07/MEDS2X01)
- Developed and delivered a 4-day Arduino maker workshop to both medical science and medical (MD) students

Frontiers in Whole Body Physiology (PHSI3X11)
- Project lead in 'Vessel Run' - Virtual Reality game development (Blender 3D, Unity, C#), coordinating 16+ students in experiment planning and development and data collection and analysis (Zephyr activity tracker)

Research and volunteer experiences

January 2021 - current
Founding member and digital educational technologies lead
FMH Media Lab, University of Sydney
Histopathology slide viewer platform (Etaki)
- Developed a proof of concept histology application using OpenSeaDragon framework on an AWS S3 bucket and convinced key stakeholders in Histology (A/Prof Suzanne Ollerenshaw), Physiology (Prof Philip Poronnik), Dentistry (Dr. Babak Sarrafpour) and Pathology to support integration into university ICT services.
- This project was originally conceived to improve educational experiences of medical and medical science students in histology and minimise reliance of physical slides prior to COVID-19 lockdown.
- This project has since been funded internally and has been handed over to the ICT TechLab which has formed the premise of the Etaki platform.

MD Research project coordinator
- Development and consultation of MD projects in the new MD cohort

MD Elective Project coordinator (2020 – 2021)
- Conceived and coordinated an MD elective project regarding development of a Virtual OSCE patient with the goal of aiding medical education, using the Google DialogFlow API

MPhil project support
- Provided guidance and expertise regarding VR/Unity application development and data analysis for MPhil projects in SoMS

December 2021 – current
Research Intern
National Health and Medical Research Council Clinical Trials Centre
Project: Scoping review of data sharing guidelines for use in Independent Participant Data (IPD) meta-analysis
Supervisor: Professor Angela Webster, Dr Lene Siedler

December 2019 – current
Graduate Research Associate
Westmead Applied Research Centre (WARC), University of Sydney
Project: Machine-learning versus traditional approaches for cardiovascular risk prognostication in primary prevention cohorts: A systematic review and meta-analysis
Supervisor: Professor Clara Chow

March 2021 – current
Evaluation Network Member
Therapeutic Guidelines Australia

January 2021 – March 2021
Research Student
Discipline of Biomedical Informatics and Digital Health (BIDH), University of Sydney
Project: Development of an automated pharmaceutical adverse event signal detection algorithm using structured clinical data
Supervisor: A/Professor Adam Dunn

2018 - 2020
Research Student (MD Project)
Westmead Institute for Medical Research, University of Sydney
Project: Development of hospital catchment area maps in qGIS for HTD and PNT hospitals in HCMC, Vietnam
Supervisor: Dr. Justin Beardsley
Project link: https://ouibaa.github.io/pages/projects/VNMcatchmentarea/

February 2020
Peer Teacher Training Program
University of Sydney
- Completed PTT training program under Prof Annette Burgess

November 2018 – February 2019
Research Student
ACRF Image-X Institute, University of Sydney
Project: Investigating the efficienct of PCA methods in markerless tumour tracking for for real-time radiotherapeutic treatment of lung cancer
Supervisor: Dr. Andy Shieh
Skills: Worked with 4D cone-beam CT DICOM datasets in MATLAB and Slicer3D

May 2017 –
July 2018
	Volunteer Project manager and lead developer
	ICT TechLab, University of Sydney
	Ramus Media/VIVID Sydney: Many hands make light work
	   - Managed the full-stack development of Vivid Sydney installation utilising a HTML/CSS/JS frontend and MongoDB/flask backend server
	Vice Chancellor's Recognition Reception
	   - Developed a Virtual Reality application for demonstration at the University of Sydney Vice Chancellor's Recognition Reception to over 100 USYD alumni
	   - Development of a Unity-based VR (Oculus) demonstration with 360 video and student-produced landscapes
	TEDx Sydney 2018
	   - Deployed VR showcase of student-generated scenes on behalf of the University of Sydney in the underground activities area of TEDx Sydney 2018.
	Dalyell project mentor
	   Project: Visualisation of carotid artery in multiplayer VR
	   Supervisors: Weber Liu, Jim Cook, Prof Philip Poronnik, A/Prof Kevin Keay (Anatomy)
	   Project: Development of an Augmented Reality textbook and patient resources
	   Supervisors: Weber Liu, Jim Cook, Prof Philip Poronnik, Prof Peter Thorn (Physiology)
	   Skills: Managed 10+ first-year students and taught 3D modelling and Virtual Reality (Oculus) and Augmented Reality (Vuforia)

2015 - 2017	**Research Student (University of Sydney TSP projects)**
	Westmead Sydney Children's Hospital, ICT TechLab, University of Sydney
	   Project: Visualisation of Congenital heart defects in Virtual Reality for patient and medical education
	   Supervisors: Professor Philip Poronnik, Professor David Winlaw, Dr. Tegan Cheng
	NSW Brain Bank, Department of Physiology, University of Sydney
	   Project: Investigating the role of the ubiquitin-proteasome system in Alzheimer's disease
	   Supervisors: Professor Jillian Kril, Professor Philip Poronnik
	Electrophysiology Laboratory, Discipline of Physiology, University of Sydney
	   Project: Investigating the extent of muscular cellular regeneration in mice models of Myasthenia Gravis
	   Supervisor: A/Prof William Phillips
	Behaviour and Genetics of Social Insects Lab, SoLES, University of Sydney
	   Project: Exploring the optimal path-finding knowledge of yellow slime mold
	   Supervisor: Professor Madeleine Beekman

2016, 2017	**Fred Hollows Foundation Charity Lectures** - Presented HSC Chemistry crash course lectures, with profits donated to Fred Hollows Foundation

Conference and meeting attendances

2019	Artificial Intelligence in Medicine Surgery and Healthcare (AMSAH)
2018	Biosciences Education Australia Network meeting
2017	Unite Melbourne (Unity3D meeting)
	Biosciences Education Australia Network meeting
2016	Hunter Cell Biology meeting

Personal projects

2021 – current	Clinical Epidemiology Wiki (http://epiwiki.github.io) - A wiki and collection of knowledge gained from epidemiology/biostatistics textbooks, research, and my masters degree
2021 – current	Foundations of Medicine (http://foundationsofmedicine.github.io/) - A collaborative effort between medical school peers to develop resources for teaching future medical students
2020 – current	Essentials of Chemistry (http://essentials-of-chemistry.github.io/)