MICHAEL O'DEA

4/9 Grandstand Parade,
Zetland, NSW 2017
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Honours student driven by curiosity and a passion for learning. Projects undertaken with the Vafaee, Johal, Glover, Voineagu and Crossley/Quinlan labs have given me great opportunities to expand and refine my biomolecular and programmatic skills. An aspiring researcher seeking challenging, multidisciplinary work on the frontiers of research.

SKILLS & EXPERIENCE

HONOURS PROJECT **Vafaee Lab, UNSW**
Honours Student *February 2021 - Current*

Relevant Skills: Multiomic integration, Biological Machine learning, Thesis Writing

- Focusing primarily on methylomics and metagenomics, studying why some ER+ breast cancer patients respond poorly to aromatase inhibitors (AI)
- Developing pipelines to process individual omics data and classify patients using traditional Machine Learning
- Employing deep learning to integrate multiple data types to holistically predict and understand poor AI responders

RESEARCH INTERNSHIP **Glover Lab, UNSW**
Research Assistant *February 2020 - May 2020*

Relevant Skills: Synthetic Biology approaches, Molecular modelling tools

- Undertook a composite project with wet and dry lab elements
- Constructed and tested a kinase-switchable FRET system before COVID hit
- Following COVID, project direction switched to molecular modelling of γPFD filament whose assembly could be enzymatically controlled, with the protein non-functional until treated with a phosphatase

TASTE OF RESEARCH SCHOLARSHIP **Johal Lab, UNSW**
Summer scholar *January 2020 - February 2020*

Relevant Skills: Practical Machine Learning, Speech recognition models, Human-robot interaction

- Employed the learning-by-teaching paradigm to design a human-robot system to help children who struggle with reading at an early age
- Wrote a web app to host a book on a tablet, behavioural code for the NAO robot and trained a kid's speech recognition model using Facebook's wav2letter+
- Design of kid's speech recognition model driven by major gap in the literature, with all current methods focused on adult's and thus struggle on the higher-vocal range of kid's speech
- Paper focused on speech recognition component currently in the process of being submitted to appropriate conferences

SUMMER VACATION RESEARCH SCHOLARSHIP **Voineagu Lab, UNSW**
Summer Scholar *January 2019 - February 2019*

Relevant Skills: Bio-informatics techniques, Self-directed learning, Data Visualisation

- Worked individually for 6 weeks to determine whether circRNAs were translated during or post transcription
- Project involved self-teaching a programming language from scratch (R) along with learning various data visualisation tools, such as ggplot2

RESEARCH INTERNSHIP **Crossley/Quinlan Lab, UNSW**
Research Assistant *February 2018 - June 2018*

Relevant Skills: Biomolecular research techniques, Report Writing, Lab Experience

- Investigated the potential for ZBTB7A inactivation to serve as a treatment for sickle cell anaemia

- Used Crispr/Cas9 to introduce an i20a mutation in ZBTB7A's binding domain, preventing its ability to homodimerise and act as a repressor of gamma globin
- Wrote up statistically significant findings in final presentation & report
- Gained exposure to a wide variety of research areas through weekly lab meetings and background preparation
- Obtained PC2/OGTR Certification Valid for the next few years

FISH BARCODING REPLICATION STUDY **Australian Museum/ Sydney Grammar**
Student Researcher *February 2015 - June 2016, June 2019*

Relevant Skills: DNA Extraction and Analysis, Leadership

- Extracted DNA samples from over 80 different fish specimens over two years in conjunction with researchers from the Australian Museum
- Followed standard protocol to prepare samples for sequencing by the Museum
- Attempted to correct sequencing errors prior to blasting sequences to determine identity
- Paper published in PeerJ in June 2019 and covered by various news outlets, including the Sydney Morning Herald

DYMOCKS SYDNEY **Dymocks George St**
Retail Assistant (Children's Floor) *August 2018 - Present*

Relevant Skills: Effective Communication, Time Management

- Quickly and thoughtfully find the right book for every customer
- Work to fuel the passions of all young children, from rocks and minerals to dragons and dinosaurs
- Balancing commitments of casual work with Uni schedule

EDUCATION & ACCOLADES

UNIVERSITY OF NEW SOUTH WALES **Sydney, NSW**
Bachelor of Advanced Science/Computer Science Maj. Genetics, 4th Year
- High Distinction course average
- Dean's List for Computer Science 2018 & 2019 - Highly Commended

SYDNEY GRAMMAR SCHOOL **Sydney, NSW**
Graduated November 2016
- Biology Olympiad Silver Medal
- High Distinctions in Beginner, Intermediate and Advanced Streams of the NCSS (Python Programming) Challenge
- Distinctions in Chemistry and Physics Olympiads

ADDITIONAL SKILLS

- Passionate and hardworking with a genuine love of research
- Experience with a variety of modern biomolecular techniques
- Extensive background with current machine learning techniques
- Skilled writer and effective communicator
- Programming proficiency in C, Python, Java and R, easily adaptable to other languages
- Affable personality that slots well into any lab environment