

Joseph Bloom

+61 434 581 903 | joseph.i.bloom@gmail.com | <https://www.linkedin.com/in/joseph-bloom1>

CAREER PROFILE

A passionate learner with strong technical and scientific skills, interested in effectively contributing to important projects for humanity. I completed a double degree in computational biology and statistics in college while working as a member of a protein engineering lab. Post-college, I have worked as a data scientist at a proteomics SaaS, where I developed my skills in DevOps, analytics, algorithms and machine learning to improve products, strategy and productivity. I am the author of several R and python packages, in the public and private domain and have authored 2 first author papers, both in proteomics.

EXPERIENCE

Mass Dynamics

Melbourne, Australia

Jul 2020 – Current

MassDynamics is a 2 year old biotech providing Software-as-a-Service (SaaS) solutions to both academic researchers and pharmaceutical industries relating to the processing and analysis of proteomic mass spectrometry data. Mass Dynamics is backed by R&, Blackbird and angel investors until May 2022.

Data Scientist

- Wrote numerous python/R packages utilizing machine learning, statistics and visualization tools to automate customer analysis of complex datasets and provide publishable and actionable insights.
- Research, benchmark and develop algorithms to provide novel product features.
- Provide in-app, marketing content and write research articles publication.
- Plan, communicate and coordinate whole-of-company efforts to deliver novel services on tight timelines.
- Support decision making and marketing team with bespoke data analysis pipeline and in-house services.

Achievements:

- Engineered and benchmarked a novel approach to the protein inference problem (see protein inference package)
- Benchmarked, documented and published the MassDynamics 1.0 platform (Journal of Proteome Research)
- Poster Presentations at various conferences

Tools Used: Python, R, AWS, Azure, CI/CD, Docker

Infoxchange

Melbourne, Australia

Jul 2019 – Sept 2019

Infoxchange builds tools for not-for-profits to deliver greater impact, from nation-wide systems to IT advice. Digital Springboard is a team within InfoXchange funded by a \$3 million Google grant to tackle the issue of 2 million digitally excluded Australians.

Data Analyst

- Developed an evaluation and reporting system that summarizes incoming customer feedback data from sessions run nationwide for teams and leadership internally and for marketing to partner organizations.
- Created an interactive tool to allow bespoke analysis and report generation by non-technical team members to achieve project sustainability.
- Redesigned visual analytics to produce informative, accessible and appealing reports that met industry standards while adding further insights to existing format.
- Provided insights into existing data lakes and potential future capabilities through meetings with Head of Technology and Application Development Team Lead.

Achievements:

- Delivered a 40-minute presentation to the CEO and team leads analysing factors influencing the effectiveness of product delivery. Confirmed existing industry trends in data along with further niche insights into our customers.
- Bespoke analytics tool installed team wide on 4 different computers and in 2 different states and is still in use without further involvement.
- Published reports delivered to more than 30 different organizations nationally encouraging further partnership and more effective program delivery.

Tools Used: SurveyGizmo, R, GoogleSheets and PowerPoint

Buckle Protein Engineering Lab

Melbourne, Australia

June 2017 – July 2019

Operating within the Monash Biodiscovery Institute, the Buckle Lab combines physics, high performance computing and protein expertise to do research that underpins the development of novel drugs to fight disease.

Initially placed as part of the UROP program, then hired as permanent Research Assistant.

Research Assistant

July 2018 – July 2019

- Designed and implemented experiment to simulate molecular movement of proteins and analyse for important patterns using unsupervised machine learning to understand why certain diseased or engineered proteins don't function and can be fixed.
- Built on a tool for visualizing proteins in biochemical feature space providing insights into the evolution of proteins that links different areas of protein research together.
- Collaborations with researchers at Monash University and Internationally to support external biological research with computational and informatic insights that guide problem solving.

Achievements:

- Identified incorrect predictions about protein movement in existing literature leading to better explanations of the failure of previous engineering attempts.
- Continuous expansion of computational responsibilities eventuating in the administration of 2 computing clusters with 8 graphics processing nodes.
- Approached by an external lab to be a joint lead on a paper predicting immune responses.

UROP Student

June 2017 – July 2018

- Developed computational modelling to design a new protein that functions as “molecular scissors” in harsh chemical conditions.
- Expressed this protein in the chemical lab to test properties of the new tool under varying conditions.
- Write and present monthly written reports to enable team based problem solving of engineering challenges.

Achievements:

- Successfully designed and synthesized a novel protein which was stable and hyperfunctional.

InStudentMedia Pty. Ltd. (ATARNotes)

Melbourne, Australia

Apr 2016 – Dec 2016

ATAR Notes aims to increase the accessibility of high-quality educational materials to students both in terms of affordability and ease of access for rural and regional students across Australia.

- Authored 12 VCE Biology Practice exams, Online articles and educational posters designed to help VCE students achieve the best ATAR possible while also learning the most and edited the equivalent publications for VCE Chemistry.

Achievements:

- Initially responsible for writing biology practice exams, the role was expanded due to the quality and popularity of the copy that was being produced, eventually resulting in more than 5 different publications that are still in print 4 years later.

EDUCATION

THE UNIVERSITY OF MELBOURNE - MELBOURNE BUSINESS SCHOOL

Master of Business Analytics (differed)

Melbourne, Australia
Jan 2020 – August 2020

- Official Commendation in Module 1 for asking good questions
- Grade average: 81%
- Differed with A-lab and module 6 remaining to take up position at Mass Dynamics

THE UNIVERSITY OF MELBOURNE – FACULTY OF SCIENCE

Bachelors of Science – Major in Computational Biology

Melbourne, Australia
Jan 2016 – Dec 2019

- Breadth Sequence/Minor in Economics
- Founder, President Melbourne University Biological Society
- President, Coach, Melbourne University Quidditch Club
- Grade average: 85%

THE UNIVERSITY OF MELBOURNE – FACULTY OF SCIENCE

Diploma in Mathematical Sciences – Statistics and Stochastic Processes

Melbourne, Australia
Jan 2017 – Dec 2019

- Grade average: 72%
- Member of Mathematics Society/Physics Society

Publications

- **Bloom J**, Triantafyllidis A, Quagliari A, Burton Ngov P, Infusini G, Webb A. Mass Dynamics 1.0: A Streamlined, Web-Based Environment for Analyzing, Sharing, and Integrating Label-Free Data. *J Proteome Res.* 2021 Nov 5;20(11):5180-5188. doi: 10.1021/acs.jproteome.1c00683. Epub 2021 Oct 14. PMID: 34647461.
- Szeto C*, **Bloom JI***, Sloane H, Lobos CA, Fodor J, Jayasinghe D, Chatzileontiadou DSM, Grant EJ, Buckle AM, Gras S. Impact of HLA-DR Antigen Binding Cleft Rigidity on T Cell Recognition. *International Journal of Molecular Sciences.* 2020; 21(19):7081. <https://doi.org/10.3390/ijms21197081>
- 4 Medium articles published on Medium by Towards Data Science and the Computational Biology Magazine including a front page feature, editors picks on TDS adding to more than 5k views and 2k reads.

Courses

- Deep Learning Specialization (17 weeks), DeepLearning.AI, Coursera (March 2021)
- Network Analysis in System Biology, Icahn School of Medicine at Mount Sinai, Coursera (April, 2021)
- Information Visualization: Programming with D3.js, New Your University, Coursera (May, 2021)
- Graph Analytics for Big Data, University of California San Diego, Coursera (May, 2021)
- Colors for Data Science A- Z: Data Visualization Color Theory, Kiril Eremenko, Udemy (June, 2019)
- Complete Guide to TensorFlow for Deep Learning with Python, Jose Portilla, Udemy (May, 2019)

ADDITIONAL

- **Visa Status: Australian Citizen, Not a US Citizen. No current US work VISA.**
- Languages: English
- Interests: Rationality, Effective Altruism
- Volunteering: Blood-donor
- Behavioural Skills: Strong communication skills (Writing, Presentations), Critical reasoning, Collaboration
- Technical Skills: R, Python, Bash, Statistics, Machine Learning, CI/CD, AWS, Azure
- References:
 - Giuseppe Infusini (Mass Dynamics - Scientific): giuseppe@massdynamics.com
 - Aaron Triantafyllidis (Mass Dynamics - Technical): aaron@massdynamics.com
 - Pr. Ashley Buckle (Monash University): ashley@ptngconsulting.com 0430 913 031
 - Lynette Phuong (Digital Springboard): 0401 199 131