

ZAINA MIRZA

Melbourne, VIC | zainamirza@live.com | 0416 052 530 | linkedin.com/in/zaina-mirza/

Final-year Biomedical Engineering Honours student with research experience in machine learning, clinical data analysis, and medical device design. Skilled in Python, data preprocessing, predictive modelling, and evaluation of healthcare datasets. Interested in engineering, research, consulting, and health technology roles.

EDUCATION

Bachelor of Engineering (Biomedical Engineering) (Honours) **Expected Jul 2026**
RMIT University

- **WAM: 79**

International Baccalaureate Program

International School of London

- **ATAR: 95**

MANUSCRIPTS AND CONFERENCE SUBMISSIONS

Mirza, Z., Sari, N. N., Ogrin, R., Hanna, S., Waller, K., Polus, B., Ekinci, E., Kumar, D. K.

Healing Prognosis of Diabetic Foot Ulcers Using Routine Clinical Variables.

Manuscript submitted to the IEEE EMBS International Conference (EMBC), 2026.

RESEARCH INTERNSHIP

Research Internship **Nov 2025 – Mar 2026**

RMIT University

Supervisor: Prof. Dinesh Kumar

- Processed **thermal imaging and clinical data** for diabetic foot ulcer analysis, including RGB–thermal registration and segmentation
- Developed datasets for **machine learning and prognostic modelling**
- Contributed to **conference manuscript (IEEE EMBC submission)**

RESEARCH & PROJECTS

Honours Capstone Project – AI Prognosis for Diabetic Foot Ulcer Healing **Aug 2025 – Present**

RMIT University

- Developed **machine learning pipeline** to predict 12-week healing (**n=87**)
- Reduced **75 → 36 predictors** via preprocessing, leakage control, and standardization
- Applied **repeated nested cross-validation**, feature selection, and calibration across multiple models
- Best model: **KNN (top 8 features)** achieving **AUC 0.758 | Brier 0.208**
- **Improved model reliability under strict nested validation**
- **Honours Thesis Progress Report: 90/100**

Researcher and Designer - Assistive Device for Quadriplegia **Jul 2024 – Nov 2024**

RMIT University, Melbourne, VIC

- Designed and developed an assistive device for quadriplegia with focus on usability and accessibility.
- Built a parametric 3D model in **CATIA (3DEXPERIENCE)** to support adaptable user requirements.
- Performed **Finite Element Analysis (FEA)** to optimise structural integrity, weight, and material efficiency.
- Iteratively improved design using user feedback, enhancing ergonomics and assembly.
- Produced technical documentation to support prototyping and scalable manufacturing.

Researcher - Pneumonia Diagnostic Imaging (ML/AI) **Feb 2023 - Jun 2023**

The University of Sydney

- Developed **machine learning pipelines** for chest X-ray classification (**n > 500**) using **Python (scikit-learn, TensorFlow)**.

- Implemented and evaluated **Random Forest, XGBoost, and CNN models**, achieving **0.98 accuracy with CNN**.
- Conducted comparative analysis to inform model selection for medical imaging tasks and improve diagnostic performance.

TECHNICAL SKILLS

- **Programming & Data Science:** Python (NumPy, Pandas, scikit-learn, TensorFlow, Matplotlib), MATLAB, Arduino (C/C++, sensor integration)
- **Machine Learning & AI:** Data preprocessing, feature engineering, imputation (MICE, KNN, median), model development and evaluation; Logistic Regression, Random Forest, XGBoost, CNNs; ROC-AUC, PR-AUC, F1-score, cross-validation
- **CAD & Simulation:** CATIA (3DEXPERIENCE), SolidWorks, Finite Element Analysis (FEA) for biomedical device design and optimisation
- **Laboratory & Prototyping:** 3D printing (FDM, SLA), agarose hydrogel preparation, ELISA, microscopy (brightfield, fluorescence), aseptic handling, Arduino-based instrumentation
- **Research Skills:** Study design, data analysis, statistical evaluation, literature review, manuscript preparation
- **Professional Skills:** Technical documentation, research reporting, project leadership, stakeholder communication, client communication, needs assessment, presentation to technical and non-technical audiences

RELEVANT EXPERIENCE

Operations & Administrative Assistant

Mar 2024 – Jun 2025

Moving Better, Melbourne, VIC

- Developed and maintained performance dashboards, applying **data analysis** to support **operational decision-making**.
- Led planning and execution of marketing efforts aimed to engage more customers
- Identified and opportunities to **improve company processes** and boost efficiency
- Supported launch of new website, contributing to a **35%** increase in customer leads

Seasonal Specialist

Aug 2023 - Feb 2024

Apple, Sydney, NSW

- Delivered **technical support** on **hardware/software**, achieving **20%** increase in customer satisfaction
- Acquired in-depth product knowledge of integrated systems and services
- Developed strong troubleshooting and communication skills in a high-volume environment

Student Ambassador

Jul 2023 - Feb 2024

Scape, Sydney, NSW

- Coordinated and delivered **10+ student community initiatives** (cultural events, monthly gatherings, exam support programs), increasing participation by **20%**
- Implemented **feedback-driven improvements** to events and services, contributing to a **12%** increase in resident satisfaction scores
- Provided peer support and guidance, enhancing well-being and fostering a safe, inclusive residential environment for **150+ students**

REFERENCES

- References can be provided upon request