2025 EECMS Summer Internship Application Form

Main Supervisor	Dr Vinesha Peiris Curtin Centre for Optimisation and Decision Science Email : m.peiris@curtin.edu.au Tel : 0892 66 7877
Other supervisors (if applicable)	Dr Hoa Bui Curtin Centre for Optimisation and Decision Science ARC Training Centre for Transforming Maintenance through Data Science Email : hoa.bui@curtin.edu.au Mobile : 0410 939 728
Project Title	Developing optimisation models to enhance biomedical signal classification accuracy
Student location(s) for the project	Building 314
Duration of project	Eight weeks
Project Description	Biomedical signal processing involves acquiring and preprocessing (feature extraction) physiological signals and extracting meaningful information to identify patterns and trends within them. One effective method to extract features is to use approximation techniques, which transform signals into parameterised models. These models enable classification into distinct classes, enhancing the accuracy of deep learning-based classifiers in biomedical applications. In particular, the raw data are substituted by the parameters of carefully constructed approximation before training the networks. This approach enhances the classification accuracy aiding medical professionals in making informed decisions. This project focuses on using rational approximation techniques on different biomedical signal datasets such as EEG, ECG, EMG, etc., as a preprocessing step before classifying them into classes. In particular, where the approximation by rational functions appears naturally and explain physical phenomena behind the signals.