

**Machine Learning for Predicting Epileptic Seizures Using EEG Signals**

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Proposal submitted for

ENGR7028 Engineering Project 1 (PG)

Major: Electrical Engineering

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This template sets a guideline to help keeping your work in the proper format.

The brackets <…> should be removed. The texts in the brackets on the cover page can be overwritten.

The body texts use Times New Roman, 12 point font with 1.5 line space and extra spacing between paragraphs (no need for extra hard carriage returns).

This proposal document is the starting point and will gradually evolve into the report for this subject and the final report for the subsequent subject.

You may delete the instruction text in each section and type in your proposal contents.

1. **Introduction**

The main goal of this section is to identify a topic that is worthy of investigation.

The following issues should be considered when identifying a suitable topic.

* The topic is of interest to you, professional and general communities;
* The topic is original;
* The outcome of the research on the topic will contribute to the relevant disciplines;
* Your personal strengths and weaknesses should be taken into account;
* You should recognise the limitations imposed by time and research resources;
* Do not knowingly choose a topic addressed previously unless you have something new to add.

You should bear the following questions in mind when drafting this section:

Why did you select this topic?

What is the problem you intend to investigate?

What has been done by other researchers in the relevant areas?

Where is the knowledge gap? What needs to be done to fill in the gap or to make a progress?

You need to consult your supervisor in the process of selecting a topic and drafting the proposal.

1. **Literature Review**

In this section, you need to provide a critical review of the existing methods for the topic of your project.

You need to find existing methods by searching journals, conference proceedings and other publicly available sources.

Those methods should be analysed and compared, in terms of assumptions, contributions and limitations. Limitations are the aspects needing improvement.

1. **Aim and Objectives**

Based on the critical literature review in Section 2, you need to propose research questions. Research questions should be obtained from the aspects needing improvement.

If you are successful to solve those questions, you will be able to improve people’s understanding to the topic and/or provide improvement to some existing methods. That outcome is aim(s).

The aim is the changes you hope to achieve as a result of your work. Objectives are the activities you undertake and the services you offer to bring these changes about.

You may establish a hypothesis you will be trying to verify or test, or questions to which you will be searching for answers in the proposed research. Your hypothesis must be related to your objectives.

1. **Methodology**

You need to describe the methods (e.g., experiments, computer modelling, field study and/or survey) with which you will conduct the research.

What data are needed? Define the parameters clearly. Explain how data are to be collected and processed. Identify the relevant regulatory documents, standards, guides (e.g., Australian/ASTM test standard, computer models and user guide, field survey questionnaire and protocol etc.).

What analysis will be conducted to the data? (E.g., statistical analysis, regression, confidence test, comparison with existing data from the literature, comparison with model predictions, comparison with established standards and/or criteria, etc.)

The related tasks or research approach could be:

* Solve a set of coupled non-linear PDEs…
* Perform experiments on…

The above dot points are examples that define the required steps and can be part of the methodology section; they do not define the outcome so they are NOT objectives.

Block diagrams may be used to illustrate your research approach.

Describe the outcomes (e.g., novel understanding of the topic, a new method of testing, a new method of evaluation, a paper to be published in a journal, a report to be submitted to the relevant authority or organisation etc.).

1. **Timeline**

You need to describe your research plan and a detailed timeline for tasks in Project 1 and Project 2.

A Gantt chart or a table may be used.

1. **Conclusions**

In this section, summarize major findings what you have obtained in Sections 2-4.

**Reference**

Attach a list of references using Harvard style of which a guide can be found at: https://library.westernsydney.edu.au/\_\_data/assets/pdf\_file/0008/1943486/cite\_Harvard.pdf