

AI Methods Coursework

ANN Implementation and Modelling

AI Methods - Coursework

- 20%
- Given out week 2
- Lab sessions week 5
- Due – week 7 – Wednesday 11am
- Submit either Word / PDF files – as many as you need. Eg program listing in one file, report in another

Stages

- 1) Appropriate data pre-processing of the supplied data set;
- 2) Implementation of the algorithm in an appropriate language;
- 3) Documentation and commenting of this implementation;
- 4) Appropriate training, configuration and weight adjustment of the ANN model;
- 5) Appropriate evaluation of the chosen ANN;
- 6) Comparison with a simple multiple linear regression model (for example, see LINEST in Excel) or other baseline.
- 7) A report detailing the above process and discussing the evaluation of the model.

Code

- You should NOT use numerical computing environments (such as MATLAB) or pre-written neural network systems and libraries – eg Tensorflow; Weka (although other libraries, for example mathematical functions as part of the programming language, are acceptable).
- You can use libraries such as - numpy, Matplotlib and pandas.
- Typical languages you could use would be Python, Java, C#, C++, or C.

Code

- I am NOT running your program.
- I need to see the code listing; and I can see if the program works from the results you present.
- No results means very few marks for the program as I don't know if it works or not.
- Do NOT copy code from the internet.

Marking Scheme

1. Data pre-processing (including cleaning and data splitting, identifying predictors, feature construction) – 10%;
2. Implementation of the MLP algorithm (including modifications / improvements) – 40%;
3. Training and network selection – 20%;
4. Evaluation of final model (including comparisons between different modifications to the algorithm) – 20%;
5. Comparison with another data driven model – 10%;