CONL708: Assignment 4: Neural Network comparison

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I completed this report independently

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Modular Neural Networks (MNN’s) are defined as Neural Networks consisting of multiple modules – carrying out their own tasks –contributing towards the overarching goal of the whole network [1]. An example is envisaged where an aim to classify customers (likely to churn, loyal), but require smaller classification steps done – in silo - in other areas, before all results can be brought together to assist the global classification.

In comparison with Feed-Forward Neural Networks (FFNN’s) where multiple stages of processing in layers are performed to come to a decision [2-3]. Whilst MNN modules do use their processing to provide a final output, they do not depend on each other to make their own decision, where as FFNN layers required output from the previous layer as an input to the current layer.

Conversely evaluating against Recurrent Neural Networks; RNNS use connections in previous layers to store memory, whilst MNNs have no memory shared between modules [4]. Additionally, MNN’s are used for classification duties solely, but RNN can be used for classification, regression, and text processing [5].

Additionally, when contrasted against Convolutional Neural Networks (CNN’s) – FFNN’s that reduce the number of parameters needed without losing quality [6]. CNN’s can be used for image processing, whereas no evidence is found where MNN's have this capacity.

# References

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