Mark Neumann

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Education

2015-2016 **University College London – MSc Machine Learning**

-Studied modules in Supervised Learning, Graphical Models, Machine Vision, Natural Language Processing, Mathematical Methods, Information Retrieval, Reinforcement Learning and Applied Machine Learning.
- Worked in Python and Scala, utilising packages such as TensorFlow, Theano, Scikit Learn, Breeze and Wolfe.
- Overall coursework average over 85%

Studied

Natural Language Processing
- 96% overall in module
- Coursework in Scala including language modelling for rap music, biological event extraction and recurrent neural networks for sentiment analysis (implemented backpropagation from first principles).
- Comprehensive understanding of translation models, matrix factorisation for relation extraction and parsing algorithms.

Other ML Experience
- EM-Algorithm implementation in Matlab for clustering using Mixtures of Gaussians
- Inference in probabilistic graphical models, both singly and multiply connected
- Time Series Analysis using RNNs
- Classical ML algorithms including clustering, Non-Negative Matrix Factorisation, Perceptron/Winnow, Decision Trees, Regression

Thesis – Differentiably exploring RNN Architectures
Exploring the effect of learning weighted combinations of known RNN architectures (such as LSTM, GRU, vanilla RNNs) for language modelling to observe the responsibilities taken by different models at different network depths given a jointly trained objective function. Additionally, I will be investigating how these responsibilities differ under constraints, as well as developing a novel method to regularise model complexity.

2010-2013 **Durham University**
- Natural Sciences (BSc)-(2:1 classification 67% average)
-Achieved First Class honours in 2nd year
-Studied a range of subjects including Mathematics, Theory of Computation and Economics

References

Sebastian Riedel Reader, University College London(Lecturer, NLP)
s.riedel@ucl.ac.uk

Pontus Stenetorp Research Associate, University College London(Thesis supervisor)
pontus@stenetorp.se

Hado van Hasselt Senior Researcher, Google Deepmind(Lecturer, Reinforcement Learning)
hado@google.com

Relevant Experience

Ongoing **Kaggle Competitions**
-37th/170 in the Allen AI Challenge (Used a mix of IR, pre-trained (gloVE) word vectors, trained sentence representations and bigram collocations to select answers)
- Top 5% in San Francisco Crime Prediction Challenge (MLP approach)
- Top 25% Winton Stock Market Prediction (Regression on polynomial features)
- 54th/192 Annual Data Science Bowl (Convolutional Neural Net to predict max/min heart chamber volumes)

Aug 2014 – Sept 2015 **Display Account Manager - Periscopix**
- Personally managed £1.6 million annual spend across a range of large clients
-Data driven campaign optimisation and attribution

2011-Present **Mathematics and Economics Tutor**
-Self employed
-Tutored A-Level standard mathematics and economics

I have interests including running, cryptic crossword puzzles and juggling.