Liam Eloie

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Education and Qualifications

MSc Machine Learning **2017 - 2018**
UCL, University College London, Distinction

- **Google DeepMind Scholarship**
- Master's Project: Protein function prediction by learning functional representations directly from protein sequences using recurrent neural networks.

MSci Theoretical Physics **2013 - 2017**
UCL, University College London, First Class Honours: (80% Average)

- **Brian Duff Memorial Prize** (Best 4th Year project in the Physics & Astronomy department)
- Master's Project: Quantum gate learning in engineered qubit networks: quantum half-adder.
- Second highest achiever in the master's year.

A levels: Physics A*, Mathematics A*, Further Mathematics A **2011 - 2013**
Thomas Tallis School, London

Work Experience

The Francis Crick Institute, London **Summer 2018**
Bioinformatics Research Project

- Developed a model capable of predicting the function of human proteins based on their amino-acid sequence.
- Implemented multi-labelled LSTMs using PyTorch to learn functional feature representations of proteins.
- Trained SVM classifiers on these functional representations of the proteins to predict their functions.
- Performed K-fold cross validation with appropriate metrics for imbalanced data (Precision, Recall, F1 Score).

Imperial College London, London **Summer 2014**
Bioinformatics Research Internship

- Conducted statistical analysis to study gene expression in cancerous tissues using R.
- Implemented statistical tests such as: Student t, Chi-squared, Fishers exact, and Mann-Whitney U.
- Summarised my work in a 30 page report titled "Introduction to Bioinformatics".

Technical Skills and Interests

- Experience with PyTorch, TensorFlow, and Keras.
- Well-versed in Python, familiarity with Java, Matlab, Mathematica.
- Good self-taught knowledge of the Linux operating system.
- Understanding and practice in Message Passing Interface (MPI) parallel computing.
- Good understanding and practice with Git version control and GitHub.
- Self-taught web development using JavaScript, HTML, CSS. Specifically the MongoDB, Express, React and Node.js stack.

Publications

- Liam Eloie, Leonardo Banchi, and Sougato Bose. *Quantum arithmetics via computation with minimized external control: The half-adder.* Physical Review A 97, (2018).

Awards and Achievements

- Google DeepMind Scholarship.
- Brian Duff Memorial Prize, for the best 4th year master's project in the department.
- Certificate of recognition awarded by the head teacher for outstanding performance in Further Maths.
- Signature level one certificate for BSL (British Sign Language).