Eric Hambro

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EXPERIENCE

PROWLER.io, Research Engineer — *Apr. 2019 - Present*

Bayesian Deep Learning (Oct. - Present)

- Leading the design and implementation of our new Deep Gaussian Process (DGP) research library, based on TensorFlow 2, Keras and GPflow, to accelerate our current DGP research.
- Ensured correctness of our DGP library by replicating results of published papers - discovering critical bugs in both former research code and TensorFlow 2 in the process - and took our test coverage to 97%.
- Maintain our C++ custom TensorFlow operations, used for efficient GP inference in research and production.

Stochastic Network Control (Apr. - Oct.)

- Worked with researchers to develop and test a new algorithm to control networks where arrivals and transitions are stochastic (e.g. traffic systems, electricity grids) and where Reinforcement Learning methods typically struggle.
- Developed live visualisations and logging of experimental runs to track the agent's policies and states, and parallelized experiments. This allowed rapid prototyping of new experiments and helped develop the theory.
- Prepared tutorials and interactive demos to teach the theory to new scientists, engineers and business people.

Recognitive.ai, Senior Machine Learning Consultant *(Freelance) — Dec. 2018 - Mar. 2019*

Worked as freelance contractor to build a prototype vehicle security system for Fortune 500 automobile manufacturer.

- Extracted neural & spectral features from audio data and benchmarked different algorithms to find the best classifier.
- Engineered real-time detection on low-compute Raspberry Pi, reading data asynchronously in a Docker container.

Bloomberg LP, Software Engineer — *July 2015 - Aug. 2017*

- Maintained, developed and deployed a codebase of large distributed C++ services to price complex financial derivatives. We used Bloomberg's comdb2 as distributed data storage, and Python testing frameworks.
- Wrote a service to automatically parallelize and distribute our unit and integration tests within our cluster, send emails on failures, and restart on crashes. This cut testing time by a factor of 6, and freed up developer time.
- Received 8 weeks full-time training in C and C++, and represented Bloomberg at Git Merge 2018.

EDUCATION

University College London – London, UK — *Sept. 2017 - Sept. 2018*

MSc, Machine Learning — Distinction (88%)

- Ranked 1st in the Year Overall & Placed on Dean's List for High Academic Attainment
- Courses include: Deep Learning, Reinforcement Learning, NLP, Probabilistic Learning & Approximate Inference

Thesis: "Automatic Documentation of Fine-Grained Elements in Source Code" link Supervisor: Prof. S. Riedel (NLP)

- Devised new encoder-decoder architectures to generate argument docstrings from syntactic and lexical features of source code. Architectures included decoding an attention vector over embeddings of the decomposed AST.

The Recuse Center, New York, USA — *Feb. 2015 - May. 2015*

Participant in Selective, Self-Directed Retreat for Programmers

University of Cambridge – Cambridge, UK — *Oct. 2010 - Aug. 2014*

BA & MSci, Natural Sciences (Physics) — Class 2.1 (69.8%)

- Received the top mark in Condensed Matter Physics & Awarded Academic Exhibition to Magdalene College

TALKS, SIDE PROJECTS & SKILLS

- (2020) Talk: A Dive into `tf.function` in TensorFlow 2 @ ML Engineering Seminar at PROWLER.io
- (2019) Talk: Encoder & Decoder Architectures in Modern ML @ The Oxford Big Data Institute
- (2018) Coursework: Derived and implemented Q-Learning, Expected SARSA, Dyna-Q on toy problems (NumPy).
- (2017) Coursework: Derived and implemented EP and mean-field variational EM schemes on toy problems (NumPy).
- (2016) Project: Wrote a server for distributed bots to play poker with each other (C++, ZMQ, websockets)
- (2015) Project: Collected, visualised and analysed politicians' tweets in the UK General Election (Flask, NumPy, d3.js)

Programming Languages: Python, C++, C *(advanced)* JavaScript. SQL, MATLAB, bash *(intermediate)*
Frameworks & Libraries: TensorFlow, NumPy, matplotlib, git *(advanced)* Jenkins, Sphinx, Docker, AWS, d3.js *(intermediate)*
Languages: English, Portuguese *(fluent)* French *(intermediate)*