Adam Jelley

PhD Candidate in Machine Learning

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PROFILE

PhD candidate in machine learning, with a background in theoretical physics and 3+ years experience of data science in industry. Research currently focused on developing offline reinforcement learning approaches to improve the cold-start efficiency of training reinforcement learning agents. Interested in improving the scientific understanding of deep learning and reinforcement learning, bridging the gap between academia and industry, and the application of reinforcement learning to real-world problems and production software.

EDUCATION

PhD in Efficient Deep Reinforcement Learning, University of Edinburgh **May 2021 - Current**

- PhD research aimed at developing more sample efficient deep reinforcement learning approaches.
- Supported by a Microsoft Research PhD Scholarship.
- Supervised by Professor Amos Storkey and Dr Sam Devlin (Microsoft Research).
- Developed a novel self-supervised learning approach (Partial Observation Experts Modelling, POEM) to learn representations from partial observations of an entity. Applied POEM to learn from the partial observations of an agent exploring an environment to learn a representation of the agent's environment.
- Currently researching the application of offline reinforcement learning to address the cold-start problem.

Centre for Doctoral Training in Data Intensive Science, UCL **Sept 2018 – March 2019**

- Initial research training included courses on Research Software Engineering (in Python), Statistics and Data Analysis, and Machine Learning with Big Data.

Natural Sciences – Physics (MSci, BA), University of Cambridge **October 2012 – June 2016**

- **MSci Phys: 1st Class, 84% average - Ranking 2nd in Cambridge MSci Physics**
  - Specialised in Quantum Field Theory
  - Dissertation on "Invisibility and Maxwell's Equations"
  - Won BP Nevill Mott Prize for the Best Masters Theoretical Physics Research Project
- **BA Phys: 1st Class, 80% average**
  - Won Queens' College Chalmers Prize for Physics

Sir Thomas Rich's Grammar School, Gloucester **2005 – 2012**

A Levels: 4 at A* **AS Levels:** 5 at A **GCSEs:** 10 at A*

PUBLICATIONS

Adam Jelley, Amos Storkey, Antreas Antoniou, Sam Devlin (2022) "Contrastive Meta-Learning for Partially Observable Few-Shot Learning" (Published at ICLR 2023, https://arxiv.org/abs/2301.13136)
Ali Mashayek, Nick Reynard, Fangming Zhai, Kaushik Srinivasan, **Adam Jelley,** Alberto Naveira Garabato, Colm-cille P. Caulfield (2022) "Deep Ocean Learning of Small Scale Turbulence", *Geophysical Research Letters*: https://doi.org/10.1029/2022GL098039

INDUSTRY EXPERIENCE

Research Scientist Intern – Microsoft Research, Cambridge June 2023 – September 2023

- Developed a pipeline for aligning agents with preferences on the Xbox game Bleeding Edge using Reinforcement Learning from Human Feedback (RLHF), for research on capabilities and limitations.

Lead Data Scientist – Dataiku, London July 2020 – April 2021

- Led the UK and Northern Europe region's data science team to prioritise, scope and deliver client-facing and internal data science projects.
- Managed and coached a team of 6 data scientists, including hiring, progression and project allocation.

Data Scientist – Dataiku, London April 2019 – July 2020

- Delivered both client-facing and internal data science projects, including time-series forecasting of vaccination production, automated PDF processing, novel material patent classification, medical image analysis and marketing recommendation engines among others.
- Employed a range of machine learning tools and techniques to develop and deploy data science solutions into production, utilising Python (Pandas, Scikit-learn, Keras, Flask), SQL and Dataiku's Data Science Studio with various underlying architectures for both batch and real-time use cases.
- Presented at conferences including Big Data London and the AI in Retail Summit Europe.

Consultant – Applied Predictive Technologies, London August 2016 - October 2017

- Utilised predictive analytics and SQL to analyse large datasets (including the global Mastercard transaction log) to calculate the performance of business trials and to build models to predict their wider impact.
- Presented recommendations to key stakeholders up to and including C-level across a range of businesses.

CONFERENCE PRESENTATIONS

Improving Recommender Systems with Deep Learning	AI in Retail and Advertising Summit, 2019
Machine Learning in Real-Time: Predicting Taxi Fares in NYC	Big Data London, 2019
Sort It: Build a PDF Processor	BrightTALK (Online Webinar), 2020

TEACHING EXPERIENCE

Teaching Assistant	Reinforcement Learning	University of Edinburgh, 2021-2023
Tutor / Marker	Machine Learning and Pattern Recognition	University of Edinburgh, 2021-2023

TECH SKILLS

Proficient: Python, including PyTorch, Scikit-learn, Pandas, Numpy, Flask; SQL; Linux

Familiar: Cloud (GCP), Docker, Kubernetes, Spark, Javascript, HTML, CSS