

Dan Ley

Corpus Christi College, Cambridge, CB2 1RH
07522 105139 | d.w.ley@hotmail.com | www.dan-ley.com

EDUCATION

UNIVERSITY OF CAMBRIDGE | 2017-21

Course: M.Eng Engineering (Double First) | Supervised by Dr Adrian Weller and PhD students U.Bhatt and J.Antorán

Masters project in Explaining Uncertainty in Deep Learning | Award for outstanding project (top 5%)

1st paper accepted to 3 ICLR workshops, 2nd to 4 ICML workshops. Submissions: NeurIPS conference 2021 (all first author).

1st Year: Class I - 87% (12th of 324) 2nd Year: Class I - 83% (12th of 310) 3rd Year: Pass (No Classing) 4th Year: Distinction

Coursework: Probabilistic ML, Practical Optimisation, Computational Statistics, Data Compression, Bayesian Inference

Software engineering project for the design, development, testing and maintenance of a logic simulation program in Python

EXETER MATHEMATICS SCHOOL & QUEEN ELIZABETH'S ACADEMY TRUST | 2010-17

A-Levels: 4 A*'s in Mathematics, Further Mathematics, Physics and Chemistry (college award for Academic Excellence in Maths)

GCSEs: 13 A*'s including Maths, English and Triple Science (school award for Highest Academic Achievement)

EXPERIENCE

UNIVERSITY OF CAMBRIDGE (RESEARCH ASSISTANT) | JULY - SEPTEMBER 2021 (8 WEEKS)

Cambridge, Cambridgeshire, UK (Work From Home)

- Continuation of MEng research on explaining uncertainty in deep learning; training models in PyTorch for generation of counterfactual explanations (Bayesian Neural Networks, Variational Autoencoders)
- Finalising ICLR/ICML/NeurIPS submissions

JPMORGAN CHASE & CO (SOFTWARE ENGINEER) | JULY - AUGUST 2020 (5 WEEKS)

Bournemouth, Dorset, UK (Work From Home)

- Object-oriented programming in a finance setting using Python (testing with pytest), Flask, sklearn, tensorflow and SQL
- Planned a solution for a disaster relief charity to port 40% of in-person training to online training and initiated contact with a software-service company to discuss technical and financial details of our solution (£200k+ annual savings proposed)

IMAGINATION TECHNOLOGIES LTD (HARDWARE ENGINEER) | JULY - SEPTEMBER 2019 (12 WEEKS)

Kings Langley, Hertfordshire, UK

- Co-inventor on 3 separate pending patent applications for arithmetic hardware designs with improved PPA (Power, Performance, Area) over industry standards; worked with the datapath team in an R&D environment
 - Learnt to rapidly interpret code from past/current team members and make changes (Linux, Python, Perforce, VHDL)
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COMPUTING/SOFTWARE DEVELOPMENT

Completed Udemy's Machine Learning A-Z™: Hands-On Python & R In Data Science (Python sections)

Full marks in Python based computing module in first year examinations

Designed, built and maintained calvaryexeter.co.uk for a local church using HTML & CSS in Adobe Dreamweaver (2016-Present)

Group student Python project for text-recognition and characterisation of PDF reports for the UK Hydrographic Office (2016)

Independently built a downloadable computer game: currently more than 100,000 downloads online (2012-13)

MATHEMATICAL BACKGROUND

90% average in First, Second and Third Year Mathematical Methods Modules - Highest Scoring Modules **(2017-20)**

Senior Team Mathematics Challenge Regional Final Winners and National Final Competitors **(2016 & 2017)**

British Mathematical Olympiad Qualification through Senior Mathematical Challenge **(2016)**

50,000 hits on Brilliant.org online through published problems/solutions to mathematics problems

Ranked 1st of over 220,000 users on the JobFlare app (speed tests for cognitive abilities)

LANGUAGES

Passive Cantonese speaker, GCSE French and Spanish at A*, working towards B2 level Spanish

PUBLICATIONS

D. Ley, U. Bhatt, and A. Weller. Diverse and Amortised Counterfactual Explanations for Uncertainty Estimates. In ICML Workshop on Algorithmic Recourse, 2021.

<https://sites.google.com/view/recourse21/accepted-papers>

D. Ley, U. Bhatt, and A. Weller. δ -CLUE: Diverse Sets of Explanations for Uncertainty Estimates. In ICLR Workshop on Security and Safety in Machine Learning Systems, 2021.

<https://arxiv.org/abs/2104.06323>

A combination of the above publications has been submitted to NeurIPS 2021 and is currently undergoing review.