Abi Langbridge

abilangbridge.com   *+44 7763 190318*

I am a driven and excited machine learning scientist with a focus on graph neural networks and big spatio-temporal data. I have strong communication and collaboration skills with experience working directly with clients, writing academic publications and giving presentations to varied audiences.

Experience

- **AI Research Intern (IBM)** *Aug 2022 - now*

  Development of novel graph neural network algorithms to be applied to heterogeneous spatio-temporal data. Model optimisation for use on big data in client applications. Data analysis, including statistical testing, and presentation of results to technical and non-technical audiences.

- *Junior Design Developer (RHEON Labs)* *Apr - Sep 2021*

  Worked between design and engineering teams at a scaling startup to translate data into actionable insights. Designed and built test rigs to test hypotheses, managed teams to operate them and gathered data. Cleaned and processed data, conducted engineering and statistical analyses and presented conclusions to clients.

- *Teaching Assistant and Tutor (Imperial)* *2020 - 2022*

  Supported students in Engineering Mathematics and Robotics modules, gave demonstrations at academic tutorials and provided one-on-one support to individuals.

Technical Skills

Deep Learning Architectures
Graph Convolutional Networks
LSTM / RNN / Transformers
CNN for images & time-series data

Implementation Tools
Python (Tensorflow & Pytorch)
MATLAB, Excel
Git
Cloud Computing (IBM Cloud, AWS)

Education

- *MEng Design Engineering (Imperial College London)* *2018 - 22*

  Graduated Head of School, with Dean's List Award for academic performance in all four years. Awarded the department's DESIRE Award for AI and Data for thesis on the individualised optimisation of cycle commutes using urban big data. Excelled in computing, machine learning, mathematics, robotics, and innovation & entrepreneurship modules.

Projects and Publications

- *Respiratory-Aware Routing for Cyclists* *https://arxiv.org/abs/2209.03766*

  Designed, built, deployed and calibrated low-cost mobile air quality sensors to provide real-time pollution information to the system. Researched, designed and synthesised an individualised optimisation algorithm for urban cyclists, which uses fitness and air quality data to suggest individually-optimal commute routes. Presented work to Westminster City Council to advocate for wider availability of urban big data for citizens.

- *Blockchain for the Circular Economy*

  Invited to manage the initial rollout of the KUPkrush paper cup recycling scheme in partnership with the IOTA Foundation and Imperial's I-lab, including liaising and negotiating with industry contacts and producing a proposal for hacking an existing machine to run a pilot scheme.

- *Decision-Making Under Uncertainty*

  Developed Monte-Carlo simulations to calculate the optimal expansion decisions for a B2C startup under cost and demand uncertainties.