

DR MATTHEW BEECHEY

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PROFESSIONAL PROFILE

Collaborative, driven, and multidisciplinary machine learning engineer, researcher, and product manager with almost a decade of experience. Proven success in implementing machine learning models in novel environments, and tweaking parameters to obtain optimal results. Experience in neural networks, support vector machines, predictive forecasting, data analysis and visualisation. Other substantive commercial experience in Django development, electronics/firmware design and product management.

KEY SKILLS

Programming: Python (including Django/Fast API), C, PHP, Java, SQL, TypeScript

Machine Learning/Data: Pytorch, Scikit-Learn, Pandas, Numpy, Scipy

Cloud computing: AWS S3, AWS EC2, AWS SageMaker

Applications/Services: KiCad, Altium Designer, Fusion 360, Grafana, Docker, Redis

Embedded: STM32 ARM Cortex-M, UART, ADC, I2C, MQTT, SPI, Ethernet, cellular, GNSS

Product management: Stakeholder engagement, web marketing, pricing, horizon scanning

WORK EXPERIENCE

Machine Learning Researcher

June 2024 – Present

Loughborough University

- Led research project on implementing technical aspects of Graph Neural Network for beyond 5G networking.
- Created GNN model to predict latency in communication networks for optimised routing. Showed high accuracy, allowing for efficient segment routing.
- Developing GNN model for access point user association to enhance resource efficiency to reduce need for more hardware to solve user saturation.

Technical Product Owner

April 2022 – April 2024

Vectare Ltd

- Designed a machine learning model for predicting dynamic private vehicle hire costs to reduce requirement for human-in-the-loop.
- Managed the development of IoT sensor suites for public transport vehicles, enhancing passenger satisfaction.
- Collaborated with industry and government stakeholders, crafted marketing materials, and provided regular project updates to the team.

- Applied technical expertise in product ideation, schematic capture, PCB hardware design, C programming, two-way system communication, time series database design, and forecasting.
- Implemented sensor driver DC for force-resistive sensor readings, and MQTT for cellular data transmission.

Doctoral Researcher

January 2019 - December 2022

Loughborough University

- Developed multiple machine learning classification models focused on network security.
- Devised strategies to protect machine learning models against adversarial attacks using evidential classification methods which vastly reduced incorrect misclassifications of ML models.
- Invented methods leveraging feature uncertainty for effective selection of feature subsets which showed excellent ability to select most optimal features based on accuracy and time to converge.

Research Assistant

January 2018 – December 2018

Loughborough University

- Benchmarked micro clusters of embedded computing devices for server-loads like web hosting and data caching to assess their viability in rural areas over high-power servers.
- Formalised experimental results for publication in conference papers during the later stages of the project.
- Applied technical expertise in web applications including Redis and Nginx.

EDUCATION

PhD:	Loughborough University, “Evidence Theory Based Machine Learning Approaches for Network Security”	2019 – 2022
MSc:	Loughborough University, “Internet Computing and Network Security”	2017 – 2018
Grade:	Distinction	
BSc:	De Montfort University, “Computer Science”	2013 – 2016
Grade:	First Class Honours	

REFERENCES

Available on request.