Bradley **Gram-Hansen**

Projects: https://github.com/bayesianbrad • Email: bradley@intelligentnetworks.ai • Publications: Google Scholar

Tagline: I have a passion for impact, learning, and solving real-world problems; allow me to do that, and I am yours.

Experience

Intelligent Networks
London, UK

Chief Technology Officer & Co-founder
Sept 2020 – Present

• Entrepreneurial spirit. Co-founded https://intelligentnetworks.ai, built the website with **HTML, Bootstrap, CSS**, hosted and deployed in the cloud with **AWS** (Route 53, Amplify) via **Github** (Git) for CI/CD.
• Built innovative **probabilistic machine learning & AI** solutions for **our enterprise customers** using a combination of **classification and regression algorithms** to forecast and extract anomalous alarms, **reducing false alarm incidents by 96 %** and generating a significant ROI of $1.4 million for our customers.
• Researched and implemented **ETL pipeline, data warehouse,** visualization & AI framework in the cloud, deployed on **AWS** (S3, EC2, Amplify, RedShift) with **Python (**PyTest, Pandas, Pytorch, Seaborn, Matplotlib, Scikit-learn, PyMC3, & Flask**), Docker,** and a **SQL (**MySQL) database. Our customers had several legacy systems, requiring flexible data pipelines and frameworks.
• Raised $110,000 in funding from the Entrepreneur First accelerator, managed finance, payroll, hiring, technical supervision, and pensions. I enjoy working with customers and developing solutions to solve their needs in a fast-paced and dynamic environment.
• **Landed two commercial enterprise contracts** with Scottish ($2 billion annual revenue) and Anglian Water ($1.8 billion annual revenue), which I achieved by collaborating and working side-by-side with our customers to understand their business problems and business requirements.

University of Oxford
Oxford, UK

Machine Learning Researcher
Sept 2016 – Jan 2021

• Created PyLFPPL, an open source compiler built with **Python** & **Clojure** to enable new classes of **Bayesian inference algorithms** to be deployed in **probabilistic programming** systems in an automated way via a standard **API**, reducing implementation time by up to 80 %. Work published at **AISTATS**.
• **Collaborated** with teams at CERN, Intel, Oxford University, UBC, Google, and NYU, where I developed two novel open source **deep learning** and **Bayesian modeling tool-kits**, PPX and PyProb, using **Python, C++ & Google FlatBuffers**, to convert real-world simulators into probabilistic programs for deep learning-based statistical inference algorithms. Work published at **NeurIps**.
• Created new modeling strategies for agent-based models that utilized custom **neural networks** and **MCMC algorithms** built with **Pytorch** and provided a 50% increase in computational efficiency and predictive power over previous methods. Work published at **AABI**.
• Developed innovative **kernel-based algorithms** in **Python** using **GPy** with error rates of less than 1% for forecasting and predicting anomalous events in financial and health care time-series datasets that were partially incomplete.
• In this role, I got to apply my passions for data and machine learning to solve real-world problems in the financial services, scientific, and health care domains, working in both the small and big data regimes.

Frontier Development Lab
Oxford & Frascati, UK & IT

Machine learning scientist
Jun 2018 – Sept 2018

• **Collaborated** with Nvidia, NASA, ESA, Google Cloud, and UNICEF and led a team on an ambitious, yet ambiguous, project to detect Informal settlements for UNICEF, using free, low-resolution satellite imagery - it's very blurry! I engineered the prototype and the initial solution that turned spectral signals from satellite images into actionable insights for UNICEF. I used **Matlab & Python** (GeoPandas) and deployed on **Google Cloud**.
  • Enabled UNICEF to **save $100,000 annually** in surveying costs
  • Invited to present the research results to industry leaders at the UN AI for social good conference.

Education

University of Oxford — PhD. in Machine Learning & Statistics
- **Supervisors**: Prof Yee Whye Teh, Dr Tom Rainforth, Dr Atılım Günes Baydin, Prof Philip Torr
- **Thesis**: Extending Probabilistic Programming Systems and Applying Them to Real-World Simulators

University of Nottingham — Masters in Mathematics & Physics
- Graduated in top 5%. Equivalent GPA 4.0.