TOMMY ROCHUSSEN

Email ◇ LinkedIn ◇ GitHub

EDUCATION

University of Cambridge - Engineering tripos, Downing College 2019 - 2023

- Specialised in Information and Computer Engineering.
- BA: II.i. MEng: I in research project (70%+), II.i in exams (69.4%), Merit overall. MEng module results include 73% in Advanced Information Theory and Coding, 72% in Probabilistic Machine Learning, 90% in Computational Statistics and Machine Learning. Research project resulted in a paper (see below).

Tonbridge School 2014 - 2019

- A-Levels: 4A* (physics, chemistry, maths, further maths). GCSE's: 13A*. STEP: I (2), II (3).
- Intermediate Maths Challenge: Gold x3. Senior Maths Challenge: Gold. British Maths Olympiad: Commendation.

PROFESSIONAL EXPERIENCE

Cambridge University Engineering Department - Student researcher Summer 2022

- Worked over the summer on my MEng project "Amortised Inference in Bayesian Neural Networks".
- Familiarised myself with relevant literature before implementing mean-field Gaussian (GitHub) and global inducing point (Ober & Aitchison, 2020) variational Bayesian neural networks.

Algomo - Data science intern Summer 2021

- Fine-tuned DistilBERT on banking77 dataset using keras/tensorflow, achieving up to 99.7% test-set accuracy for question-intent classification - GitHub.
- Worked with Jina neural search framework to implement a simple chatbot working off banking77 dataset.
- Scraped Q&A data from N26's website and used the multilingual Universal Sentence Encoder to match questions to answers across 8 languages, building the backend for a simple multilingual Q&A chatbot.

HIGHLIGHTED PROJECTS

Variational Autoencoder Exploration - Voluntary solo project - GitHub July 2023

- Implemented a highly adjustable VAE in order to deepen my understanding of VAEs.

Master's (MEng) Project - Engineering Tripos part IIB - Thesis, GitHub September 2022 - June 2023

- "Amortised Inference in Bayesian Neural Networks" supervised by Adrian Weller and Matthew Ashman.
- Co-first authored a paper on the project that was accepted at the AABI workshop held at ICML 2023.

MCMC for Lewisham Bike Theft Data - Engineering Tripos part IIB - GitHub December 2022

- Implemented two MCMC algorithms for inference over noisy and incomplete spatial bike theft count data.
- A Gaussian process prior with varying likelihoods was used to model the data, and the evidence framework was compared to cross-validation for model selection. Mark: 100% (class I at 70%).

Bayesian Logistic Regression - Engineering Tripos part IIA - GitHub March 2022

- Implemented a non-linearised Bayesian logistic regression classifier using the Laplace approximation and optimised model hyperparameters using the evidence framework. Mark: 80%.

IB Data Science - Engineering Tripos part IB - GitHub April 2021

- Used linear regression and discrete Fourier transforms to fit polynomial or exponential models combined with sinusoidal models respectively to time series datasets. No mark due to COVID.

EXTRA-CURRICULAR ACTIVITIES

- Grade 8 Trumpet at age 13, bass in Tonbridge School chapel choir for five years, principal trumpet in Tonbridge School symphony orchestra for four years.
- Wrote a mashup cover of *Clocks* (Coldplay) and *Chasing Cars* (Snow Patrol) which won best arrangement in the Tonbridge house music competition.
- Represented University of Cambridge for U20's rugby; Downing College for rugby (social secretary 2021-23), mixed netball, climbing; Tonbridge School 2^{nd} teams for rugby and hockey.