GERGELY FLAMICH

St John's College, Cambridge, UK
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EDUCATION

PhD in Machine Learning (St John's College, Cambridge)
Oct 2020 - Present (Expected Graduation: Feb 2025)
Supervisor: Dr José Miguel Hernández-Lobato

Research interests: Coding algorithms for relative entropy coding / reverse channel simulation, learned compression with a focus on image compression using variational auto-encoders, generative modelling, Bayesian optimization

MPhil in Machine Learning and Machine Intelligence (St John's College, Cambridge)
Oct 2018 - Oct 2019
Graduated with Commendation

Courses taken: Deep Learning, Probabilistic Machine Learning, Computer Vision, Reinforcement Learning, Natural Language Processing, Speech Recognition, Advanced Machine Learning, Statistical Machine Translation, Statistical Speech Synthesis, Control Theory, Introduction to Machine Learning, Probabilistic Automata

Average grade: 75% (A)

Dissertation Topic: Compression, Information Theory, Variational Auto-Encoders **(graded 80.5%)**

BSc Joint Honours in Mathematics and Computer Science (University of St Andrews)
Sept 2014 - June 2018
Graduated as Valedictorian in Computer Science, with First Class Honours

Relevant achievements: In my first year of studies, I implemented a **genetic algorithm** to find optimal playing strategies for the game Starcraft 2 in a very large search space, which was assessed by the department to be the best solution **(graded 100%)**. As part of a third-year group project, I have implemented a **parallelised Monte Carlo Tree Search** agent to play the board game Catan **(graded 87.5%)**.

Average grade: 86% (17.2 / 20)

Dissertation Topic: Cryptography, Fully Homomorphic Encryption **(graded 92.5%)**

WORK EXPERIENCE AND RELEVANT PROJECTS

Student Researcher: Relative Entropy Coding for Practical Data Compression — *July 2022 - Dec 2022*
Google Brain, London
Host: Dr Lucas Theis

Research Assistantship: Bayesian Optimization & Data Compression — *Oct 2019 - July 2020*
University of Cambridge
Supervisor: Dr José Miguel Hernández-Lobato

Master's Dissertation: Compression without Quantization — *May 2019 - Aug 2019*
University of Cambridge
Supervisors: Marton Havasi, Dr José Miguel Hernández-Lobato

Research Assistant / Google Soli Alpha Developer: Gesture Recognition — *June 2016 - Aug 2016*
St Andrews HCI Group
Supervisor: Prof. Aaron Quigley

Research Assistant / Google Soli Alpha Developer: RadarCat — *Jan 2016 - April 2016*
St Andrews HCI Group
Supervisor: Dr David Harris-Birtill, Prof. Aaron Quigley

ACADEMIC ACHIEVEMENTS

2022	Highlighted Reviewer	ICLR 2022 (`https://iclr.cc/Conferences/2022/Reviewers`)
2019	Commendation	University of Cambridge, *awarded for good performance in my MPhil*
2018	Adobe Prize	University of St Andrews, *highest average grade in Computer Science*
2018	Dean's List Award	University of St Andrews, *annual award for academic excellence*
2016	Dean's List Award	University of St Andrews, *annual award for academic excellence*
2015	Top of Class	First-Year Programming Projects
2013	2nd Prize	International Hungarian Mathematics Competition

PUBLICATIONS

- G. Flamich. Greedy Poisson Rejection Sampling. *Submitted to NeurIPS 2023*.
- G. Flamich, Z. Guo, J. He, Z. Chen, J. M. Hernández-Lobato. Compression with Bayesian Implicit Neural Representations. *Submitted to NeurIPS 2023*.
- G. Flamich, S. Markou, J. M. Hernández-Lobato. Greedy Rejection Coding. *Submitted to NeurIPS 2023*.
- G. Flamich, L. Theis. Adaptive Greedy Rejection Sampling. In *IEEE International Symposium on Information Theory 2023*.
- G. Flamich, S. Markou, J. M. Hernández-Lobato. Fast Relative Entropy Coding with A* coding. In *ICML 2022*.
- G. Flamich, M. Havasi, J. M. Hernández-Lobato. Compressing Images by Encoding Their Latent Representations with Relative Entropy Coding. In *NeurIPS 2020*.
- G. Flamich, M. Havasi, J. M. Hernández-Lobato. Compression without Quantization *(Workshop paper)*. In *NeurIPS 2019 Workshop on Information Theory and Machine Learning*.
- H.-S. Yeo, G. Flamich, P. Schrempf, D. Harris-Birtill, and A. Quigley. RadarCat: Radar categorization for input & interaction. In *Proceedings of the 29th Annual Symposium on User Interface Software and Technology*, pages 833–841. ACM, 2016.

INVITED TALKS

- Design Space Exploration of Heterogeneous SoCs using Multi-Objective Bayesian Optimization. At *Semiconductor Research Corporation (SRC) TECHCON 2020 (Virtual)*.

TEACHING EXPERIENCE

Master's Thesis Supervision — *University of Cambridge*

2021	Kristopher Miltiadou	*Title:* Probabilistic Machine Learning
2023	Szilvia Ujváry	*Title:* How tight can a PAC-Bayes bound be?
2023	Jiajun He	*Title:* Compression with Bayesian Implicit Neural Representations

Undergraduate Supervision — *University of Cambridge*

2022 Supervised 2 groups of 3 fourth-year undergraduate students for *3F8: Inference*
2023 Supervised 5 groups of 2 fourth-year undergraduate students for *3F8: Inference*

TECHNICAL SKILLS

Languages	Python, Javascript, Java, Haskell, Matlab, C, C++, LaTeX
Frameworks & APIs	Tensorflow, Autograd, SciPy, OpenCV, D3.js, Qt

EXTRACURRICULAR

School President of Computer Science (2017-2018)
- Organised first Computer Science Ball, and Research Fayre for UGs
- Successfully implemented a mentoring scheme for newcomers

Executive Committee Member of the Computing Society (2015-2017)
- Organised 4 hackathons, 9 student talks and 6 programming contests