

Adhithya Saravanan

✉ aps85@cam.ac.uk

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Education

University of Cambridge, Selwyn College: MEng Computer and Information Engineering *October 2023 - July 2024*

Master's Thesis: 'Certification of Individual Fairness in Bayesian Neural Networks' advised by Matthew Wicker and Adrian Weller

- Courses include: 'Probabilistic Machine Learning', 'Computational Statistics and Machine Learning', 'Practical Optimisation', 'Deep Learning and Structured Data', 'Computational Neuroscience' and 'Materials and Molecules: Machine Learning'

University of Cambridge, Selwyn College: BA Computer and Information Engineering *October 2020 - July 2023*

- Third year: First Class – Top 3% of the graduating class (Rank: 8/277)

- Second year: First Class - Top 10%

- First year: First Class

- Courses include: 'Statistical Signal Processing', 'Information Theory and Coding', 'Statistical Inference', 'Molecular Bioengineering', 'Neuroscience', a series on mathematical methods and a series on EEE (including digital and analogue electronics)

Awards

- 'Harrison Prize' for top-of-the-class examination results at Selwyn College

2023, 2021

- 'Christopher Johnson Prize' for academic and extra-curricular contributions to Selwyn College (2 students out of 500)

2023

- 'Tripos Prize' and academic scholarship for first-class examination results

2023, 2022, 2021

Greenhead College

September 2018 – August 2020

- A-Levels: Mathematics (A*), Further Mathematics (A*), Physics (A*) and Chemistry (A*)

Heckmondwike Grammar School

September 2013 – August 2018

- GCSEs: 8 Grade 9s, 2A*s, 1 Grade 8. Awards (top 4 out of 180) for 6 subjects including English (99.4%), History and Biology

Experiences

Research Assistant, DeepWok Lab (Imperial College London)

September 2023 –

- Advised by Prof. Zhao and Dr. Shumailov on proof-of-concepts for ML/AI governance, through hardware-aware training and fine-tuning. Finalising paper for conference submission

Machine Learning Research Intern, Caltech (Pasadena, California)

June 2023 - October 2023

- Advised by Prof. Anima Anandkumar (Sr. Dir at Nvidia) at the Anima AI+Science Lab. Funded by the competitive Summer Undergraduate Research Fellowship (Caltech) and Engineering Ball Fund (Cambridge)

- Researched, designed and built workflows to flexibly characterise and address social bias in generative models (large language models and text-to-image models)

Student Partner, Entrepreneur First (<https://www.joinef.com>)

October 2022 - March 2023

- Experience in talent investing and insight into entrepreneurship through organising events at clubs and outreach

Software Engineering Intern, Bolt6 (London) (<https://www.bolt6.ai>)

July 2022 - September 2022

- First intern (received full-time offer); solely responsible for developing a deep learning-based player re-identification system for PGA Tour – to aid automated scoring and broadcasting at their golf tournaments

- Prototyped and benchmarked architectures, training and match assertion methods for the golf context (PyTorch)

- Fine-tuned the best candidate; ported the model to C++ for distributed GPU deployment and built a robust proof-of-concept workflow for querying and asserting matches

Machine Learning Intern, Optalysys (<https://optalysys.com>)

July 2021 – September 2021

- Implemented, trained and fine-tuned a variety of semantic segmentation models, as well computationally-lightweight alternatives, to demonstrate the training and deployment of edge machine learning models on optical hardware

Publications

'ICBINB: Failure Modes in the Age of Foundation Models' Workshop @ NeurIPS 2023

'Exploring Social Bias in Downstream Applications of Text-to-Image Foundation Models' (first-author)

'XAI in Action: Past, Present, and Future Applications' Workshop @ NeurIPS 2023

'Empowering Domain Experts to Detect Social Bias in Generative AI with User-Friendly Interfaces'

Skills and projects

Programming Languages Python (PyTorch, TensorFlow), C++, Javascript

Extracurricular – Cambridge University Cricket Team, Selwyn College Cricket Team captain (Member of 'Hermes & Sirens' club, by invitation, for contributions to college sport) - Outreach Officer, Cambridge Robotics (2021-2022) - Regional squash tournaments

Logic Simulator (IIB Engineering Project - Repo.)

- Developed a logic simulation program in Python. Focus on best practices in design, testing and maintenance

Integrated Design Project (IB Engineering Project)

- Designed, built and tested an autonomous buggy, in a team of six, using C++ and Python – for detecting, collecting and delivering blocks to a high degree of accuracy (responsible for computer vision)

Awards and achievements

Institute of Engineering and Technology Diamond Jubilee Scholar (Merit-based, sponsored by Thales) *2020 – 2024*

UKMT Maths Challenge

2014 – 2020

- Achieved four Gold awards (thrice the best in school) and once qualified for the Maths Olympiad (Merit)

Engineering Enrichment Scheme

2018 – 2019

- Delivered a design project with a £5000 budget for BorgWarner, which improved efficiency in their turbocharger production line
- Awarded the ‘People’s Choice Award’ (out of 15 competing teams) and the Gold Industrial Cadet Award by a panel of Chartered Engineers