

## Jasamrit Rahala (He / Him)

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Computer Science Junior at Princeton University pursuing a math minor with experience in AI and ML. Comfortable in academia and business. Confident communicator with public speaking proficiency. Competitive mathematician and programmer.

### EDUCATION

**Princeton University** Princeton, NJ, US **Aug 2022 – May 2026**

**B.S.E in Computer Science**, Minor in Mathematics **Dep. GPA 3.96**

**Relevant Courses:** Real Analysis, Abstract Algebra, Computer Vision, Computer Graphics, Theory of Natural Algorithms, Theory of Algorithms, Graph Theory, Probability Theory & Stochastic Systems, Quantum Computing, Functional Programming, Introduction to Machine Learning, Microeconomic Theory, FPGA/Contemporary Logic Design, Economics and Computation, Operating Systems, Complex Analysis, Elliptic Curves, Diff Eq, Game Theory, Research with Robert Tarjan

**Eton College** Eton, Windsor, UK **Sep 2017 – May 2022**

A-Levels: 4 A\*s in Computer Science, Maths, Further Maths and Physics

Scholarships / Awards: New Foundation Scholar, King's Scholar, A\*AA offer to Oxford University

### EXPERIENCE & RESEARCH

**Coding Languages/Libraries:** Python, C / C++, Arm8, React, JavaScript, Java, SQL, HTML / CSS, OCaml, Swift, Qiskit, LaTeX, git, Pandas, NumPy, Scikit-learn, Matplotlib, Unity, Pytorch

**Research with Robert Tarjan et al. – Data structures and Algorithms Analysis** **Dec 2024 – Present**

- Invented new data structure to allow lock-free usage of rebalancing binary search trees (concurrent ziptrees)
- Working on publication with professors from Princeton, WashU and UTAustin

**MIT CSAIL Research & Development – Embedding space alignment Researcher for MantisAI** **May 2024 – Aug 2024**

- Researched understanding and alignment of embedding spaces under supervision of Professor Manolis Kellis
- Presented novel approach to mapping embeddings by combining variational-autoencoders and Procrustes analysis

**Imperial College London – Computer Vision / Deep Neural Networks Researcher** **Oct 2020 – Jan 2021**

- Designed and tested Pytorch deep neural nets to help an IVF research team lead by Dr. Cristina Hickman
- Classified sensitive image-data, 4-cell stage embryos, based on survival probability

**TeensInAI – AI Hackathon Teacher & Organiser** **Jun 2020 – Sep 2020**

- Designed 2 weeklong course in AI covering regression, clustering, neural networks
- Produced interactive Jupyter / Kaggle notebooks and live educational videos / streams with exercises for students

**Microsoft / TeensInAI – AI Summer Camp Student / Sentiment Analysis** **May 2019 – Jun 2019**

- Won scholarship to explore use of ML in Microsoft, Twitter, BBC London HQs
- Coded sentiment analysis model using flask, IBM Watson and Microsoft Azure to help victims of bullying

### COMPETITIONS & PRIZES

**Computational Biology paper – Evolutionary / Genetic Algorithms and Heuristics** **Feb 2022 – Mar 2022**

- Authored a paper on the mathematics of biologically / physics inspired algorithms and heuristics
- Implemented algorithms including crossover, mutation, NEAT and CNNs in python (without libraries)

**Computational Physics Prize 2022 – Perseverance / Spirit Rover modelled with NumPy** **Dec 2021 – Feb 2022**

- Work archived in Eton libraries for modelling the landing of mars rovers using gravity / fluid dynamics
- Used NumPy to calculate trajectory of rovers and approximated a simulation of pressure bags

**Computation Physics Prize 2019 – Ising Model implementation in NumPy** **Dec 2018 – Feb 2019**

- Youngest Etonian to win the Computational Physics Prize for modelling the Ising model of magnetism
- Used NumPy, SciPy and matplotlib to efficiently simulate critical conditions for phase transitions of model

**FoodBytes – Computer Vision / Entrepreneurship** **Jan 2019 – Apr 2019**

- Used Google Lens and OpenCV to track food wastage in restaurants then recommended menu alterations
- Placed 2<sup>nd</sup> in regional AI competition and invited to National Food Wastage Conference in London

### SELECT AWARDS & MEDIA APPEARANCES

- Youngest person in the UK to achieve 100% score in the adult Mensa IQ test (162+ IQ) aged 11 years old
- Interviewed by Sunday Times, Guardian, BBC and Mensa since 8yrs old as a “Child Prodigy”
- First dual King's Scholar and New Foundation Scholar in Eton College's 500-year history
- Youngest Series Finalist on quiz shows, Child Genius (2015) and Countdown (2021)