Thomas Read

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Awards

International Olympiads

- International Olympiad in Informatics 2017, Iran – Silver medal, 39th of 304
- Romanian Master of Mathematics 2017 — Bronze medal, 39th of 111
- International Olympiad in Astronomy and Astrophysics 2016, India — Gold medal, 10th of 221
- Balkan Mathematical Olympiad 2016, Albania — Bronze medal, 33rd
- International Maths Olympiad — reserve for the UK team of 6 in 2016 and 2017

Other awards

- Hack Cambridge 4D – won Improbable's Best Probablistic Game AI award (and in the top 6 of 68 teams overall) for developing an interactive computer opponent for the game Battleships, using probabilistic programming techniques and motivated heuristics (see https://devpost.com/software/battlereeves)
- Imperial Mathematics Competition 2017 — 4th nationally in the first individual round, 7th in the final round (open to UK mathematics and physics undergraduates)
- Jane Street Electronic Trading Challenge, Cambridge 2017 — 2nd of 26 teams
- National olympiads — Full marks in Round 1 and Round 2 of the British Maths Olympiad (2016-17), Distinction in the British Informatics Olympiad (2016-17), Gold in the British Physics Olympiad (2016-17), Gold in the British Astronomy and Astrophysics Olympiad (2016-17), Gold in the UK Chemistry Olympiad (2016-17), Gold in the British Biology Olympiad (2015-16) and Gold in the UK Linguistics Olympiad (2016-17)

Work Experience

Internship at Myrtle Software Ltd: Deep Learning research (8 weeks, summer 2018)

- Research into training convolutional neural networks for image recognition as quickly as possible, working with David Page (Chief Scientist at Myrtle)
- Learnt to use PyTorch (one of the main libraries for GPU-accelerated machine learning) and the Python data analysis/visualisation ecosystem (including pandas, Matplotlib, Altair)
- Rapid iteration of custom network architectures and training schedules
- Particular focus on the role of Batch Normalisation to stabilise training, and decoupling the effects of changing initialisation, network architecture and hyperparameters
- Parts of this work are described in blog posts at https://www.myrtle.ai/2018/09/24/how-to-train-your-resnet-5/ and https://www.myrtle.ai/2018/12/19/how-to-train-your-resnet-6/

Education

Trinity College, Cambridge (Mathematics B.A.) — 2017 to (expected) 2020

- 7th in the year in first year examination results

The Perse School — 2010 to 2017

- Awarded Academic and Music scholarships, and a Sixth Form Academic scholarship
- Maths A level (A*, 597/600), Further Maths A level (A*, 595/600), Physics Pre U (D1, 389/400), Chemistry Pre U (D1, 377/400), Biology AS (A, 118/130)
- Highest mark in the country for both Pre U Physics and Pre U Chemistry in June 2017
- Trinity College Leaving Exhibition for Best Exam Results
- Sixth Term Examination Paper (STEP) — Grade S (Outstanding) in STEP I (120/120), STEP II (107/120) and STEP III (117/120)
- GCSEs — 11 A*s in Maths, Physics, Chemistry, Biology, Design and Technology, English Language, English Literature, Latin, Greek, French, Music

Experience

Programming

- Experience with C++, Python, Julia, Rust, Haskell and Clojure, teaching myself languages from a wide variety of programming paradigms
- Knowledge of algorithms (e.g. Dijkstra's, Floyd-Warshall, Prim's) and data structures (e.g. binary search tree, heap, disjoint set) from International Olympiad in Informatics preparation
- Experience with web development – personal website at `https://thjread.com`, and a to-do list web app at `https://reminders.thjread.com` with a focus on reliable offline functionality (frontend written in TypeScript and using the Mithril framework, backend using NGINX for static content and Rust with a PostgreSQL database for application data, all orchestrated via Docker Compose and running on Google Cloud Platform Free Tier)
- Wrote a program to simulate subsonic aerodynamics of model rockets (submitted as part of a Higher Project Qualification in 2015)
- `https://github.com/thjread` – a few personal projects

Maths

- Mentor for the UKMT's maths mentoring scheme
- Self taught Maths and Further Maths A levels
- Attended various UKMT maths olympiad training camps between 2015 and 2017, and gave a talk on Burnside's lemma and the orbit-stabilizer theorem at the 2017 Trinity Training camp
- Gave a talk on Lagrange multipliers to the school maths society
- Volunteered to run maths extension sessions for gifted primary school students once a week (2016-17)

Other interests

- Origami
- Astronomy
- Cello – Grade 8, Distinction (2012)
- Ultimate frisbee
- Science fiction