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Maximilian Anthony Hugh Clark

October 2024

Current: 1-Year Non-Compete, ending 25th Oct 2024

EXPERIENCE

Interpretability Research – Aug '24 to present

- LLM manipulation and control with **feature steering**: extract an activation vector representing a data-defined concept, topic or style then artificially boost or subtract this vector to control model behaviour.
- **Attention visualisation** and investigating how attention in higher layers affects attention deeper in the model.
- Used Mistral-7B, PyTorch - links on mahclark.github.io/personal-site/

Citadel Software Engineer – London, Aug '21 to Jan '24

- Project lead for trade-critical applications.
- Built a reputation for the quality of my apps globally within Citadel; teams in offices abroad reached out to me with projects which I designed, developed and owned.
- Designed and implemented pricing infrastructure.
- Python, SQL, KDB

Internship at Databricks – Summer 2020, 13 weeks

- Solved the no.1 customer complaint by designing and building billable usage data API.
- Scala, Python, Kubernetes

University Projects – 2018-2021

- Awarded for **best final year dissertation** (92%) in Cambridge: AlphaZero AI using relational graph neural networks; I read and implemented DeepMind's papers, trained the AI to surpass human level at Sevn and achieved a novel step of generalisation – a pre-trained model agnostic of board size, even performing high-level on unseen board sizes; supervised by Neil Lawrence, congratulated by DeepMind CEO Demis Hassabis. (Python, PyTorch, github.com/mahclark/EtaZero)
- Adversarial attacks on image classifiers - computing imperceptible perturbations using model gradients to control output.
- Group project manager: HoloLens AR application to scan objects and display their environmental impact as a hologram. (C#, github.com/mahclark/GreenEyes)

iOS Development – 2015-2019

- Self-taught Swift/Xcode and C#/Xamarin
- 4 App releases on the iOS App Store
- Smart Maths: times tables practice; released mid 2015; over 60,000 downloads

ACADEMIC

University of Cambridge, Pembroke College – 2018-2021

Computer Science BA Hons, 2:1
Received the prize for the best dissertation.
College cricket & table tennis captain.

Harrow School (Academic Scholar) – 2013-2018

A-levels (2018): A*A*A*A* in Maths, Further Maths, Physics, Japanese
iGCSEs (2016): 11 A*s, 1 B

School Awards:

- Head of the Computer Science Society
- Senior UK Maths Challenge – *Gold*
- Senior British Physics Olympiad – *Gold*
- Senior British Chemistry Olympiad – *Gold*
- Japanese Prize for best Japanese learner
- Dr. R.A. Robinson Prize – Practical Science
- Copy Prize – Art of Programming Elective

SKILLS

Software Engineering –

Professional: Python, SQL, KDB, Scala, Java, ETL, full stack applications, distributed system design, Kubernetes, Git

Other experience: C, C++, C#, Swift, JavaScript, SML

What I strive for: clarity; extensibility; resourcefulness; ownership.

Adding value: I see tremendous value in understanding the business problem and being a partner to the stakeholders. This leads to new ideas and the best solutions.

ML and AI Alignment –

Deep learning, reinforcement learning, PyTorch, relational graph NNs, transformers, feature steering. Driven by making positive societal impacts through AI alignment.

Read Superintelligence – *Nick Bostrom*.

Languages –

- Self-taught myself to fluency in Brazilian Portuguese.
- Achieved proficiency in Japanese; hired for live translation in university lecture classes.

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