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Avi Semler

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Technical Skills

Programming	**Python**, Java, JavaScript, Git, LaTeX, SQL, Jupyter notebook
Libraries	numpy, **PyTorch**, einops, PyGame, matplotlib

Education

MEng (integrated) Discrete Mathematics *University of Warwick*   **2021 - July 2025 (expected)**

Main courses: **programming**, data structures, **algorithms**, **stochastic processes**, linear algebra, differential equations, **mathematical statistics**, artificial intelligence, **mathematics of machine learning**, combinatorics, manifolds

My third-year project involves working with two researchers on paper about applied and theoretical aspects of deep learning

1st year: 86.2% (**departmental award** for exceptional achievement), 2nd year: 83.7% (on track for first-class)

Cambridge Machine Learning for Alignment Bootcamp   **April 2023**
Developed **ML engineering** skills and implemented the transformer-based GPT-2 model in PyTorch from scratch, and trained a version of ResNet

A-levels *Menorah Grammar School*   **2015-2021**

A*A*A* in mathematics, further mathematics, and computer science

Relevant Experience

Undergraduate Researcher *Computer Science Department, Warwick*   **Summer 2023**
Implemented reinforcement learning in **Python** to simulate transport demand, and **visualised results**. This was done with close **cooperation and communication** with a supervisor from the department.

Software Engineering Internship *Larsen & Toubro Infotech*   **Summer 2022**
Used Python to implement parsing of natural language input into JSON, working with the **data science** team

Web Developer *Shabbat Walk, charity*   **Sep 2019 - Feb 2020**
Developed a multi-user website with PHP backend, Stripe **API** for donations, and SQL database. The website enabled new fundraising and outreach opportunities for the charity

Other Experience

AI Safety Discussion Group Facilitator *EA and AI Societies, Warwick*   **Sep 2023-Present**
Working in collaboration with another student to organise a discussion group on the potential risks from AI, and technical interventions to improve safety and governance

Projects (With Github Links)

Using random features for image classification	*Pytorch, Python, deep learning*
Agent-based Simulation of Congestion Games	*Numpy, Python, reinforcement learning, NetworkX*
Deep learning notes	*Probability, calculus, linear algebra, writing*

Interests

I wrote an article about **natural langauge processing** and machine learning for Poincare Magazine. This involved researching the area and refining my writing. I enjoy hiking and learning languages in my spare time.