DANIEL DAVIES

https://danieljdavies.com | danieljamesdavies12@gmail.com | 07823 777530

OVERVIEW

Machine Learning Engineer **(AI MSc Distinction, BSc First, Brunel London)** who learns fast, runs careful experiments, and ships production AI that delivers measurable business value. I solve complex problems end-to-end, collaborating effectively in teams to complete projects, and am comfortable leading.

Trained a 254M-param LLM from scratch, generated synthetic training datasets, fit SAEs for feature extraction, ran experiments with various model architectures, developed novel feature labelling and circuit discovery algorithms, and built a live application (turingexplorer.com) for easy use of this research. Focus areas: pre-training, synthetic data, distillation, mechanistic interpretability, full-stack web development.

At Projekt Rising Ltd, I build and deploy production AI applications that cut costs and accelerate workflows for SMEs, collaborating across engineering and client engagement. This role has provided me with excellent experience in both technical development and end-to-end delivery.

TECHNICAL SKILLS

- Knowledge in **Deep Learning**, **Data Analysis, Data Generation, LLM Architecture and Training, Mechanistic Interpretability, Full-Stack Web Development, Robotics.**
- Key languages, frameworks, and platforms used throughout professional work, university projects, and personal projects: **Python** (including **PyTorch, TensorFlow, NumPy,** and **FastAPI**), **JavaScript** (including **React** and **Node.js**), **HTML**, **CSS**, SQL, Google Cloud, Azure, Heroku, R, Tableau.

I am excited to learn any skills necessary to solve problems. See github.com/DanielJamesDavies for my most recent personal projects.

WORK EXPERIENCE

Applied-AI Software Engineer (Independent Contractor) with Projekt Rising Ltd – 3 Years

January 2025 – Present
- Collaborated across a growing team, coordinated projects, improved delivery cadence, and made key technical decisions.
- Led, architected, and shipped over a dozen applications and automations for multiple clients/SMEs to streamline processes and accelerate their growth.

September 2022 – December 2024
- Built many artificial intelligence systems and workflows to automate time-intensive processes.
- Developed tools at scale for organisations to easily construct different types of desired content and documents through a language interface.

EDUCATION

Artificial Intelligence MSc
Distinction
Brunel University of London | September 2023 – December 2024

Deep Learning	A*	Machine Learning	A*
Predictive Data Analysis	A+	Critical Analysis of Modern Data	A+
Artificial Intelligence	A	Quantitative Data Analysis	A

Computer Science (Artificial Intelligence) BSc
First Class Honours
Brunel University London | September 2019 – July 2022

BTEC Level 3 Extended Diploma in IT & GCSEs
West Herts College | September 2017 – June 2019
Triple Distinction Star (D*D*D*)

Kings Langley Secondary School | September 2012 – June 2017
8 GCSEs including Mathematics and English

KEY PERSONAL PROJECTS

Turing-LLM Explorer

https://turingexplorer.com | https://github.com/DanielJamesDavies/Turing-LLM-Explorer

A mechanistic interpretability tool to understand the internals of Turing-LLM, a large language model. Using this tool, one can navigate the sparse autoencoder latent space of Turing-LLM-1.0-254M and gain an understanding of how language models function internally. Run inference on Turing-LLM and view connections between top latents to better understand how latents work together to form "thoughts".

Used Python, PyTorch, NumPy, Flask, React, JavaScript, and more.

On Novel Approaches Towards Interpretability: Training and Understanding Turing-LLM-1.0-254M

https://github.com/DanielJamesDavies/Turing-LLM-1.0-254M

Trained "Turing-LLM-1.0-254M", a novel large language model built from the ground up, specialised in physics, computing, and mathematics. Implemented a synthetic dataset generation system, with its output used to train the LLM. Developed novel mechanistic interpretability approaches for understanding large language model latents and how they interact. Trained sparse autoencoders for each layer of the novel LLM to find features within activation space. Evaluated the success of the novel interpretability approaches by applying them to latents within "Turing-LLM", including sparse autoencoder features.

Used Python, PyTorch, NumPy, Hugging Face Transformers, and more.

Turios (Humanoid Robot)

Building a low-cost humanoid robot to develop skills in both embodied AI and mechatronics. Developed three types of high torque actuators with FOC motor control to serve as the muscles, involving designing cycloidal drives, soldering encoders, and writing code for position control loops. Built a tendon-driven hand and forearm around servos capable of handling heavy load.

A key motivation for this project is to utilise Turios for real-world data collection which would enable further endeavours in improving AI algorithms and safety research in models that interact with the real world. Furthermore, I enjoy extending into new domains in search of new skills which will help solve future complex problems.

Atlas Story App

https://www.atlas-story.app | https://github.com/DanielJamesDavies/AtlasStoryApp

Developed a large platform for users to create and share stories. Built a large number of features including the ability to create interactive 3D and 2D maps of a story's universe, character relationship charts, Spotify integration, structured story content creation (for characters, plots, locations, etc), a user account system, and much more.

Used React, Node.js, Three.js, MongoDB, Heroku, and more.

Algonet / The Prediction of Energy Consumption of Algorithm Implementations

https://github.com/DanielJamesDavies/Algonet

A project for my BSc dissertation that produced a model that predicts energy consumptions of algorithm implementations. Data was collected by running various types of algorithms on devices and recording their energy consumption.

Used Python, PyTorch, NumPy, scikit-learn, SciPy, JavaScript, and more.

REFERENCES

References available on request.