Tom Lam

Computer Science Student | Machine Learning Enthusiast

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Summary

- First-year computer science student with a passion for machine learning and computer vision
- Familiar with web development and ML frameworks, e.g. React, Django, PyTorch

Experience

Team Lead Nov 2024 – Present

Perception Team, Bristol Formula Student AI, University of Bristol *Bristol, UK*

- Trained a YOLO object detection model on the FSCOCO dataset for cone recognition
- Implemented a 3D cone position estimator using the trained model and ZED cameras in ROS

Projects

EcoSim | Best ML Project — BrisHack 2025 | *Java, JavaFX* |

- Developed an ecosystem simulator modeling animal hunting, fleeing and breeding behaviors in a group of 6.
- Featured procedural terrain generation with Perlin noise and predator-prey dynamics using Monte Carlo Tree Search (MCTS).
- Implemented a real-time graphical interface with event logging and population statistics using JavaFX.

Scotland Yard AI | *Java, JavaFX*

- Developed AI agents for Scotland Yard using algorithms like One-Step Lookahead, Paranoid Minimax, Expectimax Minimax, and Monte Carlo Tree Search (MCTS), following OOP design patterns.
- Implemented optimizations including move filtering, delayed game state initialization and root parallelisation.
- Designed intelligent detective agents incorporating uncertainty handling and coalition reduction strategies.

BristolLink | *React, Django, Tailwind CSS, Postgresql, Heroku* |

- Developed an anonymous match-making platform for Bristol University students during Valentine's Day 2025.
- Built RESTful APIs to handle token authentication and email verification system with automated notifications.
- Integrated PostgreSQL with the pgcrypto plugin for encrypted data storage, validated by a security report.

Claude-haskell | *Haskell, Unit Tests* |

- Developed an unofficial Haskell binding library for Anthropic's Claude API
- Supported text and media messaging, token counting, retrieving model details and batch processing
- Designed utilities and documentations for creating new custom API requests

Land Cover Segmentation with UNets | *Python, PyTorch, Matplotlib, NumPy, ML* |

- Implemented UNet and ResUNet-a in PyTorch
- Trained models to perform semantic segmentation on the Multi-Source Satellite Imagery for Segmentation Dataset on Kaggle

LeNet-5 from Scratch | *Python, NumPy, Pillow, ML, Linear Algebra, Tkinter* |

- Implemented the LeNet-5 model from Yann Lecun's paper (1998) using NumPy
- Created a handwritten digit recognition app with my LeNet-5 model
- Implemented a primitive neural network library with a handful of NN modules

Education

University of Bristol Bristol, UK

*B.Sc. Computer Science — **Y1 Grade**: First Class (81%)* *Sep 2024 - Present*

- Computer Architecture 81% | Imperative & Functional Programming 86% | Maths A (Discrete Maths) 52%
- Maths B (Linear Algebra) 95% | OOP & Algorithms 90% | Software Tools 83%

University of Warwick Coventry, UK

*International Foundation Programme in Computer Science — **Grade**: Distinction (92%)* *Sep 2023 - Jun 2024*

Skills

Programming languages: Python, C, Java, Haskell
Frameworks: React, Django, Tailwind CSS, Matplotlib, NumPy, Pandas, PyTorch, Scikit-learn, OpenCV
Languages: English, Cantonese, Mandarin