

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. Next.js, React, Django, FastAPI, PyTorch

EXPERIENCE

Team Lead

Nov 2024 – Present

Perception Team, Bristol Formula Student AI, University of Bristol 🏠

Bristol, UK

- Trained a custom YOLO model on the FSCOCO dataset to detect traffic cones
- Developed Python scripts for data preprocessing, augmentation, and automated dataset ingestion workflows
- Benchmarked detection performance and contributed evaluation results to the Autonomous Design Report
- Built a 3D cone localization system by integrating YOLO detections with ZED stereo depth in a ROS2 node
- Optimized and deployed camera configurations for the ZED 2i using zed-ros2-wrapper during live competitions

PROJECTS 🌐

ChronoChat | *Next.js, Tailwind, TypeScript, FastAPI, ChromaDB, Ollama, Whisper, CLIP, BLIP* | [🔗](#)

- Built a multi-modal RAG system that enables querying over YouTube and local videos using audio and caption
- Developed a full-stack AI application with a FastAPI backend and Next.js frontend, featuring real-time WebSocket chat and PDF/image support
- Integrated Ollama-powered local LLMs for reasoning, retrieval mode selection, and multi-video chat support with streaming markdown-formatted responses.

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

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](#).

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 players 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.

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