Anselm Long

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EDUCATION

National University of Singapore   Singapore
Bachelor of Computing (Computer Science)   Aug 2023 – May 2027
- **GPA:** 4.69 / 5.00. **Specialized Track:** Artificial Intelligence and Machine Learning
- **Relevant Coursework:** Artificial Intelligence and Machine Learning, Software Engineering, Object Oriented Programming, Data Structures and Algorithms, Statistics and Probability

EXPERIENCE

Machine Learning Intern, IMDA   May 2025 – Aug 2025
- Researched and evaluated 8 anomaly detection models with **scikit-learn** and **matplotlib** (Isolation Forest, One-Class SVM, Half Space Trees, etc.) across 31 features to detect malicious SSL/TLS certificates, narrowing to 1 optimal model through quantitative comparisons of F1 score, speed, implementation ease, and explainability.
- Conducted hyperparameter tuning and ablation studies across 6 shortlisted models using **Numpy** and **Pandas**, tuning 2–3 key hyperparameters per model to optimize F1 score on held-out datasets, achieving a final 0.93 F1.
- Applied **LIME** and Random Forest feature importance to interpret model predictions, identifying top predictive certificate features driving classification and improving trust in model outputs among security stakeholders.

Strategic Digital Projects Intern, IMDA   May 2024 – Aug 2024
- Coordinated industry-facing workshops and engagements with Microsoft and AWS, showcasing emerging technology use cases and driving 30+ companies to initiate GenAI projects.
- Led a data consolidation initiative leveraging Salesforce to streamline cluster management and cross-team decision-making, reducing time spent locating data by ∼50%.

PROJECTS

Almost Anselm | *Fine-Tuned AI Chatbot* | anselmlong.com/blog/almost-anselm   Nov 2025 – Dec 2025
- Built a data processing pipeline to scrape, clean, and structure 5,000 messages across 120 Telegram chats into a **ChatML**-formatted dataset for LLM fine-tuning.
- Fine-tuned a personalised **Mistral-7B LLM** using **Axolotl** and **QLoRA** on an HPC GPU cluster, reducing training time by 95% and increasing output quality by 30% through 6 iterative training and inference rounds.

anselmlong.com | *RAG-enabled Portfolio Website* | anselmlong.com   Oct 2025 - Present
- Built a full-stack AI-powered portfolio website featuring streaming RAG chat with **Langchain.js**, responsive scroll animations with **GSAP**, and a polished UI using **Next.js, Tailwind CSS** and the **OpenAI API**.
- Optimized the RAG pipeline with conditional NLP-based question rewriting, singleton-pattern database pooling, and limited conversation history, achieving a 70% latency reduction and 40% higher answer relevancy.

Freak-Cha | *Computer Vision Developer, HackHarvard 2025* | freakcha.com   Oct 2025
- Developed *Freak-Cha*, a CAPTCHA-inspired system using facial expression recognition to distinguish humans from AI; conceived and led the project, earning Funniest Hack at HackHarvard 2025 among 529 participants.
- Engineered a scalable data collection and labeling pipeline for 900+ images, enabling training of a facial expression recognition model and improving classification accuracy by 30%.
- Implemented real-time facial recognition with **MediaPipe FaceMesh** and **YOLOv8**, and built a responsive frontend using **Next.js, Tailwind CSS**, and **tRPC** to support interactive authentication flows.

SKILLS

Languages: Python, Java, JavaScript, C, C++, HTML/CSS, Go, LaTeX
Frameworks: YOLOv8, LangChain, Axolotl, React, Next.js, Node.js, tRPC, JavaFX, GSAP, Tailwind CSS
Libraries: PyTorch, scikit-learn, Pandas, Numpy
Developer Tools: Docker, Git, PostgreSQL, Vercel, VS Code

INTERESTS AND ACTIVITIES

Interests: Photography, Videography, Bouldering, Coffee
Activities: Ridge View Residential College (Senior Student Leader), Publicity and Social Media Team