

Caleb Kan

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EDUCATION

Imperial College London	London, United Kingdom
Degree: Bachelor of Engineering – BEng, Computing	Sep. 2023 – Jun. 2026
Grade: First-Class Honours (Predicted)	

WORK EXPERIENCE

Research Intern	Jul. 2023 – Jul. 2023
Department of Computer Science, City University of Hong Kong Python	Kowloon, Hong Kong
<ul style="list-style-type: none">Collaborated with a distinguished professor to develop a GDPR compliance checker browser extension, utilising web scraping (BeautifulSoup4) and LangChain with OpenAI's LLM for automated analysis.Implemented a user-friendly interface to display GDPR compliance status of websites, enhancing user awareness of data privacy practices.Designed and integrated a one-click feature enabling users to automatically request data erasure from websites, streamlining the exercise of GDPR rights.	

PROJECTS

ARMv8 Emulator, Assembler, and Visualiser C	May. 2024 – Jun. 2024
<ul style="list-style-type: none">Designed and developed a robust ARMv8 architecture emulator and two-pass assembler in C, accurately simulating CPU operations, memory, registers, program counter, and flags, fully adhering to the ARMv8 instruction set.Implemented an efficient fetch-decode-execute pipeline, seamlessly processing and executing instructions from binary files, precisely replicating ARMv8 processor behavior, utilising advanced string parsing and instruction construction algorithms.Developed a GUI interface using the SDL2 library in C, allowing users to drag and drop assembly files for visualisation of the execution process, displaying the graphical architecture and real-time changes in registers, memory, ALU, flags, and program counter.	
Chess AI Kotlin	Dec. 2023 – Jan. 2024
<ul style="list-style-type: none">Developed a Chess AI algorithm in Kotlin to play a pawn race game, implementing comprehensive game logic and a terminal-based GUI with ASCII board representation.Created an intuitive user interaction system where players input moves, ensuring validity and providing feedback for any invalid moves, facilitating an engaging user experience.Utilised the minimax algorithm with alpha-beta pruning for AI decision-making, delivering an efficient and challenging opponent, demonstrating advanced skills in AI programming, algorithm optimisation, and game development.	
AI Research Agent Python, NoSQL	Jul. 2023 – Aug. 2023
<ul style="list-style-type: none">Engineered an AI-driven web research agent using Python, LangChain, and OpenAI models, integrating BeautifulSoup4 for web scraping to generate keyword-based summaries with citations.Developed Twitter API integration for automated content posting, and implemented geolocation tracking with MongoDB Atlas for secure GPS coordinate storage, enabling comprehensive usage analytics.Contributed to a global visualisation project, leveraging collected geolocation data to plot worldwide AI agent usage, facilitating data-driven insights into geographical reach and user engagement patterns.	

TECHNICAL SKILLS

Languages: Native: English · Mandarin · Cantonese
Programming Languages: C · Haskell · HTML/CSS · Java · Kotlin · Python · SQL
Frameworks: Bootstrap · FastAPI · Firebase · Flask · LangChain · MongoDB · MySQL · PostgreSQL · SQLite
Libraries: Keras · Matplotlib · Numpy · OpenCV · Pandas · SciPy · Scikit-learn · TensorFlow
Developer Tools: Android Studio · Atom · BitBucket · CLion · Git · GitHub · GitLab · GNU Debugger · Google Colab · IntelliJ · Overleaf · PyCharm · Unix · Valgrind · Visual Studio · Visual Studio Code · Xcode