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

Software Engineer Intern — Aug. 2024 – Present
Midas Advisory | Python — London, United Kingdom

- Architected modular app using open-source LLMs to process non-operating expense data from web scraping (Playwright, BeautifulSoup4, Selenium) and APIs (FastAPI, Requests) for top 15 US banks. Reduced data collection time from hours to minutes daily and increased data accuracy from 85% to 97%.
- Engineered dual-model system: small LLM for 93% accurate non-operating expense filtering, large LLM (LLama 3.1) for comprehensive reporting based on given schema; implemented vector database (Milvus) with embeddings, reducing data retrieval time from minutes to seconds on average.
- Designed adaptable architecture enabling seamless integration of new models, enhancing company's market intelligence and banking sector analysis capabilities, supporting more informed decision-making across departments.

Research Intern — Jul. 2023 – Jul. 2023
Department of Computer Science, City University of Hong Kong | Python — Kowloon, Hong Kong

- Led development of GDPR compliance checker extension with distinguished professor, utilizing BeautifulSoup4, LangChain, and OpenAI's LLM for automated analysis. Achieved 92.5% accuracy in compliance detection across 400+ websites.
- Designed user-friendly interface displaying website GDPR compliance status, enhancing data privacy awareness. Increased daily active users by 45% and improved user-reported compliance understanding from 3.2 to 4.7 on a 5-point scale.
- Created one-click feature for automated data erasure requests, streamlining GDPR rights exercise. Increased successful data erasure request rate by 150%, processing over 100 requests within the first month of implementation.

Projects

ARMv8 Emulator, Assembler, and Visualiser | C — May. 2024 – Jun. 2024

- Engineered ARMv8 architecture emulator and two-pass assembler in C, accurately simulating CPU operations and memory management per ARMv8 instruction set.
- Implemented efficient fetch-decode-execute pipeline, processing binary files to replicate ARMv8 behavior using advanced parsing and instruction algorithms.
- Developed SDL2-based GUI in C for real-time visualisation of emulator execution, featuring drag-and-drop assembly file loading and dynamic display of architecture components.

Chess AI | Kotlin — Dec. 2023 – Jan. 2024

- Engineered Chess AI in Kotlin for pawn race game, implementing game logic and ASCII-based terminal GUI.
- Designed user interaction system with move validation and feedback, enhancing gameplay experience.
- Implemented minimax algorithm with alpha-beta pruning for AI decision-making, creating an efficient and challenging opponent.

AI Research Agent | Python, NoSQL — Jul. 2023 – Aug. 2023

- Engineered AI web research agent using Python, LangChain, and OpenAI models; integrated BeautifulSoup4 for scraping and generating cited summaries.
- Implemented Twitter API for automated content posting and MongoDB Atlas for secure geolocation tracking, enhancing analytics capabilities.
- Contributed to global visualisation project, mapping AI agent usage worldwide to derive insights on geographical reach and user engagement.

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: Matplotlib · Numpy · OpenCV · Pandas · TensorFlow
Developer Tools: Android Studio · Atom · BitBucket · CLion · Git · GitHub · GitLab · GNU Debugger · Google Colab · Hugging Face · IntelliJ · LaTeX · Ollama · PyCharm · Unix · Valgrind · Visual Studio · Visual Studio Code · Xcode