

Caleb Hua En Tham

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EDUCATION

University of Warwick | MEng (Hons) Computer Science – Final Year

Sep 2020 – Jun 2024

- Current grade: First Class (84.4%)
- Ranked 1st overall in the MEng cohort during third year
- Relevant modules: Algorithms, Advanced Databases, Machine Learning, Data Mining, Advanced Security

Bournemouth School

Sep 2013 – Jun 2020

- A-Levels: A*A*A*A* in Computer Science, Mathematics, Further Mathematics, and Physics
- GCSEs: 11 × A* and 1 × A (or equivalent)

WORK EXPERIENCE

JPMorgan Chase & Co. | Software Engineer (Summer Analyst)

Jun – Aug 2023

- Collaborated with a team delivering a cloud-native, distributed system for real-time, high-volume payments processing
- Designed and developed a web frontend to manage client preferences using TypeScript (React, Redux) and actively engaged with key stakeholders to incorporate feedback, resulting in an intuitive and error tolerant UX
- Implemented and optimised backend RESTful APIs with Java (Spring Boot), streamlining data flow across microservices and ensuring efficient querying of the Cassandra database
- Leveraged testing frameworks (JUnit, Mockito, and Cucumber) to enact TDD and BDD principles for code quality

Progressive Equity Research Ltd. | Software Engineer

Jun – Oct 2022

- Developed a tool that provides analysts with relevant London Stock Exchange news summaries in a timely manner
- Implemented a Python web scraper that obtains news articles, parses text, and performs extraction-based summarisation
- Employed the use of a thread pool to address a networking bottleneck and increase performance by an average of 90%
- Effectively communicated with the Managing Director to inform development of a tailored solution

PROJECTS

deJPEG: Deep Learning JPEG Compression Detection and Restoration | 3rd Year Dissertation (Grade: 86%)

- Designed a CNN that detects if an image has undergone single, double, or no JPEG compression, using only pixel data
- Designed a GAN that restores compressed images by removing JPEG artifacts to enhance their visual quality
- Outperformed a previously state-of-the-art method for restoration by devising a novel perceptual loss function, which considers structural properties at multiple scales and incorporates deep features extracted from a VGG-19 network
- Implemented and evaluated the ML models, which were trained on a large dataset (~140GB), using TensorFlow

Big Data Analysis | 3rd Year Group Project

- Leveraged the MapReduce programming paradigm to analyse an organisation's massive dataset on sales data
- Implemented various queries in Hive for initial ad hoc analysis and later in Hadoop for optimised performance
- Utilised custom-written combiners and partitioners, resulting in Hadoop queries executing up to 8 times faster than Hive

LLM Webpage Summarisation Chrome Extension | Personal Project

- Developed a Chrome extension that performs summarisation of webpage content using GPT models – via OpenAI's API
- Implemented LLM self-reflection to avoid hallucination and map-reduce to handle long documents, using LangChain

MentorMe | 2nd Year Group Project (Sponsored by Deutsche Bank)

- Followed agile principles (Scrum) and collaborated with a team of 7 to develop a full stack web application supporting a workplace mentorship scheme, using Vue.js, Flask, SQLAlchemy, PostgreSQL – all containerised with Docker
- Led frontend development and implemented a client-side cache to improve responsiveness and reduce server load by 80%
- Recognised in Deutsche Bank's Top 5 Software Engineering Group Projects (out of 46)

CERTIFICATIONS & SKILLS

- **AWS Certified Cloud Practitioner**
- **Frontend:** TypeScript/JavaScript (React, Redux, Vue.js), CSS (Bootstrap)
- **Backend:** Python (Flask), Java (Spring Boot), TypeScript/JavaScript (Node.js, Express.js, Socket.IO), C, C#, PHP
- **Data:** SQL (PostgreSQL), NoSQL (Cassandra, Hive, Hadoop) **AI/ML:** Python (TensorFlow, PyTorch, Scikit-learn)
- **Testing:** Java (JUnit, Mockito, Cucumber), JavaScript (Jest) **Tools:** Docker, Kubernetes, Gradle, Maven, Jira, Git

PERSONAL ACTIVITIES

- Warwick Jazz Society: Head of Marketing (2022/23) – Managed, planned, and advertised all society events
- Express creativity by composing music (Logic Pro), photography, and graphic design (Adobe Creative Cloud)