

# 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%)
- Awarded 3<sup>rd</sup> highest grade in cohort (out of 111) in second year
- Relevant modules: Software Engineering, Algorithms, Advanced Databases, Machine Learning, Operating Systems

### 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)
- Senior Prefect: Head of mentoring – Coordinated and conducted the mentoring of a fifth of all students

## 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 both TDD and BDD principles to ensure code quality, using JUnit, Mockito, and Cucumber/Gherkin

### 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 a tailored solution during development

## PROJECTS

### deJPEG: Deep Learning JPEG Compression Detection and Restoration | 3<sup>rd</sup> 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 2

### MentorMe | 2<sup>nd</sup> 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%
- Resulted in Deutsche Bank ranking our solution in the top 5 (out of 46) of all software engineering group projects

### 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

### Multichess | Personal Project

- Implemented an online multiplayer chess application using JavaScript (Node.js, Socket.IO). Website: [multichess.com](https://multichess.com)
- Delivered a responsive and reliable web application with full duplex and low-latency capabilities, leveraging WebSockets

## 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, PHP
- **Data:** SQL (PostgreSQL), NoSQL (Cassandra, Hive, Hadoop)     **AI/ML:** Python (TensorFlow, PyTorch), MATLAB
- **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 through composing music (Logic Pro), photography, and graphic design (Adobe Creative Cloud)