

Caleb Hua En Tham

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EDUCATION

University of Warwick: MEng (Hons) Computer Science – Incoming 4th Year (Finalist) (Sep 2020 – Jun 2024)

- 3rd year grade: TBC
- 2nd year grade: First Class (85.1%) – Ranked 3rd in cohort (out of 111)
- 1st year grade: First Class (84.1%) – Ranked 5th in cohort (out of 119)

Bournemouth School (Sep 2013 – Jun 2020)

- A-Levels: A*A*A*A* in Computer Science, Further Mathematics, Mathematics, and Physics
- GCSEs: A^A*9999999887 (Equivalent to 11 x A* and 1 x A)
- Senior Prefect: Head of mentoring – Co-ordinated and conducted the mentoring of a fifth of all students

WORK EXPERIENCE

Progressive Equity Research Ltd. – Software Developer (Jun – Oct 2022)

- Entrusted to develop a tool that provides analysts relevant LSE news summaries in a timely manner
- Implemented a Python web scraper to obtain news, parse text, and perform extraction-based summarisation
- Employed the use of a thread pool to address a networking bottleneck and increase performance by ~90%
- Effectively communicated with the Managing Director to inform a tailored solution during development

Tutor (A-Level/GCSE Mathematics and Physics) (Apr 2020 – Sep 2020)

- Ensured student understanding by formulating ways to explain complex concepts in a clear and intuitive manner
- Encouraged student enthusiasm by devising engaging ways to teach and providing constructive feedback, which helped enhance my interpersonal and communication skills

PROJECTS

deJPEG: Deep Learning JPEG Compression Detection and Restoration – 3rd Year Dissertation (Grade: 85%)

- Designed a CNN to predict if an image has undergone any, single, or double compression using only pixel data
- Designed a GAN to remove JPEG artifacts from compressed images to enhance their visual quality
- Outperformed a previously state-of-the-art method for restoration by employing NoGAN training and devising a novel perceptual loss function, which incorporates deep features extracted from a pretrained VGG-19 network
- Implemented and tested the models trained on a large dataset (~140GB) using TensorFlow 2

Big Data Analysis – 3rd Year Group Project

- Leveraged the MapReduce programming paradigm to analyse an organisation's massive dataset on store sales
- Architected a scalable and fault-tolerant infrastructure for large-scale distributed computing
- Implemented various queries in Hive for initial ad hoc analysis and later in Hadoop for optimized performance
- Utilized custom-written combiners and partitioners to achieve substantial performance gains, resulting in the Hadoop queries to execute up to 8x faster than equivalent Hive queries

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

- Following agile principles (Scrum), in a team of 7, developed a full stack web application for a workplace mentorship scheme, using Vue.js, Flask, SQLAlchemy (with PostgreSQL) – all hosted with Docker containers
- Effectively led and managed the development of the frontend, which Deutsche Bank formally praised
- Resulted in Deutsche Bank ranking our solution in the top 5 (out of 46) of all software engineering group projects

Multichess – Personal Project

- Implemented an online multiplayer chess application using Node.js and Socket.IO. Website: multichess.com
- Improved web dev skills to make a responsive and reliable web app with full duplex and low-latency capabilities

TECHNICAL SKILLS

- Frontend: TypeScript/JavaScript (React, Redux, Vue.js), CSS (Bootstrap, Tailwind)
- Backend: Python (Flask), Java (Spring Boot), TypeScript/JavaScript (Node.js, Express.js, Socket.IO), C, PHP
- Data: SQL (PostgreSQL, Oracle DBMS), NoSQL (Cassandra, Hive, Hadoop), ML (TensorFlow 2, PyTorch, Pandas)
- Tools: Docker, Gradle, Maven, Git, Jira

PERSONAL ACTIVITIES

- Warwick Jazz Society: Head of Marketing (2022/23) – Managed, planned, and advertised all society events
- Express creative side through composing music (Logic Pro), photography, and graphic design (Adobe CC)
- Maintain fitness by powerlifting and playing tennis 6 times a week