Davis Parlour

Software Engineer with a passion for problem-solving. First-Class BSc in Computer Science, experience in system architecture, embedded and collaborative development.

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- BSc Computer Science - 1st Class.
- Embedded Systems + AI Experience.
- Proficient with Java, C and Python.
- Strong communicator.

EDUCATION

Lancaster University, Lancashire— *BSc Computer Science*
October 2022 -July 2025
Graduated with First-Class Honours.

Logic Studio School, London — *4 A Levels.*
National Diploma IT: Double Grade Distinction* (2020-2022)
A Level Business: Grade B (2020-2022)
AS Level Computer Science and Mathematical Studies: Grade B and C (2020-2022)

Logic Studio School, London — *7 GCSEs*
SEPTEMBER 2018 - JUNE 2020
Finished with Grades 7 (Distinction), 7 (Distinction), 6, 6, 6, 5, 5.

PROJECTS:

Embedded Systems Projects — *nRF52 MCU, Embedded C, Real-Time.*

I developed a suite of embedded solutions entirely in base C, integrating hardware components with breadboards and electronic peripherals:
GPIO Control: Implemented binary counting at 5Hz, debounced button inputs, ADC-based voltage sampling, PWM-driven RGB LED control, and touch-sensitive input handling. Employed direct register manipulation and efficient memory management for real-time processing and optimal peripheral configuration.
Timers & Serial Communication: Created a bit-banged 115200 baud serial transmitter, interfaced with an accelerometer via I2C for real-time data sampling, and utilized PWM for dynamic audio output. Leveraged direct register manipulation to ensure robust serial communication and efficient memory usage.
Interrupt-Driven Displays: Interrupt-Driven Displays: Designed timer-based ISRs for high-frequency LED updates and efficient I2C communication with an external OLED display. Developed a real-time graphing application to visualize accelerometer data and jerk, utilizing frame buffering and direct register manipulation for seamless hardware-software integration.

Norðhús Website — *Full-Stack Development*
Developed the Norðhús website (nh.fo) using PHP, HTML, CSS and JS focusing on creating a responsive, mobile-friendly layout with dynamic content integration. Collaborated closely with the client to ensure the site met their specifications and was delivered on time.

Autonomous Drone Navigation with RL — *Python, Q-Graphs, Tello SDK*
Developed a reinforcement-learning system for semi-autonomous drone navigation, enabling efficient checkpoint traversal with Q-Graphs. Implemented discretised state-spaces, epsilon-greedy exploration, and dynamic rewards. Validated in simulation and deployed on DJI Tello hardware, addressing real-world constraints and showcasing RL on resource-constrained systems.

DNA Pattern Matcher — *JavaScript, String Matching.*

Optimized DNA sequence matching by processing nucleotide sequences as binary, improving analysis efficiency. Strengthened JavaScript skills while exploring computational biology techniques.

PORTFOLIO & PROFILES:

parlour.cv
linkedin.com/in/davis-parlour
github.com/davis-parlour

PROGRAMMING LANGUAGES:

Proficient with:-
Java, C, C++, MATLAB, JavaScript, PHP, HTML, CSS, Python and SQL and Basic Shell Scripting, (Bash).

Familiar With:-
C#, ERLang, and Assembly (MIPS).

Learning:-
Rust.

SKILLS:

Experience in Unix.
Oral and Written Communication.
Team Building.
Critical Thinking.
Social Skills.
Problem Solving.
Version Control Experience. (Git)

LIFE & INTERESTS:

I thrive on solving technical challenges, but I balance this with interests in fishing, hiking, football, swimming, weightlifting, and tabletop gaming.

I also volunteer to support local farmers in my spare time and stay engaged with emerging technologies by attending industry seminars, supporting both personal and professional growth.

Web-Based Library System— *JavaScript, PHP, CSS, HTML and SQL, Full-Stack Development.*

Developed a library platform allowing users to add, remove, and rate books. Employed SQL for database operations, PHP for data validation, and responsive UI design with HTML, CSS, and JavaScript. Achieved full-stack development experience, ensuring secure transactions and intuitive user interactions.

Note Mapper — *MIPS Assembly, Low Level Graphics.*

Engineered a note mapping tool in MIPS Assembly, rendering bitmap displays and managing note data via syscalls and memory algorithms. Enhanced low-level programming proficiency, especially with the MIPS instruction set, bitmap handling, and efficient memory use.

Pathfinding using Genetic Algorithms — *MATLAB, Evolutionary Computing.*

Implemented a custom Genetic Algorithm for robot motion planning on a 500×500 pixel map, incorporating multiple selection (Roulette Wheel, Tournament, Rank-based), crossover, and mutation methods. Minimized path length while avoiding obstacles, achieved near-optimal solutions with efficient matrix operations, and visualized results in MATLAB for real-time analysis.

Data Preparation and Classification — *MATLAB, Machine Learning.*

Executed a supervised image classification project on CIFAR-10 using MATLAB. Preprocessed data by loading, converting, and selecting three target classes with a seeded random generator. Developed custom K-Nearest Neighbour (KNN) classifiers using L2 and Cosine distances, and trained SVM and Decision Tree models. Evaluated models through accuracy, confusion matrices, and computation time, identifying the most effective algorithm for optimal path planning.

Distributed Auction System — *Java RMI, Cryptography, Fault Tolerance.*

Developed a secure, fault-tolerant auction platform using Java RMI. Implemented AES-encrypted communication, RSA-based challenge-response authentication, and passive replication across multiple server replicas. Enabled full auction lifecycle, real-time recovery, and crash resilience without persistent storage.

Security & Risk Coursework — *Python, Cryptography, Statistics.*

Developed a suite of Python programs exploring AES encryption modes, cryptographic attacks, hashing, and statistical risk modeling. Implemented encryption/decryption, collision-based attacks, and secure hash verification. Used Monte Carlo simulations, linear regression, and linear programming to calculate annualized loss expectancy and optimize cyber risk mitigation strategies.