Jadon Mensah

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Education

University of Cambridge Expected July 2027
Engineering *First-year: high 2:1*
- Relevant courses: Computing (Python), Mathematics, and Digital Electronics.

Rainham Mark Grammar School Rainham, Kent
A-Levels *September 2022 — July 2024*
- Mathematics (A*), Further Mathematics (A*), Physics (A*), Computer Science (A)

Work Experience

Science and Technology Facilities Council July 2023 — August 2023
Placement Student *Rutherford Appleton Laboratory*
- Denoised and processed more than 126,000 frames of X-ray detector output using Python and NumPy, applying signal processing techniques including charge-sharing detection and filtering.

Projects

Game Boy Emulator | `Rust` May 2025 — Present
- Wrote a Game Boy emulator in Rust, which runs classic titles including Tetris and Dr. Mario.
- Produced an instruction-level accurate and performant emulation of the CPU, capable of executing around 1 million emulated clock cycles per second.
- Verified instruction behaviour against the SM83 Single Step Tests, a set of 500 test files for the Game Boy CPU.
- Wrote a double-buffered scanline renderer to emulate the Game Boy's pixel processing unit at 60 frames per second.

RISC-V Processor | `SystemVerilog` July 2025
- Implemented a single-cycle RV32I processor in SystemVerilog, covering all instructions from the unprivileged set.
- Developed datapath and control logic, including ALU, register file, and memory interface for all 40 instructions.

CHIP-8 Interpreter | `C` April 2025
- Built an interpreter for the CHIP-8 programming language in C, using the Raylib library for graphics.
- Tested behaviour of all 34 opcodes against the CHIP-8 Test Suite, a comprehensive suite of CHIP-8 test programs.
- Included 6 "quirks" to emulate the nonstandard behaviour of existing interpreters.

Cribs++ | `React, JavaScript, SQL` March 2025
- Created the frontend for a hackathon project over 2 days using JavaScript and React, and helped write SQL queries.
- Designed a platform for students to view hints for hundreds of homework questions, allowing supervisors to monitor their students' progress and plan time with them more effectively.

ARM Assembly Interpreter | `C++` November 2024 — December 2024
- Produced an interpreter for the ARM-based assembly language used in AQA's A-level Computer Science exams.
- Designed custom 32-bit binary instruction format and implemented decoding, execution, and state management.
- Built register and memory models to support arithmetic, control flow, and I/O operations.

Extracurricular Activities

C2C Capture The Flag Competition 2025 February 2025
- Placed in the top 16% of competitors of an online, challenge-based cyber security competition for university students, qualifying for in-person finals in Boston.

Cambridge University Robotics Society
- Member of the "Wise Angel" autonomous drone team.
- Modelled antenna signal propagation for drone's ground station using MATLAB Antenna Toolbox.

Skills

- **Languages**: Python, JavaScript, C++, C, SQL, Rust, SystemVerilog
- **Software, Tools & Libraries**: Linux, React, Git