

# Hussam Alhassan

## Controls Software Engineer

Sutton, London | [hsm.link@proton.me](mailto:hsm.link@proton.me) | 07377 580 325 | [LinkedIn](#) | [GitHub](#)

*Controls Software Engineer specializing in low-level development. Leveraging expertise in C, Rust, and C# with a focus on creating high-performance, enduring software systems. Committed to a high standard of engineering through sound understanding of system architecture and optimisation. Pairs deep technical foundations with a team-oriented philosophy*

## PROFESSIONAL EXPERIENCE

**Controls Software Engineer** | April 2024 - Present

Science and Technology Facilities Council @ Rutherford Appleton Laboratory

- Led development of a facility-wide timing synchronisation system, enabling precise coordination of scientific instruments across three laboratory spaces
- Designed and implemented distributed control software and device drivers in C++, enabling communication across multi-protocol devices
- Collaborated closely with research scientists at the EPAC and Vulcan laser facilities to optimise control systems and enhance experimental capabilities
- Improved team onboarding processes and development practices through comprehensive documentation and standardised GitHub workflows

## PROJECTS

**Peach OS x86** | [GitHub](#)

- Developed a multitasking kernel in C and Assembly from scratch for x86, utilising GCC, GDB, and Make. Implemented virtual memory, scheduling, a keyboard driver, and file system operations. Able to boot into a console interface on bare metal. Supports FAT16 and loading ELF files.

**PicoBoy Emulator on ARM** | [GitHub](#)

- A port of the “rboy” Rust library for the Raspberry Pi Pico’s ARM SoC. Uses an I2C display and physical buttons for control. Utilised cross-compilation and the Pico HAL to run Rust code on thumbv6m architecture. Fully emulates the Gameboy execution pipeline, memory, and graphics systems.

## KEY SKILLS

### Technical:

- **Programming:** C, C++, Rust, C#, Python
- **Tools:** Linux, Vim, Git, GDB, VS Code
- **Other:** Bash Scripting, Agile Development

### Professional:

- Adaptability, Communication, Research, Teamwork, Leadership, Information Management

### Languages:

- English (Native), Arabic (Native), Japanese (JLPT N2)

## EDUCATION

**Bachelor of Science in Computer Engineering** | Altinbas University | 2023

First Class Honours (3.47/4.00)

Core studies in Computer Microarchitecture, Operating Systems, and Assembly Programming