Liam Clegg

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PROFILE

Self-taught programmer since the age of 11 who enjoys hard problems, designing clean solutions, and moving comfortably between full-stack, systems, and low-level code. Drawn to puzzles, algorithms, and writing libraries as much as using them. Constantly driven by curiosity and the satisfaction of making complex ideas work.

EDUCATION

Swansea University   Swansea, UK
BSc Computer Science - **First-class honours**   2021 - 2024
Key modules include: **Algorithms** (88%), **Concurrency** (88%), **Computer Graphics** (79%), **Optimisation** (77%), **Embedded Systems** Design, and my final-year **dissertation** (90%) on real-time ray tracing.

Davenant Sixth Form   Loughton, Essex, UK
ALevels: Computer Science (A), Maths (B), Physics (C), EPQ (B)   2019 - 2021

VOLUNTARY EXPERIENCE

Movement to Work   Loughton, Essex, UK
Admin   May 2025
- Conducted surveys with local shops and compiled findings into usable data.
- Independently **analysed** collected **satisfaction data**, **identifying gaps**, **bias**, and **limitations**, and produced a **comprehensive report** on how they could improve their data collection. Demonstrates **initiative** and *analytical thinking* by proactively enhancing the project beyond assigned tasks.
- Created flyers to support outreach efforts, helping to communicate available opportunities.

WORK EXPERIENCE

More Than You Know   Remote
Fullstack Web Developer   July - September 2023
- Built **backend** systems to manage **Chaining AI actions** with **OpenAI API**, **typesafe plugins**, **Git repo syncing**, and **OAuth integration**.
- Developed **front-end** features with **React** and **TypeScript**, including **VS Code style tabs**, **coding interface** and **chat integration**.
- Collaborated with a remote team via **Slack** and **Git**, taking initiative on feature development and project architecture.
- Communicated effectively within a **distributed team**, **coordinating tasks** and **troubleshooting** issues to maintain smooth project progress.
- Delivered **MVP features** under **tight deadlines**, demonstrating **adaptability** and self-driven **problem-solving** in a startup-like environment.

PROJECTS

Real-time ray-traced black hole
- Developed a **real-time ray tracer** engine in **Rust** to simulate black holes and their relativistic effects.
- Self-taught foundational concepts of general relativity to implement accurate gravitational lensing.
- Designed and optimised core **algorithms** and **data structures**. Including **adaptive grids** and **bounding volume hierarchies**, to minimise **computational complexity**.
- Undertaken as a university dissertation utilising **cutting-edge research** and **independent learning**.

Game Boy OS
- Built a Game Boy OS with Wi-Fi via a **Raspberry Pi Pico** and custom link-cable interface (**SPI-like protocol**)
- Designed **predictive T9 text** input for faster typing with the D-pad, improving usability.
- Developed the **Game Boy ROM** in **C**, **Pico firmware** in **C++**, and generated **precomputed T9** dictionary tries with **Python**.
- Combined **hardware hacking** and **embedded programming** to enhance a classic handheld console.

TECHNICAL SKILLS & PERSONAL INTERESTS

- **Programming languages**: C++, C, Rust, JavaScript, TypeScript, Java, Python
- **Frameworks & Libraries**: OpenGL, WebGPU, Actix-web, Next.js, React, Express JS, SolidJS, WebRTC, Prisma, Redis, WebSockets, Matplotlib, SciPy, TensorFlow, Sklearn
- **Tools & Platforms**: Docker, Git, Linux, Vim, VSCode
- **Personal Interests**: Drawing, playing guitar, coding, philosophy, science, and learning new things.