

# Oliver Iliffe

Email | +44 7944 727309 | [GitHub](#) | [Stack Overflow](#) | [LinkedIn](#) | [Website](#)

## Education

**King's College** – Computer Science BSc  
85% Average (First-Class) in the second year.

Sep 2021 - May 2024

**Modules include:** Database Systems, Operating Systems & Concurrency, Discrete Maths, Linear Algebra, Machine Learning, Robotics, Compilers & Formal Languages, Security Engineering, Optimization Methods, and Financial Computing.

**Manchester Grammar School**  
A\* in Mathematics, German, and Computer Science.

Sep 2019 - Jun 2021

## Experience & Projects

### Teaching Assistant for Operating Systems & Concurrency (Ongoing)

Teach the OSC module at King's College London.

- Cover theory of Operating Systems, as well as practical concurrency in Java.
- Create personalised extra content, such as worksheets, flashcards and slides for the students.
- For example, an in-depth look at the CFS including a [visual demonstration](#) of the impact of nice values.

### Small-string Optimisation for Rust

[view repository](#)

A C++-style small-string optimization in Rust for little-endian 64-bit machines.

- Deep-dive into Rust's undefined behaviour. Blog post on the crates.io page.
- Using the string now as a drop-in replacement for `std::string::String` in my own code.
- Has a [crates.io page](#).

### Compiler for a Functional Language – Grade: 100%

[view repository](#)

Implemented a small purely functional language in Rust. The entire list of features is documented on the GitHub page.

- CLI build tool for compiling and running programs.
- Standard library is written in 'fun' as opposed to using the provided LLVM-IR code. Includes the option not to link with std.
- Hand-written lexer for efficiency.
- Clear and precise error messages with syntax highlighting and exact error location.

### 2D Game Engine

[view repository](#)

- The engine allows for sprite loading, animations, basic shaders and particle effects.
- Used the engine for rope simulation, as well as small games.
- Project uses wgpu-rs, which is similar to Vulkan (but generally safe).
- Built upon this knowledge to [produce a platformer](#) with bevy, with [my own player controller](#).

### termset – Backend for Terminal Manipulation

[view repository](#)

A backend for terminal manipulation for Unix-like terminals.

- Added debugging utilities to redirect output to alternative terminals using UDP.
- Enables creation of TUI libraries and complex terminal manipulation.

### Full-stack Website – Grade: 98%

[visit website](#)

Led a nine-member team in the successful development of a full-stack website as part of a four-month university project.

- Over 30% of the total contribution.
- Prepared weekly meetings, assigning tasks and teaching other members of the group how to use the tech stack.
- Involved React.js, TypeScript, Node.js, SCSS, axum and more.

## Other & Languages

- Can speak German fluently and basic Japanese.
- Competent artist & animator Blender, Krita, CSP and Aseprite.

## Skills

tokio; axum; wgpu; wgs; bevy; Linux; Windows; C; C++; C#; .NET; Unity; Lua; Python; Django; TypeScript; JavaScript; axios; React; HTML; CSS; Java; Scala; Redux; Prisma; REST API; OOP; Functional Programming; Web-Dev; TCP/IP; Serialization; gdb;