Manuel Palenzuela Merino

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EDUCATION

University Carlos III — Madrid, Spain
Computer Science MSc — *Sep 2022 - Jan 2024 (Expected)*
Courses: *High-Performance Computing, Computer Networks Design, Cybersecurity, Advanced AI Applications, Project Management.*

University of Nottingham — Nottingham, UK
Computer Science BSc (First Class Honours) — *Sep 2019 - Jun 2022*
Courses: *Data Structures, Operating Systems, Advanced Algorithms, Artificial Intelligence, OOP, Networking, Relational Databases.*

EXPERIENCE

Software Engineer — Madrid, Spain
STAR [Student Association For Rocketry] (Part-time) — *Sep 2022 - Present*
- Developed new data-plotting and formatting features in an existing **Python** GUI application for real-time rocket data visualization, resulting in the app replacing an external alternative used in certain parts of the organization.
- Integrated the new features into the application's custom configuration language, making it simpler for other developers to add new functionality.
- Achieved performance improvements of 8.3x in certain code paths responsible for plotting incoming data by avoiding unnecessary redraws.
- Led the implementation of unit testing in the GUI application's codebase using **pytest**, achieving a test coverage of 80%.

Full-Stack Developer — Remote
Freelancing (Part-time) — *Dec 2019 - Sep 2021*
- Built and led a community around a subscription software product with over 50 concurrent monthly customers and more than 600 members.
- Designed and implemented a full-stack web application using **React.js** and **Express.js** that handled user authentication, user settings, and advertising, resulting in a 46% quarter-on-quarter increase in monthly customers.
- Developed a Windows 10 kernel driver using **C++** to implement HID (Human Interface Devices) input interception.

Open Source Developer — Remote
Open Source Community (Part-time) — *Aug 2018 - Present*
- Collaborated on the development process of multiple established **C++** codebases, including SerenityOS, Nix, Linux, and Electron, successfully contributing over 100 commits and PR reviews.
- Contributed to major Linux distributions by developing and publishing packages. Successfully managed the open-source development lifecycle to achieve over 160 weekly downloads for some of my most notable projects.
- Authored and contributed over 20 new features and fixes to a popular game's utility mod written in **Kotlin**, ranking second among all committers in its most recent major release.

PROJECTS

- **OSSE - Crawler-Based Search Engine (Web Crawlers, Concurrency, Web Development)** — *Oct 2022*
Modular, crawler-based search engine that leverages a custom reverse-index-based indexer and uses the Levenshtein distance algorithm to estimate query matches. **Tech:** Rust, Yew, Actix, Nix, JSX.
- **OSLS - Rocket Launch Simulator (Physics Simulation, Game Development)** — *Feb 2022*
Simple rocket launch simulator with its own physics engine, allowing for basic orbital mechanics. **Tech:** Python, PyGame.
- **OSXIV - Image Viewer (Image Processing, SDL)** — *Oct 2020*
Simple X11 image viewer with support for image zooming and translation designed to be compatible with multiple image formats. **Tech:** C, SDL2.
- **pOS - Operating System (Operating System, Memory Management, Kernel Drivers)** — *Aug 2020*
Bare-bones x86 operating system kernel with a custom basic C library. Includes TTY and keyboard drivers as well as basic command shell support. **Tech:** C++, x86 Assembly, Makefiles, Linker script.
- **gProxy - Multi-Use TCP Proxy (Network Development, Concurrency)** — *Jul 2020*
Multi-purpose, multi-threaded TCP proxy to allow for packet forwarding and inspection. **Tech:** Go, BSD Sockets.

VOLUNTEER EXPERIENCE

Member of the Amplify Program — London, UK
The Faith and Belief Forum (Part-time) — *Oct 2018 - Jun 2019*
- Conducted and participated in social workshops and student training, impacting over 100 students and volunteers.

SKILLS

- **Languages** — Python, Rust, C++, Go, Kotlin, Haskell, JavaScript, Bash, Java, Lisp, SQL, Zig.
- **Tools** — Git, Docker, Linux, Nix, Azure, Emacs, AFL.
- **Frameworks** — React.js, Express.js, Flask, MongoDB, PyTest, Spark, Yew, Tkinter, PyTorch.
- **Spoken Languages** — Spanish & English (*Fluent*), French (*Beginner*).
- **Additional Interests** — Astronomy, Decentralization, Memory Safety, Aerospace, Operating Systems, Surfing.