

Rodrigo Ferreira

Computer Scientist — Systems & Networks Engineer

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Summary

Computer Science graduate with a strong foundation in Systems Programming, Networks and Artificial Intelligence. Currently pursuing a Master's in Telecommunications. Passionate about solving technical problems, mathematics, functional programming, Linux systems, networks, automation, soldering and building electronics projects. Proven ability to analyze complex codebases and implement compliance standards for software systems and networks.

Languages

- **English:** Fluent / Native (UK)
- **Portuguese:** Fluent / Native (PT)
- **French:** Conversational
- **Spanish:** Conversational

Technical Skills

- **Languages:** Python, Java, C, C++ (11,20), Haskell, Scala, Bash.
- **Frameworks:** PyTorch, Tinygrad, NumPy, Pandas, Scikit-learn, itertools, OpenCV, ONNX, networkx, Cats, Cats-Effect, FS2, Http4s
- **Systems:** Linux (Arch, Debian, Ubuntu, Alpine, Android), POSIX, Docker, Kubernetes, KVM, QEMU, Nginx.
- **Architecture:** LLVM, x86.64, ARM64, CUDA, JVM, GCC, GDB, Ghidra, adb
- **Tools:** Git, Vim/Neovim, Tmux, Make, CI/CD, SQL (Postgres), NoSQL (MongoDB).

Technical Experience

Echobox (Big Data and ML Automation) London, UK
Intern Software Engineer 06/2023 – 09/2023

- **Distributed Systems Architecture:** Contributed to the design and implementation of a high-throughput microservices architecture using Java on AWS. Utilized asynchronous messaging patterns (e.g., SQS/Kafka) to enhance service decoupling, reliability, and fault tolerance.
- **Big Data Pipelines:** Optimized components within real-time data ingestion pipelines to process analytics efficiently, directly supporting and enhancing the performance of ML-driven content automation algorithms.
- **Security Compliance:** Performed security evaluations and developed proposed patches for identified vulnerabilities within core Java-based automation pipelines deployed on AWS infrastructure.

tinygrad (Open Source Deep Learning Framework) Remote
Contributor 10/2023 – 12/2024

- **Testing & QA:** Enhanced test coverage by adding and debugging unit tests, ensuring stability.
- **Interoperability:** Implemented features to improve **ONNX compliance**, facilitating model portability.
- **Systems Programming:** Worked on **POSIX compliance** to ensure broader OS compatibility.
- Collaborated with a distributed team via GitHub and Discord communications and meetings, adhering to strict code review pipelines.

Key Projects

FMSreborn (BSc Thesis) | *Python, PyTorch, Music Theory*

- Developed a **Recurrent Neural Network (RNN)** in PyTorch to sample MIDI data and generate original musical compositions.
- Authored a comparative analysis paper benchmarking the RNN against Genetic Algorithms.

Homeful | *Python, Selenium, BeautifulSoup*

[Link](#)

- Built an automation bot to scrape real estate listings, identifying high-priority rentals immediately upon release.
- Implemented **headless browser automation** (Selenium) to schedule visits automatically, bypassing manual interaction.
- Successfully tested and used the software to find rooms to rent in real world personal use cases

Dotfiles & Linux Automation | *Bash, Lua, Linux Systems*

[Link](#)

- Maintained a complex suite of configuration scripts for a customized Linux environment.

- Demonstrated mastery of OS internals including window managers, networking stacks, and shell scripting.

Education

ISCTE - University Institute of Lisbon, Portugal Expected 2027
Master in Telecommunications and Informatics

Middlesex University, London, UK 2023
BSc (Honours) Computer Science

- **Dissertation:** Deep Learning in Audio Generation.
- **Certifications:** Certified by the British Computer Society (BCS).
- **Activities:** Participated in team Capture The Flag (CTF) security events. Elected Student Voice Leader for 2 years in a row.

Work History (Hospitality)

Bar Staff	Bodhran, London 06/2023 – 05/2025
Bar Staff	JD Wetherspoons, London 11/2022 – 05/2023
Bar Staff	Calici, London 09/2020 – 10/2022
Sales Representative	Levi Strauss, London 09/2019 – 04/2020