

Guilherme Fontes

Dedicated Software Engineer & Proven System Administrator

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Summary

Strong foundation in distributed systems and security, complemented by system administration experience. Skilled in Linux, C/C++, Rust, Java, CI/CD practices, and scripting. I bring experience in cloud development, IaC, container technologies, and integration of systems and services. I thrive in dynamic environments, solving complex challenges with perseverance, creativity, and teamwork. Always seeking to contribute to innovative and impactful projects.

Experience

Systems & Automation Engineer Capgemini, Lisbon, Portugal 11/2024 - Present

Currently focused on: **Automation; Documentation accessibility.**

- Project owner, **responsible for building a Retrieval Augmented Generation** apparatus (AKA: smart information librarian & library combo). Tailored to a big ISP company internal systems and documentation.
 - Learning and following best NLP practices; Using current LLM tech mindfully; Utility, Accessibility, and Performance oriented.
- **Automating Infrastructure as Code** processes taking advantage of APIs, scripting and containerisation practices. Some of the tech used: Cloudflare, Terraform, Python.

System Administrator - Contract SCDEEC, IST, Lisbon, Portugal 09/2022 - 03/2024

Maintained critical resources and services, supporting **over 200 daily users**, including course **evaluation systems**, Laboratory entryway and lift **access control, allocating and providing compute power** for academic purposes, and **over 120 Linux/UNIX and Windows hosts and VMs**.

- Led the **automation of key administrative processes** such as personnel access and registration **using REST APIs**, web scraping, and document parsing, **reducing processing times from 3 minutes to seconds** and **increasing operational efficiency by over 95%**.
- Implemented new **service redundancies** and rapid **response strategies, to achieve and surpass 99.9% uptime**.
- Developed and deployed **over 15 Ansible Playbooks** for Infrastructure as Code (IaC) that **automate** and help **standardise** Linux and Windows OS setups, **firewall** configurations, and **VM Host and Guest configurations, reducing** inconsistencies that lead to **service disruptions** and **potential downtime**.
- **Optimised host image management** by deploying a modern service under a VM, integrating it into the network infrastructure with **KVM** and Linux network configurations, and employing NAS NFS Share for automated image storage and retrieval. This upgrade **cut deployment times by 75%**, significantly **reduced manual intervention**, and **reduced host downtimes by over an hour**.
- **Documented** new procedures and protocols **extensively**, such as Linux OS setups, services and internal tools.

Software Engineer - Intern Critical Software, Lisbon, Portugal 07/2022 - 08/2022

Worked in a **collaborative**, agile environment, and applied modern technologies and **CI/CD** practices.

- Automated lighting-related events in a smart/IoT environment by integrating microcontrollers with digital embedded devices, and **implementing cloud services** with **AWS Lambda and EC2** to optimise performance by **offloading heavier computations**.
- Contributed to improvements in code quality and reliability, collaborating with cross-functional teams to **address and resolve over 15 edge-case errors**, and **reducing code size by 25%**.

Education

Instituto Superior Técnico Lisbon, Portugal

M.Sc. in Computer Science and Engineering 02/2022 - 06/2024

- Specialised in **distributed systems** and **cybersecurity**, and developed my thesis “YAHÖ - Yet Another **Homomorphic Encryption Optimiser**”, a **proof-of-concept compiler** using search and synthesis technologies for **optimal HE solutions**.

B.Sc. in Computer Science and Engineering 09/2018 - 02/2022

Awards

Diploma of Merit for academic excellence in 2019/2020, Instituto Superior Técnico, Lisbon, Portugal

Skills

Programming Languages:  C/C++,  Rust,  Python,  Java,  Shell,  Javascript/Typecript

Development Tools and Practices: Linux/UNIX, Git, Nix, Containers (Docker, Podman), IaC (Ansible), Cloudflare Workers & R2, CI/CD, Frontend/App Frameworks (Android, Vue), Databases (PostgreSQL, MySQL, MongoDB), Testing Methodologies

Specialised Knowledge: Distributed Systems, Security, Integration, Networking, Fault-Tolerance, Scaling, Systems Design, Object-Oriented Design

Soft Skills: Communication, Teamwork

Languages: Portuguese (Native), English (C1/Advanced)