

Xosé Fernández

Systems & Infrastructure Engineer

contact@xosefernandez.com · Spain · xosefernandez.com · LinkedIn · GitHub

01 PROFILE

Systems and infrastructure engineer focused on Linux, virtualization, storage and networking, with a security background and a PhD in digital forensics. I design systems, investigate failure modes and performance, and build practical tooling around what I find.

02 EXPERIENCE

Senior Research Engineer

Jan 2025 — Present

Gradiant

- Designed and implemented a **distributed real-time microservices processing system** in Python for video and audio streams, handling ingestion, queuing with RabbitMQ, detection and result delivery through a web interface. Deployed on Google Cloud Platform with Kubernetes.
- Architected the system for **horizontal scalability**: gateway, detectors, database and web components run as independent Docker containers and scale without architectural changes.

Research Engineer

Feb 2024 — Dec 2024

Gradiant

- Researched and developed a browser-based system that detects **video-injection attacks** in remote identity verification by analyzing JavaScript and WebGL device parameters rather than the video stream itself.
- Detected virtual cameras, video capture cards and Android emulators with **100% accuracy** across 12 laptops and 18 mobile devices.
- Took the project from kickoff to a working library and an accepted talk at **RootedCON Madrid 2025** in eight months, becoming the first Gradiant employee to speak at the conference.

University Lecturer (Teaching Assistant)

Sep 2018 — Jul 2023

Universidade de Santiago de Compostela

- Taught operating systems, TCP/IP networking, routing, DNS and database systems, consistently making complex systems concepts accessible and clear.

Predoctoral Researcher

Jun 2018 — Jul 2023

Universidade de Santiago de Compostela

- Conducted applied digital-forensics research into browser internals on Linux and Android, ransomware samples and the recovery of encryption keys directly from memory.
- Worked at filesystem and memory level with low-level debugging and systems instrumentation. Funded through competitive FPU and Xunta de Galicia predoctoral grants.

Researcher

Jun 2017 — Mar 2018

Universidade da Coruña, Universidade de Santiago de Compostela & CESGA

- Combined numerical methods and computational techniques to solve the inverse problem in electrical impedance tomography, producing peer-reviewed results.

Engineering Intern — Talentum Startups

Jun 2015 — Jun 2016

CiTIUS, Universidade de Santiago de Compostela

- Built a distributed system for real-time storage, processing and analysis of smart-building sensor data using Hadoop, Storm, Kafka, Cassandra and ZooKeeper.

Infrastructure Intern

Jan 2016 — Jun 2016

CESGA (Galicia Supercomputing Center)

- Benchmarked and optimized I/O on a 38-server Big Data cluster, evaluating hardware and software RAID with md/LVM and reaching approximately **495K read IOPS**.
- Tuned Linux kernel profiles and measured their impact on TeraSort workloads of up to 2 TB across 15 nodes, improving sort times by **up to 30%**.
- Automated benchmarks and disk-health monitoring with Bash and ClusterShell, while working directly with BIOS, IMM and storage-controller configuration.

03 SELECTED PROJECT

PVE Forge

Personal project

github.com/xosefernandez/pve-forge

- Provisions disposable Proxmox VMs from mutable, ZFS-backed golden VMs using linked or full clones.
- Handles static addressing, firewall isolation, PCI passthrough and dependency-aware snapshot cleanup, with checks designed to leave infrastructure in a safe state when an operation fails.

04 EDUCATION

PhD in Information Technology Research

2019 — 2023

Universidade de Santiago de Compostela

Thesis: *Forensic analysis techniques for evaluating the privacy and integrity of information: web browsers and ransomware attacks.*

Best Doctoral Thesis, Cátedra R en Ciberseguridad (2024)

MSc in Cybersecurity · UOC · UAB · URV

2016 — 2017

BSc in Computer Engineering · Universidade de Santiago de Compostela

2012 — 2016

Outstanding Graduate Award

05 SKILLS

Systems Linux, systems troubleshooting, performance analysis, hardening

Virtualization & storage Proxmox VE, KVM/QEMU, ZFS, RAID, LVM, Docker

Networking TCP/IP, routing, DNS, VLANs, WireGuard, OpenWrt, Wireshark

Automation Python, Bash, GitHub Actions, Git, SaltStack

Security Digital forensics, memory forensics, malware analysis, threat modelling

06 SELECTED PUBLICATIONS

Computers & Security · Volume 134 · 2023

Digital forensic analysis of the private mode of browsers on Android

Springer · LNNS 711 · 2023

Recovering from Memory the Encryption Keys used by Ransomware Targeting Windows and Linux Systems

Computers & Security · Volume 115 · 2022

Digital forensic analysis methodology for private browsing: Firefox and Chrome on Linux as a case study

07 SELECTED TALKS

RootedCON Madrid 2025 Video-injection detection in remote identity verification

Computing Conference 2023 Recovering ransomware encryption keys from memory

08 LANGUAGES

Spanish Native

English Professional working proficiency