Tchêgoun Rachidi AGRO

Engineering student in Mathematical Engineering and Modeling · Cybersecurity, Linux systems and networking

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PROFILE

Final-year engineering student in Mathematical Engineering and Modeling at ENSGMM–UNSTIM, graduating in 2027. My focus is cybersecurity, in particular Linux system security, networking and security operations (SOC / Blue Team). My background combines training in mathematics and modeling (optimization, statistics, high-performance computing) with hands-on work in system administration, network security and programming.

INTERNSHIP

Network & Systems Administration Intern · FusionSoft Labs, Parakou, Benin — Jul 20 – Sep 12, 2026

Academic internship in two parts: lessons given by two instructors, then hands-on work done on my own in lab environments.

- **Lessons:** networking (VLANs, routing, ACLs) and Linux administration from the command line.
- **Hands-on work:** Cisco Packet Tracer labs, from VLAN segmentation to multi-site routing (static, then RIP and OSPF); on Linux, service management, scheduled jobs (cron, systemd timers), partitioning a test disk, key-based SSH, UFW firewall.
- **Troubleshooting:** an SSH service reported as active but unreachable (port 22 closed in an nmap test). Checked its state with systemctl status and read the logs with journalctl -u ssh: the service was listening on port 2222, changed during earlier hardening.

LINUX AND NETWORKING PROJECTS

Personal projects, done on my own during the internship period, in simulated environments.

Linux server hardening · Docker container — Aug 2026

An Ubuntu 24.04 server for a fictional company's accounting team, secured over seven days against a written specification: key-only SSH (no direct root login), UFW default-deny firewall, GPG-encrypted backups with seven-day rotation and a verified restore, Nginx web service supervised by supervisord with a tested automatic restart, and connection history. Adjusted the container's network capabilities (NET_ADMIN, NET_RAW) so the firewall could be tested. Log analysis for a fictional incident (a suspicious invoice reported by a customer).

File server with per-department access (Samba) · Docker container — Aug 2026

A fictional company with four departments (HR, IT, Finance, Management): one group and one folder per department (770 permissions, SGID bit), POSIX ACLs to allow traversal of the parent folder, a Bash provisioning script that can be re-run without duplicates, and Samba shares. Cross-tests from an SMB client: access granted to one's own department folder, denied (NT_STATUS_ACCESS_DENIED) to another department's.

Linux account management in Bash · Bash — Aug 2026

Creates groups and user accounts from a CSV file, with random passwords; the script detects what already exists and can be re-run. Tested in a throwaway Ubuntu container; limits documented (passwords stored in clear text in a file).

Multi-site company network · Cisco Packet Tracer — Jul – Sep 2026

Six progressive labs, ending with a capstone project. Addressing plan sized from the requirements (196 devices plus 50% headroom: a /22 block split with VLSM), eight segments at headquarters routed by a core switch (including a voice VLAN), and two branch offices connected to headquarters over WAN links with OSPF. Per-department access policy written as extended ACLs, with port security, DHCP snooping and dynamic ARP inspection.

ACADEMIC PROJECTS

Distributed Branch and Bound for a routing problem · Fortran 2008, MPI 2026

Group project (3 students), ENSGMM, Advanced Programming and MPI course

- Exact solution of an asymmetric travelling salesman problem: a tour starting from Cotonou across a network of 24 West African cities.
- Depth-first Branch and Bound with a lower bound and a starting heuristic; optimum checked against a separately written Held-Karp algorithm, identical on 15 instances.
- Dynamic master-worker model: a queue of subtrees sorted by bound, broadcast of the best solutions found, and pruning of the queue (60% of tasks discarded without being sent).
- Performance analysis (speed-up, efficiency, Amdahl's and Gustafson's laws, Karp-Flatt metric) on a 23-city instance, about 8.8 million nodes explored: 41.5 s sequentially, 21.8 s with 4 processes (×1.9). The ceiling comes from the two-core machine, as the serial part of the program is negligible.

Cassandra vs PostgreSQL · Docker, CQL, SQL Oct – Nov 2026

Group coursework (3 students), ENSGMM, Information Systems course

An IoT sensor case study: Cassandra schema designed from the queries (six queries, four tables), a three-node cluster in Docker (replication factor 3), with a query still answered at QUORUM after one node was stopped. Comparison with PostgreSQL over ten years of simulated readings (17.5 million rows) on a single computer: 2,504 single-row writes/s against 305, 349 MB on disk against 1,755 MB, but faster key lookups with PostgreSQL.

OTHER PROJECTS

TCP port scanner in Rust · personal learning project 2026

Three versions of the same tool (sequential, threads with mpsc channels, async with Tokio) to compare speed and memory use.

Python for security: a learning log · ongoing, started Oct 2026

Tools I write while learning Python, published as I go: log parsing (syslog, SSH, UFW), IP classification and reports, SHA-256 integrity checks, HTTP security headers, VirusTotal lookups, asyncio port scanner.

EDUCATION

Engineering degree, Mathematical Engineering and Modeling · ENSGMM – UNSTIM, Abomey 2024 – 2027 (expected)

Coursework: linear algebra and numerical matrix analysis; probability, statistical inference, statistical modeling, multivariate data analysis, time series, stochastic processes; optimization and mathematical modeling; high-performance computing (Fortran, MPI); databases (SQL, NoSQL), software engineering.

Engineering preparatory classes (CP1 – CP2) · INSPEI, Benin 2022 – 2024

CERTIFICATION AND CONTINUING EDUCATION

Certificate obtained: Introduction to Cybersecurity · Cisco Networking Academy · Oct 2026

Courses in progress: CS50's Introduction to Cybersecurity (HarvardX), final project left · Ethical Hacker (Cisco Networking Academy)

Self-study: TryHackMe, practice on Linux, SOC, OSINT and Metasploit rooms

ACTIVITIES

Team Captain · HackerLab 2026, national CTF (Benin) Aug – Sep 2026

Team of four members: team coordination and participation in the CTF.

SKILLS

Used in my projects

- **Linux & systems:** Ubuntu Server, Bash, SSH, UFW, permissions, SGID and POSIX ACLs, Samba, GPG, Docker
- **Networking:** VLANs and 802.1Q, VLSM, static, RIP and OSPF routing, extended ACLs, port security, DHCP snooping, DAI (Cisco Packet Tracer)
- **Programming & data:** Bash, Fortran 2008 with MPI, Rust, Python, R, Git, SQL (PostgreSQL), Cassandra (CQL)

Familiar with: Linux log reading (auth.log, journalctl, last), Nmap, Wireshark, Kali Linux, Metasploit (lab use)

Languages: Idaasha (native), Mahi (fluent), French (fluent), English (professional working proficiency)