Honoré Césaire MOUNAH

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Summary

Systems and Network Engineer with PhD-level expertise in **Linux kernel networking**, **high-throughput dataplane optimization**, and **performance benchmarking**. I have delivered measurable improvements on network-intensive systems (**4.7× throughput gain**, **65% latency reduction**) by combining low-level kernel development (C, eBPF) with rigorous experimental design and automation. I am now seeking to apply this skill set to the challenges of **Site Reliability, Infrastructure Maintenance and Optimization, DevOps, and Network Ops**. Based in Rennes, available immediately.

Work Experience

Ph.D. Researcher in Computer Science @ Inria Rennes Dec. 2022 – June 2026

- Investigated performance bottlenecks in the **Linux kernel networking stack** (WireGuard VPN dataplane), identifying an **Execution Order Inversion** as the root cause of a **5× throughput degradation**.
- Designed and implemented **asynchronous kernel APIs** (kernel threads, workqueues) to resolve the bottleneck, achieving **4.7× higher throughput** and **65% lower tail latency**.
- Built **HaaTool**, an automated benchmarking framework to evaluate **heterogeneous CPU architectures** (Intel P-cores/E-cores) across DVFS governors and workload types; delivered data-driven recommendations for **scheduler tuning** and **energy–performance tradeoffs**.
- Profiled system behaviour using **perf, ftrace, and eBPF** to characterise performance across diverse hardware and software configurations, producing reproducible experimental pipelines with **Ansible, Bash, and Jupyter**.
- Managed end-to-end research projects: experimental design, prototyping, instrumentation, automated testing, and dissemination through peer-reviewed publications and international conference talks.

Research Intern @ IRISA Rennes Jun. 2022 – Sept. 2022

- Evaluated **WireGuard VPN scalability** under high-load scenarios using automated **Ansible/Bash** deployments and **Jupyter-based data analysis**; identified critical scaling bottlenecks through rigorous experimental design.
- Deployed **TinyCheck**, a network-based stalkerware detection tool, as a **serverless FaaS** on **OpenFaaS/Kubernetes**, demonstrating cloud-native deployment and container orchestration skills.
- Automated end-to-end evaluation of Android anti-malware solutions using **ADB, Android Monkey, and Bash scripting**, enabling systematic security benchmarking at scale.

Education

2022 – 2026 PhD in Computer Science @ **INRIA, University of Rennes, France**
2017 – 2022 Engineering Degree in Computer Science @ **National Advanced School of Engineering, Yaoundé, Cameroon**

Projects

SignalKit GitHub

A system event-based automation tool based on DBus signals. *Stack: C, Automation, DBus*

InodeGuard GitHub

An eBPF-based file lifecycle hook framework enabling per-file security policies and side-effect monitoring. *Stack: C, eBPF, Linux kernel.*

HookFS GitHub

A FUSE-based filesystem with WebAssembly programmable hooks for per-file policy enforcement. *Stack: C, FUSE, WebAssembly (Wasmtime).*

Publications

Mounah, Honore Cesaire et al. (2025). "The Impact of Kernel Asynchronous APIs on the Performance of a Kernel VPN". In: *Proceedings of the 18th ACM International Systems and Storage Conference*. SYSTOR '25. Virtual, Israel: Association for Computing Machinery, pp. 167–173. ISBN: 9798400721199. DOI: 10.1145/3757347.3759133. URL: https://doi.org/10.1145/3757347.3759133.

Technical Skills

Programming Languages	C, C++, Go, Python, Bash, JavaScript
Networking & Protocols	TCP/IP stack, VPN technologies (WireGuard, OpenVPN), tunneling, NAT traversal, network performance tuning, traffic monitoring
Systems & Kernel	Linux kernel development (scheduling, networking, drivers), OS internals, eBPF, perf, ftrace, heterogeneous CPU architectures
Performance & Benchmarking	Performance profiling, benchmarking frameworks, DVFS analysis, scalability testing, energy–performance tradeoffs, memory optimization, data analysis (Jupyter, Pandas)
Cloud & DevOps	Docker, Kubernetes, Git, Ansible, OpenFaaS
Development Tools	FUSE, WebAssembly, automated testing frameworks, build systems (Make, CMake)

Languages

- French (Native)
- English (Fluent in speaking and writing)