Honoré Césaire MOUNAH

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SUMMARY

I am a PhD student in Computer Science (expected Dec 2025) with expertise in **operating systems, Linux kernel scheduling, performance optimization, and heterogeneous CPU architectures**. Skilled in **low-level systems programming** (C/C++), benchmarking, and prototyping secure and high-performance systems, I have strong experience in leading projects, communicating technical results, and collaborating across teams. Seeking roles as R&D Engineer, Software Engineer, System Developer, or System Architect.

WORK EXPERIENCE

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

Topic: Understanding Linux Scheduling Bottlenecks

Supervisors: Prof. David Bromberg (University of Rennes), Dr. Julia Lawall (Inria Paris), Dr. Djob Mvondo (University of Rennes)

Optimizing Linux Kernel Networking (WireGuard VPN)

- Investigated performance bottlenecks in the WireGuard VPN module, identifying Execution Order Inversion (EoI) as the root cause of a $5\times$ **throughput drop**.
- Designed and implemented asynchronous kernel APIs (kernel threads, workqueues) to resolve the bottleneck.
- **Impact:** Achieved $4.7\times$ **higher throughput** and **65% lower tail latency**, directly improving real-world VPN performance.

Energy Efficiency of Heterogeneous CPUs

- Built an automated benchmarking framework to evaluate Intel heterogeneous CPUs (P-cores/E-cores) across DVFS governors and workload types.
- Delivered actionable insights for **scheduler design** and **CPU tuning**, balancing performance and energy efficiency.

Core responsibilities: End-to-end project ownership (design, prototyping, benchmarking), Linux kernel instrumentation, experimental automation, and dissemination (publications, conference talks, technical reports).

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

Supervisors: Prof. David Bromberg, Dr. Djob Mvondo (University of Rennes)

Scalability Evaluation of WireGuard VPN

- Designed and executed large-scale experiments to test WireGuard under high-load scenarios.
- **Skills gained:** Experimental design, large-scale VPN deployment, automated benchmarking, data-driven performance analysis.

Network-based Stalkerware Detection

- Evaluated the effectiveness of **TinyCheck**, a network-based stalkerware detection tool, against commercial anti-malware solutions.
- Extended TinyCheck for deployment as a **Function-as-a-Service (FaaS)** on an OpenFaaS platform.
- **Skills gained:** Android automation and testing, FaaS deployment, network security evaluation.

EDUCATION

2022 - present	PhD at **INRIA, University of Rennes, France**
2017 - 2022	Engineering Degree in Computer Science **National Advanced School of Engineering, Yaounde, Cameroon**

PUBLICATIONS

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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++** (expert), **Python** (proficient), Go, Bash, JavaScript, Assembly
Systems & Infrastructure	**Linux Kernel Development** (scheduling, networking, drivers), FreeBSD, Docker, Kubernetes, CI/CD (GitHub Actions, Jenkins)
Performance & Optimization	**Performance profiling** (perf, ftrace, eBPF), benchmarking frameworks, scalability testing, memory optimization, NUMA awareness
Networking & Security	**VPN technologies** (WireGuard, OpenVPN), TCP/IP stack, network performance tuning, security analysis, traffic monitoring
Development Tools	Git, GDB, Valgrind, QEMU, FUSE, WebAssembly, automated testing frameworks, build systems (Make, CMake)

LANGUAGES

- French
- English