

# Oscar Deschamps

GitHub: [github.com/JustThinkingHard](https://github.com/JustThinkingHard)

# Embedded Systems & Security Engineer

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## EXPERIENCE

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- **CentumTnS** Lyon  
*Embedded Systems Security Engineer* *December 2024 - September 2026*
  - **Hardening:** BSP Yocto : Implemented Secure Boot, Chain of Trust (ARM TF-A, OP-TEE, U-Boot)
  - **Security:** SecureBoot concepts, Atomic updates, A/B redundancy
  - **Development:** Development of OPTEE Trusted Applications, Linux/U-boot Drivers
  - **Hardware:** Testing and fixing technical issues on embedded components
  - **Yocto:** Yocto environment with the creation of a meta-layer for the BSP
  - **Electronics:** Understanding of electronic schematics and embedded components
  - **Kernel Development:** Analyzed and patched a critical kernel crash in the *dm-waitfor* boot parameter
- **LeNewt** Lyon  
*Embedded Systems Engineer* *September 2023 - September 2024*
  - **HMI:** Development of an HMI in C++ with Qt, Bug fixing
  - **OTA Updates:** Architected and implemented an Atomic Update system using RAUC/SWUpdate with A/B partitioning redundancy
  - **System Integration:** Designed a C++ Qt HMI interfacing with system daemons (DBus, NetworkManager) for embedded network configuration
  - **Yocto:** Improvement of the Yocto environment, implementation of security measures at the boot stage

## PERSONAL PROJECTS

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- **Hackropole 3 ★ Challenge Write-up:** Challenge "Sésame, ouvre-toi (harder)" write-up approved and published on Hackropole as an answer.
- **Linux Kernel Rootkit (v6.x):** Advanced LKM featuring Kprobes/Ftrace hooking, CR0 WP bypass, direct shellcode injection via ptrace, and VFS manipulation for file hiding
- **HID Attack:** Attack where a Raspberry Pico (Bad USB) creates a connection with a Raspberry Pi, subsequently exploiting CVE-2025-6019 to gain root control of the machine
- **ELF binary infector:** Developed a tool to inject payloads into ELF code caves and modify entry points for persistence
- **Process injector:** Injects a payload into a process at run-time

## SKILLS

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- **Linux:** Drivers, Kernel patching, DBus API, development and debug of peripherals
- **Low-Level & System:** C, Assembly (x86/ARM), Rust, ELF Binary Parsing, System Programming (fork, pipe, signals, ptrace)
- **C++:** Qt, QThread management, supervision HMI for embedded machines
- **Embedded Cybersecurity:** Secure Boot, OP-TEE, Trusted Firmware-A (TF-A), RAUC, Yocto Hardening
- **Hardware Protocols:** UART, SPI, I2C, JTAG, USB

## EDUCATION

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- **ESGI** Lyon  
*Master in Cybersecurity* *September 2024 - September 2026*
- **Epitech** Lyon  
*Bachelor of Computer Science* *September 2021 - September 2024*

## MISCELLANEOUS

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- **Certification:** Cisco CCNA
- **Sport:** Basketball, Gym
- **Learning:** Reverse Engineering (x86, ARM), Rust, Malware development
- **Other:** Video games, Competitions