



Paul L. R. OLIVIER

RESEARCHER IN SYSTEM SECURITY

Toulouse, France

✉ olivier.paul.lr@gmail.com | 🏠 https://plrolier.net | 📷 plrolier

🌐 www.linkedin.com/in/plrolier | 📅 Born: 1995 | 🇫🇷 Nationality: French

System security researcher with expertise in embedded systems and dynamic program analysis of firmware and kernel (Linux/RTOS). Specializing in approaches that bridge hardware-software boundaries to uncover vulnerabilities in critical embedded systems. Seeking challenging opportunities to advance system security through novel dynamic analysis.

Experience

Postdoctoral Researcher

Toulouse, France

TRUST TEAM (FORMERLY TSF), LAAS - CNRS

18 months, 2023 - 2024

- Developed a novel host-based Intrusion Detection System (IDS) built on the open source BLE stack of Zephyr RTOS.
- Overcame technical challenges in real-time detection by designing an innovative two-stage architecture that separated metric collection at the link layer from the analysis while preserving strict BLE timing requirements and firmware stability.
- Achieved 100% accuracy on sophisticated attack types while maintaining efficiency with only 0.05-0.44% power consumption increase.
- Building a platform for repeatable wireless security analysis in complex and heterogeneous IoT environments (e.g., smart home).
- Secured funding for essential materials, including RF shielded enclosures, development boards, and IoT devices.

Teaching Assistant

Toulouse, France

INSA, INSTITUT NATIONAL DES SCIENCES APPLIQUÉES

2023 - 2025

- Led sessions for students in 2nd and 3rd Bachelor years as well as 2nd year Master in specialized security track (TLS-SEC).
- Course topics are *C programming languages*, *x86 assembly language*, *computer architecture* and *OSI layer attacks*.

PhD Student

Sophia-Antipolis, France

SOFTWARE AND SYSTEM SECURITY (S3) GROUP, EURECOM - SORBONNE UNIVERSITÉ

2019 - 2023

- Research fully funded through an industrial partnership with Siemens AG, including a 2-month collaborative research visit.
- Developed a novel framework for intercepting and forwarding system calls and memory accesses of Linux processes between emulated and physical environments, enabling in-depth security evaluation of embedded applications.
- Designed and implemented an infrastructure to facilitate reproducible research by addressing the challenges of sharing, acquiring and maintaining physical devices used in published experiments.
- Maintain the *avatar²* research project and its QEMU fork, an open-source analysis and reversing framework for embedded firmware. Our work was recognized as a finalist for ACSAC's Artifacts Competition and Impact Award in 2024.
- Supervised master's students in their semester projects and internships, providing guidance, mentorship, and assessment.
- Serve as an Artifact Evaluation Committee member for major security conferences (USENIX Security, ACSAC, WOOT), reviewing and validating technical implementations of security research.

Research Intern in the Department of Cyber Security and Robustness

The Hague, Netherlands

TNO, NETHERLANDS ORGANIZATION FOR APPLIED SCIENTIFIC RESEARCH

6 months, 2018

- Examined automatic vulnerability detection techniques through fuzzing & symbolic execution.

Skills & Interests

Programming	Python, C, Rust, Assembly (Intel, ARM, MIPS)
Tools & Frameworks	avatar ² , Linux, QEMU, Zephyr RTOS, Buildroot, GDB, BinaryNinja, Docker
Program Analysis	Debugging, Hardware-in-the-loop Emulation, Rehosting, Fuzzing, Symbolic / Concolic Execution
Hardware	Reverse Engineering of Embedded Devices & Firmware Extraction (JTAG, UART, SPI), Soldering
Languages	French (Native), English (Proficient)
Soft Skills	Analytical Thinking, Presentation Skills, Active Listening
Outdoor Activities	Hiking, Sailing

Education

Doctorate in Computer Science, awarded by Sorbonne Université

Sophia Antipolis, France

EURECOM

2019 - 2023

- Thesis title: *Improving Hardware-in-the-Loop Dynamic Security testing For Linux-based Embedded Systems*

Post-Master's Degree in Security in Computer Systems and Communications

Sophia Antipolis, France

EURECOM

2017 - 2018

Exchange Semester

Montréal, Canada

POLYTECHNIQUE MONTRÉAL

6 months, 2016

Engineering Degree in Telecommunications and Networking

Toulouse, France

ENSEEIH

2015 - 2018

Preparatory classes in Physics and Engineering sciences (PSI*)

Toulouse, France

HIGH SCHOOL DÉODAT DE SEVERAC

2013 - 2015

Baccalauréat scientifique (S) specializing in mathematics

Toulouse, France

HIGH SCHOOL PIERRE DE FERMAT

2013