

Laurent NEL

Software Architect – Technical Expert – R&D Consultant – Trainer

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🌐 GitHub: <https://github.com/leuville> & <https://github.com/ageoftech>

Profile Summary

Seasoned Software Architect and Technical Expert with over 30 years of experience in software design, enterprise systems architecture, and applied R&D. Proven expertise in system modeling, performance analysis, prototyping, and cutting-edge software engineering, including IoT and AI-driven development. Regular speaker and trainer, with active contributions to international research and open-source communities.

Core Competencies

- Software & Systems Architecture (UML, BPMN, Java, Spring, C++, Swift, C#)
- Cloud-Native & Microservices Architecture (Docker, REST APIs, Spring Boot, Camel, NiFi)
- Embedded & IoT Development (C++11-23, LoRaWAN, NFC, BLE, Protocol Buffers)
- Applied AI & Vibe-Coding Methodology
- R&D Project Leadership, Technical Audits, and Innovation Consulting
- Technical Mentoring & Advanced Training (Remote & Onsite)

Recent Projects (Selected Freelance Missions)

Bordeaux Sciences Agro – 2024

Software Integration & Architecture for Financial Systems

- Designed system architecture and prototype for interfacing billing and finance tools
- Built custom VM deployment tools using PowerShell
- Stack: Spring Boot 3, Apache Camel, REST APIs, Docker, Hyper-V

VetAgro Sup – 2023–2024

Payroll-Finance System Mediation & Integration

- Architectural lead and technical prototype implementation
- Stack: Spring Boot 3, Apache Camel, REST APIs, Docker, Ubuntu, Hawtio

Institut Agro Dijon – 2020–2024

Purchase Request Workflow System Development

- BPMN modeling and full-stack architecture delivery
- Stack: Spring Boot 3, Docker, Apache Camel, BPMN, UML

Groupe BPCE – 2017–2018

IoT Prototyping & R&D Supervision

- Led R&D efforts and created a demonstrator showcased at the World Electronic Forum
- Stack: Embedded C++, NFC, Bluetooth, LoRaWAN, Java (backend)

Sagem Défense Sécurité – 2005–2006

Software Architecture for Nuclear Submarine Systems

- Led software architecture for Barracuda-class attack submarines
- Developed Java-based control console for optronic masts (real-time systems)

Research & Publications

- AllData 2022: Big Data Monitoring for Mobile Applications
- CICOM 2021: Efficient Microservices-Based Big Data Architecture
- VALID 2015, MoMM 2016, CLOUD DAYS 2017, among others
- Technical Program Co-chair: FMCIoT Workshop (MoWNet 2018)
- Research partner with Université Paris-Saclay and UPEC
- View Publications: <https://www.aria.org/conferences2022/ProgramALDATA22.html>

Open Source Contributions

- C++ Libraries for Arduino and LoRaWAN (Protocol Buffers integration)
- Java utilities and microservice tools
- GitHub: <https://github.com/leuville>

Training & Mentoring

- Over 25 years of experience designing and delivering advanced training
- Topics: SOA, Java, C++, REST APIs, IoT, gRPC, UML/BPMN, Apache Camel & NiFi
- Training formats: on-site, remote (Teams, Zoom)

Academic Background

- D.E.S.S. in Software Engineering, ISIAL, Université de Nancy I
- D.E.A. in Industrial Systems Engineering, INPL (Polytechnic Institute of Lorraine)
- Master's in Computer Science, Université de Nancy I

- Associate Professor at Polytech Paris-Saclay (1996–2022)

Patents

2020 – Connected NFC Smart Card Holder

Technologies: C++ embedded, LoRaWAN, NFC, BLE, Protocol Buffers, Java Spring Boot

Patent FR3089764:

https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&date=20200619&DB=&locale=fr_EP&CC=FR&NR=3089764A1&KC=A1&ND=1

Languages

- French: Native

- English: Professional working proficiency