Antonin Carette

Senior Systems Architect

Personal Details

Date Of Birth	10th of September, 1990
Languages	French,English
Children	1

Education

2017 **Assistant professor**, **University of Luxembourg**, *Luxembourg*.
Data Science and Mathematics courses for bachelor students.

2014–2016 **Master Degree**, **University of Lille**, *France*.
Computer Science, 'Optimization Algorithms and Artificial Intelligence'.
Magna cum laude.

2012–2014 **Bachelor Degree**, **University of Lille**, *France*.
Computer Science.
Cum laude.

Work Experience

2025-... **Senior Systems Architect**, **Thales Alenia Space**, *Luxembourg*.
Memory safety languages, and good coding practices on the Edge. High-security and high-performance on very low-profile and energy-efficient devices. Also lead chapter of Systems Engineering at Thales Alenia Space.

2024-2025 **Head of Research & Development**, **Red Art Games**, *France*.
Leads a team of engineers to build emulators, and port of old games (MS-Dos games) on modern video game consoles.

2022–2025 **Senior Software Developer**, **Red Art Games**, *France*.
Game engine ports (V3X, Adventure Game Studio, Heaps, ...) from PC to modern video game consoles (Sony PlayStation 4 & PlayStation 5, Microsoft Xbox One & Series, and Nintendo Switch). Strong reverse engineering skills, knowledge of (de)compilers, and strong high-level and low-level software optimization skills.
Programming environment: C 11, C++ 14/17, use of native graphics APIs (DirectX 12, Vulkan, NVN, GNM, GNMP).

2021–2022 **Senior Software Developer**, **DernierCri**, *France*.
Various subjects & projects (from basic mobile apps to ML algorithms deployment), for startups and SMEs. Managed a small team of both back-end and front-end developers to deliver those projects under strong time constraints.
Programming environment: Go, TypeScript, JavaScript, Rust.

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2021 **R&D Engineer**, **DataThings**, *Luxembourg*.
Various AI/ML solutions (using NLP techniques and CNNs) for SMEs, from proof-of-concepts to ready-for-production products, using real-world datasets constraints (small datasets, biased datasets, ...).
Programming environment: Python, C 11, C++ 14/17.

2018–2021 **Software Developer**, **TadaWeb**, *Luxembourg*.
Back-end services for both the core and AI / ML teams, from proof of concept to ready-to-production products. Production-level code to be deployed on Tadaweb's cloud stack, using SCRUM principles. Helped to benchmark AI software products from famous cloud providers (Microsoft Azure, Google Cloud, ...).
Programming environment: Python, Go, Rust, C++.

2016–2018 **Data Scientist and Software Developer**, **DernierCri**, *France*.
Data Science activities for SMEs and back-end services for startups.
Programming environment: Python, Rust, C++.

Research projects

2016-2017 **Assess and evaluating the energy consumption of Android apps code smells**, *LATECE team*, UQÀM, Montréal.
Built a strong protocol to measure the energy consumption of Android devices, to assess the impact of code smells on smartphones and Real-Time Operating-Systems (RTOS). The research paper has been submitted and accepted at **SANER 2017**.
Programming environment: Python, Rust, Java (for Android).

2015 **Prediction of bugs propagation for big Java projects**, *SequeL team*, INRIA Lille, France.
Built and experimented an automated method to study and predict bugs impacts in big Java projects. The research paper has been submitted and accepted at **RAISE 2016**.
Programming environment: Python.

Publications

2017 **Mastering Rust: Advanced concurrency, macros, and safe database**, *Packt Edition*, by Vesa Kaihlavirta.
Lead Reviewer.

2017 **Investigating the energy impact of Android smells**, *SANER 2017*, by Antonin Carette, Mehdi Adel Ait Younes, Geoffrey Hecht, Naouel Moha, and Romain Rouvoy.
First author.

2016 **A Learning Algorithm for Change Impact Prediction: Experimentation on 7 Java Applications**, *RAISE 2016*, by Vincenzo Musco, Antonin Carette, Martin Monperrus, and Philippe Preux.
Second author.

Skills

- I worked a lot with **cross-functional teams**.
- I am able to **organize my time** and **communicate efficiently**.
- I am able to **work easily in team and lead a project**, from POC to RTP products, through my involvement in open-source projects.

- I have both **good computer handling and programming skills** which I acquired contributing to open-source projects, but also during my work experience.
- I have **problem solving skills** and I like to solve concrete and real-world problems.
- I worked on **low end hardware and platforms**, used strong debugging techniques and developed an optimization mindset.

IT Package

Engineering:

- I am proficient in using **Python** (>= 3.7), **Go**, **Rust**, and **C/C++**, which I used during many personal and professional projects.
- I am efficient in using a CPU and GPU debuggers to debug my projects, but also use CPU and GPU profilers to find software bottlenecks and improve software performances.
- I have the habit to take care of my projects from proof-of-concepts to production, including **Docker** containers deployment in cloud environments and **Gitlab CI/CD**.
- I have knowledge of message broker tools, like **RabbitMQ**.
- I have knowledge of **Swift 5** / **SwiftUI** and the **Apple Metal 2 and 3** Graphics API for iOS, iPadOS, and macOS platforms.

Open-Source contributions

- **Machine Learning**: scikit-learn documentation, statsmodel.
- **The Rust community**: cargo-generate, Redox-OS, ar-OS (my own operating system written in Rust), the Rust compiler documentation.
- **Video Games**: ScummVM, SDL2.
- **Other**: FirefoxOS Powertool, SOMCA's Paprika tool, SOMCA's Naga Viper, Calabash.

Languages

French **Mothertongue**

English **Advanced**

Personal Interests

- Video game engineering
- Doom 3 (I can easily hold a conversation about Id Software and the development of Doom, Doom 3, and Quake for, at least, three decades)
- Photography, and cinematography
- Fencing

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