

# Laurent Christophe

## Research Software Engineer

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### ABOUT ME

I hold a Ph.D. in Computer Science and I'm currently working as a Research Software Engineer at Sirris. My expertise includes: program analysis, language implementation, functional programming, and, more recently, generative AI.

### EDUCATION

- ▶ **Ph.D.** – Computer Science  
Vrije Universiteit Brussel  
*2012 – 2026*  
Title:  
Provenance-Aware  
Dynamic Analysis of  
JavaScript  
Supervisors:  
Prof. Dr. Coen De Roover  
Prof. Dr. Wolfgang De Meuter
- ▶ **MSc (Eng)** – Computer Science  
Université Libre de Bruxelles  
*2010 – 2012*  
Graduated with Great Distinction  
(Top 25% of class)
- ▶ **BSc (Eng)** – Civil Engineering  
Université Libre de Bruxelles  
*2007 – 2010*

### PROGRAMMING SKILLS

- ▶ Expert in:  
JavaScript and TypeScript
- ▶ Competent in:  
Python, Haskell,  
C, C++, Java, Scala, Kotlin,  
HTML, CSS, LaTeX,  
Scheme, Prolog

### PROFESSIONAL EXPERIENCE

#### Sirris – Research Software Engineer

*Jul 2025 – Present*

- ▶ Lead several R&D projects on generative AI:  
LISA, GENIUS, and ANTENNA
- ▶ Build proof-of-concept systems:  
Trained a hierarchical MLP classifier with confidence control  
Developed a chatbot with vector RAG and intent detection  
Develop a chatbot for SCADA doc based on KG RAG

#### Vrije Universiteit Brussel – Consultant

*Oct 2023 – Jun 2025*

- ▶ Resumed work on my PhD
- ▶ Developed several web and mobile applications:  
Prototype of EasyWanit: mobile app built with Ionic  
La Nage Saint-Gilles: admin web app built with Express

#### AppMap, USA – Software Engineer

*Mar 2021 – Sep 2023*

- ▶ Developed a JavaScript code instrumenter:  
Recording of large volumes of execution data  
Seamless integration with:  
GitHub Actions, Node.js, Express, Mocha, Jest  
CI/CD stack:  
Travis, semantic-release, Prettier, ESLint, Mocha
- ▶ Developed a flame graph visualization in Vue:  
Interactive exploration of performance impact  
Runs in the browser and within VS Code via Vue and React  
Automated testing using Cypress and Chromatic
- ▶ Contributed broadly across the toolchain:  
Authored and reviewed hundreds of pull requests

#### Vrije Universiteit Brussel – Researcher

*Sep 2012 – Dec 2020*

- ▶ Published in renowned international conferences:  
ICSME, SANER, GPCE
- ▶ Maintained extensive artifact records:  
60+ npm packages with **650K+** downloads
- ▶ Research supported:  
Multiple publications and dozens of BA/MA theses
- ▶ Contributed to open-source projects:  
Node.js, Jest, ESLint, Acorn, Astring, Engine262
- ▶ Collaborated with “Hack Your Future” Belgium
- ▶ Served as Teaching Assistant:  
Functional Programming course – 7 years

## TOOLING EXPERIENCE

- ▶ **Frontend:** React, Vue.js, Ionic, Next.js, Web Components
- ▶ **Backend:** Express, Spring, NestJS, Django, Flask, Ruby on Rails
- ▶ **Databases:** MySQL, MariaDB, SQLite, PostgreSQL, Neo4j
- ▶ **Testing:** xUnit, Jest, Mocha, QuickCheck, Cypress, Chromatic, Selenium
- ▶ **Version:** Git, GitHub, GitLab
- ▶ **Cloud:** AWS, Azure, Google Cloud Platform
- ▶ **CI/CD:** GitHub Actions, Jenkins, Travis CI
- ▶ **Packages:** npm, Maven, Gradle, pip, gem, bundler, Cabal
- ▶ **IDE:** VS Code, Eclipse, IntelliJ

## COMM. PROTOCOLS

- ▶ HTTP, TCP/IP, SSL, WebSocket, POSIX Sockets, Bluetooth Low Energy (BLE)

## LANGUAGE

- ▶ Native French speaker
- ▶ Fluent in English
- ▶ Basic knowledge of Dutch

## MISCELLANEOUS

- ▶ Enthusiastic programmer and open-source contributor
- ▶ Creator of Aran, a JavaScript code instrumenter  
<https://lachrist.github.io/aran>
- ▶ Head coach of the NSG swimming club in Saint-Gilles since 2011
- ▶ Multiple-time Belgian podium finisher in swimming

## PUBLICATIONS

- 1 A. Stuker, A. Munsters, A. Luis Scull Pupo, L. **Christophe**, and E. Gonzalez Boix. "JASMAint: Portable Multi-language Taint Analysis for the Web". In: *Proceedings of the 22nd International Conference on Managed Programming Languages and Runtimes (MPLR)*. ACM. 2025
- 2 L. **Christophe**, C. De Roover, and W. De Meuter. "Aran: JavaScript Instrumentation for Heavyweight Dynamic Analysis". In: *Proceedings of the 23rd Belgium-Netherlands Software Evolution Workshop (BENEVOL)*, vol. 3941, pp. 97–114. CEUR Workshop Proceedings. 2024
- 3 M. Vandercammen, L. **Christophe**, D. Di Nucci, W. De Meuter, and C. De Roover. "Prioritising Server Side Reachability via Inter-process Concolic Testing". In: *The Art, Science, and Engineering of Programming*, 5. 2020
- 4 M. Vandercammen, L. **Christophe**, W. De Meuter, and C. De Roover. "Concolic Testing of Full-Stack JavaScript Applications". In: *Proceedings of the 17th Belgium-Netherlands Software Evolution Workshop (BENEVOL)*, vol. 2361, pp. 38–42. CEUR Workshop Proceedings. 2018
- 5 L. **Christophe**, C. De Roover, E. Gonzalez Boix, and W. De Meuter. "Orchestrating Dynamic Analyses of Distributed Processes for Full-Stack JavaScript Programs". In: *Proceedings of the 17th ACM SIGPLAN International Conference on Generative Programming (GPCE)*, pp. 107–118. ACM. 2018
- 6 A. Scull Pupo, L. **Christophe**, J. Nicolay, C. De Roover, and E. Gonzalez Boix. "Practical Information Flow Control for Web Applications". In: *Proceedings of the 18th International Conference on Runtime Verification (RV)*, vol. 11237, pp. 372–388. Springer. 2018
- 7 L. **Christophe**, W. De Meuter, E. Gonzalez Boix, and C. De Roover. "Linvail: A General-Purpose Platform for Shadow Execution of JavaScript". In: *Proceedings of the 23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER)*, pp. 260–270. IEEE CS. 2016
- 8 L. **Christophe**, C. De Roover, and W. De Meuter. "Poster: Dynamic Analysis Using JavaScript Proxies". In: *Proceedings of the 37th IEEE International Conference on Software Engineering (ICSE)*, vol. 2, pp. 813–814. IEEE. 2015
- 9 L. **Christophe**, R. Stevens, C. De Roover, and W. De Meuter. "Prevalence and Maintenance of Automated Functional Tests for Web Applications". In: *Proceedings of the 30th International Conference on Software Maintenance and Evolution (ICSME)*, pp. 141–150. 2014
- 10 N. Cardozo Alvarez, L. **Christophe**, C. De Roover, and W. De Meuter. "Run-time Validation of Behavioral Adaptations". In: *Proceedings of 6th International Workshop on Context-Oriented Programming (COP)*. ACM. 2014