Laurent Christophe

Research Software Engineer

laurent.christophe.terken@gmail.com
https://lachrist.github.io
https://github.com/lachrist
https://www.linkedin.com/in/lachrist

ABOUT ME

I hold a Ph.D. in Computer Science and I'm currently working as a Software Research 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 23nd 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