

# Jordy Ruiz, Ph.D

## Research Engineer

32 • [jruiz.fr](mailto:jruiz.fr) • [jordyruiz@gmail.com](mailto:jordyruiz@gmail.com) • [linkedin.com/in/jordy-ruiz](https://linkedin.com/in/jordy-ruiz) • [github.com/jordr](https://github.com/jordr)

---

## Profile

French research engineer based in London since 2019, with experience in low-level program analysis of embedded systems. Enjoys mathematics, well-structured programming and clever use of abstractions. Highly enthusiastic towards mentoring and cross-disciplinary learning.

---

## Work

### Research Engineer at StatInf (4 mo.)

then **Software Team Lead** at StatInf (2 y.)

2022/10 – 2025/02

- R&D for a hybrid static/statistical analysis of binary embedded systems programs
- Led a small software team (4–7 engineers), built from the ground up, mentoring collaborative development
- Management using Agile methods, interfacing with R&D, Product and Corporate teams
- In-house disassembly and program analysis plugins for our clients' architecture needs (TMS320C28, MPC5554 PPC, ARMv7+Thumb-2, ARMv9...)
- Led the development and go-to-market of StatInf's key product **RocqStat**, including:

- GUI design and implementation;
- Backend development for binary code and software trace analysis
- Securing our patented EVT algorithms;
- Docker containerization;
- CI/CD pipeline setup with integration testing;
- Go-to-production processes and product demonstrations;
- Iterative collaboration on product specifications.

[#C++](#) [#ARM-assembly](#) [#TI-assembly](#) [#PPC-assembly](#) [#embedded-systems](#) [#statistical-analysis](#)  
[#static-analysis](#) [#software-traces](#) [#team-management](#) [#Agile-methods](#)  
[#collaborative-development](#) [#CI-CD](#) [#Docker](#) [#Deployment](#)

### Research Associate at Imperial College London

2019/10 – 2022/09

Automating test generation using “chopped” symbolic execution in KLEE, through program analysis of LLVM IR code.

*with Pr. Cristian Cadar*

[#C++](#) [#LLVM](#) [#KLEE](#) [#patch-testing](#) [#static-analysis](#) [#dynamic-analysis](#) [#concolic-execution](#)

### Postdoctoral fellowship at Université de Lille

2018/06 – 2019/06

Detection of arrays in assembly code for static timing analysis

*with Pr. Giuseppe Lipari*

[#C++](#) [#ARM-assembly](#) [#OTAWA](#) [#PPL](#) [#static-analysis](#) [#abstract-interpretation](#) [#WCET](#)

### Ph.D. at Université Toulouse III

2014/10 – 2017/12

Thesis: Identifying data flow properties to improve worst-case execution time estimations

Analysed actual critical embedded applications (Continental, DEBIE-1, PapaBench...)

*with Pr. Christine Rochange*

[#C++](#) [#ARM-assembly](#) [#OTAWA](#) [#static-analysis](#) [#embedded-systems](#) [#infeasible-paths](#)  
[#abstract-interpretation](#)

### Masters at Université Toulouse III

2014/08

Thesis: Detecting infeasible paths on machine code

*with Dr. Hugues Cassé*

[#C++](#) [#ARM-assembly](#) [#OTAWA](#) [#static-analysis](#) [#abstract-interpretation](#)

### Internship at Université Toulouse III

2013/07

Co-inductive reasoning for the transformation of deterministic automata.

Complete formal proof of Brozowski's algorithm<sup>1</sup> in Coq.

*with Dr. Ralph Matthes*

[#Coq](#) [#Haskell](#) [#formal-proofs](#) [#category-theory](#)

---

<sup>1</sup>Based on the categorical proof by Bonchi et al., *Brzowski's Algorithm (Co)Algebraically* (2012)

## Education

Université Toulouse III

### Masters in **Computer Science**

2012 – 2014

*Second year:* Critical Software & Distributed systems (ranked 2/8)

*First year:* Artificial Intelligence & Pattern Recognition (ranked 1/15)

### Bachelor in **Fundamental Mathematics**

2009 – 2012

### Bachelor in **Computer Science**

2009 – 2012

Parallel studies and simultaneous graduation from two bachelors.

---

## Publications in journals, international conferences, and workshops

Relational Abstract Interpretation of Arrays in Assembly Code.

2021/12

C. Ballabriga, J. Forget, **J. Ruiz**

In: *Formal Methods in System Design, Volume 59.* (regular paper)

Static Analysis Of Binary Code With Memory Indirections Using Polyhedra. ⊗

2019/01

C. Ballabriga, J. Forget, L. Gonnord, G. Lipari, **J. Ruiz**

In: *VMCAI – International Conference on Verification, Model Checking, and Abstract Interpretation, 2019.* (regular paper)

⊗ best paper award

Working around loops for infeasible path detection in binary programs.

2017/09

**J. Ruiz**, H. Cassé, M. De Michiel.

In: *SCAM – IEEE International Working Conference on Source Code Analysis and Manipulation, 2017.* (regular paper)

The W-SEPT project: Towards Semantic-aware WCET Estimation.

2017/06

C. Maïza, P. Raymond, C. Parent-Vigouroux, A. Bonenfant, F. Carrier, H. Cassé,

P. Cuenot, D. Claraz, N. Halbwachs, F. Carrier, H. Cassé, E. Jahier, H. Li, M. De Michiel,

V. Mussot, I. Puaut, C. Rochange, E. Rohou, **J. Ruiz**, P. Sotin, W.-T. Sun.

In: *WCET – Workshop on Worst-Case Execution Time Analysis, 2017.* (regular paper)

Expressing and Exploiting Path Conflicts in WCET Analysis.

2016/07

V. Mussot, **J. Ruiz**, P. Sotin, M. De Michiel, H. Cassé.

In: *WCET – Workshop on Worst-Case Execution Time Analysis, 2016.* (regular paper)

Using SMT Solving for the Lookup of Infeasible Paths in Binary Programs.

2015/07

**J. Ruiz**, H. Cassé.

In: *WCET – Workshop on Worst-Case Execution Time Analysis, 2015.* (regular paper)

---

## Languages

English: fluent.

French: native.

Sinographs (Chinese characters): intermediate.