Johann Rosain

Master's 4th year student at ENS de Lyon

perso.ens-lyon.fr/johann.rosain | jrosain | 0000-0003-1719-2654

Diplomas and Education

École Normale Supérieure de Lyon *(master in computer science)* 2022 — 2026
GPA 18.02/20. M2 Diploma obtained in July 2025.
University of Montpellier *(bachelor in computer science)* 2019 — 2022
GPA 17.46/20. Ranked 2nd out of 148.

Publications and Drafts

1. "For Generalized Algebraic Theories, Two Sorts Are Enough", S. Avrillon, A. Kaposi, A. Lafont, N. Najmaei and **J. Rosain** (2026), preprint.
2. "TableauxRocq: A Deep-Embedding of Free-Variable Tableaux in Rocq", **J. Rosain** and J. Cailler (2026), To appear in the *17th International Conference on Interactive Theorem Proving* (ITP'2026).
3. "Bounded Sort Polymorphism With Elimination Constraints", **J. Rosain**, T. Díaz, K. Maillard, M. Sozeau, N. Tabareau, É. Tanter and T. Winterhalter (2026), in the *53rd ACM SIGPLAN Symposium on Principles of Programming Languages* (POPL'26). accepted papers.
4. "A Generic Deskolemization Strategy", **J. Rosain**, R. Bonichon, J. Cailler and O. Hermant (2024), in the *25th Conference on Logic for Programming, Artificial Intelligence and Reasoning* (LPAR'25).
5. "Goéland: A Concurrent Tableau-Based Theorem Prover (System Description)", J. Cailler, **J. Rosain**, D. Delahaye, S. Robillard and H.-L. Bouziane (2022), in the *11th International Joint Conference On Automated Reasoning* (IJCAR'22).

Abstracts and Workshops

6. "For Generalized Algebraic Theories, Two Sorts Are Enough", S. Avrillon, A. Kaposi, A. Lafont, N. Najmaei and **J. Rosain** (2026), in the *32nd International Conference on Types for Proofs and Programs* (TYPES'2026).
7. "Extending Sort Polymorphism with Elimination Constraints in Rocq", Tomás Díaz, Kenji Maillard, **Johann Rosain**, Matthieu Sozeau, Nicolas Tabareau, Éric Tanter, and Théo Winterhalter (2025), in the *Rocqshop 2025*.
8. "A Ghost Sort for Proof-Relevant yet Erased Data in Rocq and Metarocq ", **Johann Rosain**, Matthieu Sozeau, and Théo Winterhalter (2025), in the *31st International Conference on Types for Proofs and Programs* (TYPES'2026).
9. "A Ghost Sort for Proof-Relevant yet Erased Data in Rocq and Metarocq ", Tomás Díaz, **Johann Rosain**, Matthieu Sozeau, Nicolas Tabareau, and Théo Winterhalter (2025), in the *31st International Conference on Types for Proofs and Programs* (TYPES'2026).

Talks

Bounded Sort Polymorphism With Elimination Constraints Jan. 2026
Presentation of the eponymous paper at **POPL'26**, in Rennes.

Extending SortPoly With Elimination Constraints in Rocq Sept. 2025
Remote presentation at the **Rocqshop 2025**.

A Ghost Sort for Proof-Relevant yet Erased Data in Rocq and Metarocq June 2025
Presentation at **TYPES 2025**, in Glasgow.

Extending Sort Polymorphism with Elimination Constraints June 2025
Presentation at **TYPES 2025**, in Glasgow.

Computational Difficulties in Cubical Type Theory: a Case Study Oct. 2024
Presentation at the **VeriDis** team seminar in Nancy.

Do Integers Really Exist? June 2023
Presentation at the **LIRMM** PhD students seminar in Montpellier.

Softwares

TableauxRocq Creator of the formal proof library TableauxRocq, a deep-embedding of free-variables tableaux in Rocq that comes with a fully certified fast proof checker.

Goéland Maintainer of the first-order tableau-based automated theorem prover Goéland. Author of many functionalities: efficient unification using code trees (compiled discrimination trees), deduction modulo theory, typed proof-search and certified outputs. Maintaining jobs: code reviews, management of the GitHub architecture (automated testing and benchs), bug fixes, release manager.

Rocq Contributor to the proof assistant Rocq. Add kernel definitions and parsing and interpretation of elimination constraints for bounded sort polymorphism.

Rocq-Interface Creator of the Rocq plugin Rocq-Interface which provides robust programming interfaces for Rocq code.

sd-mode.el Creator of the emacs mode sd-mode.el that integrates a string-diagram visualization tool to Rocq scripts.

dmanager Creator of the document manager dmanager, which enables one to store documents in a structured manner with automated syncing via git.

postt Contributor to the cartesian cubical type theory postt, where I have programmed most of the library.

Scientific Activities

Sub-reviewer Dec. 2025
Reviewer of an article for the **JFLA 2026** conference.

Volonteer Student June 2022
Volonteer student to organize the **ICGT 2022** conference.

Research Internships

A Coherent Syntax for Intrinsic Type Theories Apr. 2026 — Jul. 2026

Budapest Type Theory Group, Eötvös Loránd University, Budapest (Hungary)

Second internship of a year-long research stays, under the supervision of Ambrus Kaposi.

Two-Sortification of Generalized Algebraic Theories Sept. 2025 — Mar. 2026

École Polytechnique, LIX, Inria, Palaiseau (France)

First internship of a year-long research stays, under the supervision of Ambroise Lafont.

Theory and Metatheory of Elimination Feb. 2025 — Jul. 2025

Gallinette Project Team, LS2N, Nantes Univ., Inria, Nantes (France)

M2 internship, under the supervision of Matthieu Sozeau and Théo Winterhalter.

Analysis of Proof Terms in a Cartesian Cubical Type Theory May 2024 — Jul. 2024

Technical University Chalmers, Gothenburg (Sweden)

M1 internship, under the supervision of Thierry Coquand.

Skolemization in First-Order Logic June 2023 — Jul. 2023

MaReL team, LIRMM, Univ. Montpellier, Montpellier (France)

Pre-master internship, under the supervision of Julie Cailler, David Delahaye, Olivier Hermant and Simon Robillard.

Convex Hull in Interval Graphs Jun 2022 — Jul. 2022

AlGCo team, LIRMM, Univ. Montpellier, Montpellier (France)

3rd year of bachelor internship, under the supervision of Stéphane Bessy.

Code Trees for Efficient Unification May 2021 — June 2021

MaReL team, LIRMM, Univ. Montpellier, Montpellier (France)

2nd year of bachelor internship, under the supervision of Julie Cailler, David Delahaye and Hinde Lilia Bouziane.

Skills

Programming	OCaml, Haskell, (e)Lisp, Go, Python, C/C++, LaTeX
Proof Assistants	Rocq, Agda
Softwares	Git, Shell/Bash, Nix, Fish, GitHub Actions
Languages	French (native), English (CEFR C1—Cambridge Advanced English grade B)

Last updated: May 28, 2026