Damien LEJOSNE

ENS Rennes - Computer Science

About me

I am currently a student in the third year of the diploma of École Normale Supérieure (ENS) Rennes, 2nd year master MPRI.

My main field of interest are Verification and Formal Methods, Cyber Physical System and Dynamic Systems. As a hobby, I also like Computer Graphics.

Contact

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Personal Website

newos20

Damien Lejosne

Diplomas and certificates

TOEIC English Certificate (2026)

- B2+ level

BAFA

- First part done, expected termination date : 2027

Contests

SWERC 2024

- 72th/171

TFJM 2022

- 3rd

Prologin 2022

Skills

- Programming : **C**, **C++**, **Rust**, **OCaml**, Haskell, **Python**, HTML/CSS, **Lua**, **Lean**, Rocq, Modelica
- Software tools : **Git**, **Linux shell**
- API : OpenGL, WGPU, Love2D, numpy, matplotlib, TCP/UDP
- Utility : XCas, Sympy
- Office : Latex, Typst, Markdown

STUDIES

Today – 2026 — **Université Paris Cité - Paris**

- 2nd year of Master MPRI (“Master Parisien de Recherche Informatique”)

2026 – 2025 — **École Normale Supérieure de Rennes (ENS Rennes) - Bruz**

- 1st year of Master SIF (“Science Informatique”)
- 3rd year of License, Mathematics (“Mathématiques Fondamentales”) *high honnors*

2025 – 2024 — **École Normale Supérieure de Rennes (ENS Rennes) - Bruz**

- 3rd year of License SIF (“Science Informatique”) *high honnors*

2024 – 2022 — **Lycée Aux Lazaristes - Lyon**

- CPGE MP2I-MPI* (equivalent to licenses 1 and 2 of Mathematics, Computer Science and Physics). Admitted to ENS Rennes as “fonctionnaire stagiaire”.

2022 – 2019 — **Lycée Saint Ambroise - Chambéry**

- 9th grade up to 12th grade / Year 10 up to Year 13 (*baccalaureat with highest honnors*)

PROFESSIONAL EXPERIENCES

07/2026 – 05/2026 — **M1 research internship, team CVG, Fraunhofer HHI - 10587 Berlin**

Internship supervised by Wieland Morgenstern

Compact 3D Scene Modeling and 3D Gaussian Splatting Compression.

I integrated a post-processing tool in the pipeline we were using, and tried to tackle the problem of best view selection using gradient descent on custom losses.

05/2026 – 09/2025 — **M1 research internship, team HYCOMES, INRIA - 35000 Rennes**

Research project (one day a week), continuating my L3 internship.

07/2025 – 05/2025 — **L3 research internship, team HYCOMES, INRIA - 35000 Rennes**

Internship supervised by Khalil GHORBAL and Benoit CAILLAUD

Formal verification of a power system.

I found differential invariant for a simple power grid model, and then proved in Lean that the system was secure. I also modelised the system using Zelus and then OpenModelica.

MY MAIN CODING PROJECTS

Formal methods

- **Herbrand Solver** - *OCaml*
  - Project carried out at ENS Rennes as a support for a presentation about Herbrand theorem.
  - The code determine if first order logic formula are invalid using Herbrand theorem (of course it can loop ad eternam).
- **PROLOG Inferator** - *OCaml*
  - Project carried out as part of a 3-day practical course at ENS, in groups of three.
  - The code infers PROLOG rule sets and then determines the truth of a predicate or assigns the free variables left to make it true.
- **Rocq Abstract Interpretation** - *Rocq*
  - Formalisation of the abstract interpretation course at MPRI, in Rocq.
  - It provides formalisation of order theory and notably gallois connections, trace semantics, and their application to verify various properties of a toy imperative language.

Hobbies

- Sports : badminton, running, ski, walk
- Sailplane
- Astronomy
- Reading : Mostly science fiction and fantasy
- Instrument : Trumpet (orchestre & fanfare at ENS Rennes)

Misc

- Driver license (permis B)
- Sailplane pilot license

Computer Graphics

- **Software path tracer** - *C*
  - Project carried out in parallel with my MP2I then completed in MPI*.
  - Displays spheres using various shading techniques, with raytracing. Refractions, reflections, shadow, caustics.
- **GLDEMO** - *C++*
  - A library and demo made for a 64k demo contest, the API8 contest.
- **SNAKE3D** - *C++* :
  - A small video game where you control a moto. Lot of fancy effects, on 64Ko. Made in C++ & OpenGL.

Misc

- **wificommand** - *C*
  - A code to control a sailplane using wifi, with an esp8266 and a phone / computer.

There are some over projects I made on my Github and my Codeberg.