Ulysse Durand

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Education

Ecole Centrale Lyon, General Engineering & Software Development — Ecully
Double Masters Degree with ENS Lyon — 2024 – 2026

Ecole Normale Supérieure de Lyon, Computer Science — Lyon
Double Masters Degree with Centrale Lyon — 2023 – 2026

Ecole Normale Supérieure de Lyon, Fundamental Computer Science — Lyon
Bachelor Degree — 2022 – 2023

CPGE Blaise Pascal, Mathematics, Physics, Computer Science, Engineering — Clermont-Ferrand, France
Preparatory Classes (French CPGE), MPSI, MP* — 2019 – 2022

Lycée Niepce, Science — Chalon-sur-Saône, France
French Baccalaureate — 2019

Experience

Kitware EU, Software Development Intern, Developper — Villeurbanne
Internship at Kitware, software development around the trame framework for Scientific and Medical visualization — Mar 2026 – Aug 2026 — 6 months

Mahindra University, Research Intern — Hyderabad, India
Research on EEG-conditioned Image generation models, running experiments, proposing a new metric, leading to a paper submission — Apr 2025 – July 2025 — 4 months

AdaCore, Engineering/Research Intern — Toulouse, France
Formal proofs on the post quantum cryptographic algorithm ML-KEM using Ada/SPARK — Apr 2024 – July 2024 — 4 months

Logic, Semantics and Categories team (LIS & I2M), Research Intern — Marseille, France
Formalizing and proving game semantics in Rocq — May 2023 – July 2023 — 3 months

Projects

Mesh manipulation coursework — 2026
Coursework on computer geometry, implementing mesh traversal, Laplace-Beltrami operator, and Delaunay triangulation

Ray tracing coursework — 2026
Coursework on Ray Tracing techniques, implementing BRDF, Monte-Carlo estimators, Bounding Volume Hierarchy

Visual Autoregressive Model with WGAN Image generation — Nov 2025
In a group of 2, reproduce the VAR model and try to enhance it using the Wasserstein distance

Music Reacting LED Garland — Oct 2025
Embedded system, music reacting garland with a Teensy4.0 for Music Information Retrieval and ESP32 for WiFi interface and LED control

CAD Software for virtual reality with Unity Oct 2024 – Apr 2025
Technical Project Manager in a 7-person team, with ASSYSTEM as client, done with Unity/C#, agile management

Hiking trip planification assistant with Python/JS Oct 2024 – Apr 2025
Technical Project Manager in a 5-person team, using LidarHD data to automaticaly map hiking routes off-trail

OCaml interpreter coded in OCaml 2023
Coursework, uses Lex and Yacc

MiniC (subset of C) compiler to RISCV 2023
Written in Python, uses ANTLR4 for lexical analysis and parsing and implements three-address code generation, liveness analysis, CFG, SSA, Smart Register Allocation, Conditional Constant Propagation

Automatic proof in formal grammars 2021 – 2022
Attempt at deciding membership problem for CFGs, reasoning on number of symbols in words. Implementation in OCaml

Naive parsing and evaluation in OCaml 2020 – 2021
Naïve attempt at building an OCaml parser and walker for math expressions with a new type of automaton (writer with memory). Also includes math expression differentiation, evaluation and simplification

3D Scanner from cast shadows under multiple angles 2019
Reconstructs a 3D mesh of an object from its shadows under different angles. One implementation is in C++ and uses the Marching Cubes algorithm, the other one is in Python and computes shapes intersection

Skills

Advanced expertise: Rocq, Ada/SPARK, OCaml, Python

Normal expertise: C++, Cuda, PyTorch, Docker, Git, GitLab-CI, Unity/C#, C, Haskell, Rust, Web Development, Java

Languages: English (Cambridge C1 Advanced), French(native), Spanish (B2)

Extracurricular Activities

- Competitive Programming, Prologin finalist in 2022
- Organizer of week long hike tours for 10 to 20 persons every summer (2020-2023)