

Benjamin Loison

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Background

2020–2021 **L3, IT department, Ecole Normale Supérieure.**

2019–2020 CPGE MP*, computer science option, lycée Fénélon (Paris 6^e).

2018–2019 CPGE MPSI, lycée Fénélon (Paris 6^e).

Personal initiative work supervised about the topic "ocean": an approach to counting and recognizing fish on an image with neural networks (Python, OpenCV, C++, GPU programming). Use of "machine learning" mathematical theory in English on [Coursera](#).

2017–2018 Baccalauréat série S, specialty Mathematics, with merit (English, German).

2015–2016 Seconde générale, *computer science and digital science option* mainly using Python and HTML5/CSS3.

Outside interests

November 2020 [BattleDev - 218th/4624](#), 552th/4000 (november 2018) and 479^{ème}/2000 (november 2016).

2020–2021 Member of the algorithmic club of the ENS Paris-Saclay.

August 2019 One week at the summer school of [MathInFoLy](#) with the use of the proof assistant Coq and [Picross resolution](#) using a SAT solver (Lyon).

July 2017 Two weeks at Wolfram's summer school with the use of [Mathematica](#) (Oxford).

April 2017 Première academic mathematics summer school (Versailles).

March 2017 Première academic mathematics olympiads (Versailles).

2016 Semi-finale France-IOI Algoréa: 10th/2701, seconde level.

Main achievements

- My video game [LemnosLife](#) (more than 50 KLOC of C++) cross-platform coded (using OpenGL, SDL, OpenAL, Cereal and NanoSVG):
 - Research and selection of the most relevant algorithms to solve complex problems ([random generation of points in a concave](#), calculation of the volume of a 3D structure from its cloud of points...).
 - Management of physics and [mathematical models](#) for collisions, fighter aircraft, [guns](#), air friction, [vehicles](#), [gravity](#) and [graphic selection](#).
 - [Management](#) and [display](#) of topographic data from 500 km² of the Greek island Lemnos.
 - [YouTube channel](#): LemnosLife development videos.
- Minecraft extensions: [AltisCraft.fr](#) (more than 30 KLOC of Java and more than 85 000 players), many [mods](#) and [plugins](#).
- Fractals:
 - [Koch snowflake](#) with explanation of the approach with [3 episodes on YouTube](#) (Casio/TI BASIC and Python)
 - [Mandelbrot set](#) (Casio/TI BASIC and Python)
 - [Sierpinski triangle](#) (Python)
- Cellular automata:
 - [Conway's game of life](#) (Casio/TI BASIC, Python and C++)
 - [Langton's ant](#) (Python and C++)
- Cryptography experiments with the algorithm [RSA](#) and the hashing algorithm [Bcrypt](#).
- [Website for my personal supervised work](#) about time, coded by hand.

Computer skills

★★★ C++, Java, Python, OCaml, [Wolfram](#) (Mathematica), PHP, SQL, HTML5, JavaScript, \LaTeX and Assembly

★★★ Bash, Batch, Gallina ([Coq](#)), CSS3, Ruby, Objective-C, R, UML, Perl and OpenCL

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👤 [Benjamin-Loison](#)
Born September 23, 2000
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