

Émile Trotignon

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Born July 30th, 1999

As a master's student in Computer Science at ENS Paris-Saclay, I am very interested in OCaml, programming languages and compilation.

Formation

- 2020 – 2022 **Master's degree in Computer Science Research (MPRI)**, *École Normale Supérieure Paris-Saclay*.
- 2019 – 2020 **Computer Science BS**, *École Normale Supérieure Paris-Saclay*.
- 2018 – 2019 **Second year of Computer Science and Mathematics BS**, *Université Lyon 1 Claude-Bernard*.
- 2017 – 2018 **First year of engineering BS**, *Jean-Perrin preparatory school*.
- 2016 – 2017 **High school diploma with science focus**, *Lycée La Trinité*.

Experience

- Spring 2021 **Research internship in computer science**, *Inria Paris, team Cambium*, Paris, France.
Five month internship tutored by François Pottier. Improvements the code generated by Menhir, the LR(1) parser generator for OCaml : Typing with GADTs for increased safety, allowing bolder optimisations. The number of allocations was divided by 4, and the speed increased by 10%, across various grammars.
- Summer 2020 **Research internship in computational geometry**, *LIRIS laboratory*, Lyon, France.
Six weeks internship tutored by David Coeurjolly and Vincent Nivolières. My goal during this internship was to uniformly sample the surface of a potentially imperfect mesh. During the six weeks, I spent a good portion of my time programming in C++ and I used tools such as Polyscope and LIBIGL. My internship report is available here : <https://emiletrotignon.github.io/files/rapport.pdf>
- Marsh 2020 **Fullstack Node.js developer**, *Junior entreprise of ENS Paris-Saclay*.
During a six week mission for the junior entreprise of ENS Paris-Saclay, I contributed to the website development of Expert People, a new freelancing platform. The technologies used were Node.js and Express.js. One of my achievements was programming a way of filling out the resume form of a user in one click by using their downloadable Linkedin resume in PDF format. Expert People's website (in french) : <https://expertpeople.co/>
- January 2020 **ICPC SWERC 2019-2020**, *Télécom Paris*.
University programming/algorithms competition. Participation in teams of three students. Ranked 37th of 95 teams representing universities from multiple european countries.
- Summer 2019 **Intern C# developer**, *Eternix Ltd.*, Tel Aviv, Israel.
Two month internship. HLSL shaders, introduction to DirectX and OpenCV, Windows Form development. Greatly rewarding experience abroad.
- July 2018 **Front end developer**, *École Nationale Supérieure des Sciences de l'Information et des Bibliothèques*, Lyon, France.
For a month, I contributed to the graphical integration of the new website for ENSSIB, the French school for library curators. You can see their website here : <http://www.enssib.fr/>

Languages

English Fluent
French Native

Technical skills

Compilation

I am very interested by compilation. In my first semester of M1, I followed a course on compilation at the University of Paris. The goal of the course was to implement an ML-like programming language. The description of the course is available here (in french) : <https://www.irif.fr/~guatto/teaching/20-21/compil/syllabus-compil-20-21.pdf>. And my code here : <https://github.com/EmileTrotignon/cours-compilation-p7>. I have also programmed a compiler for a subset of the C language in 2019 : <https://github.com/EmileTrotignon/mcc>

Fundamental Computer Science

I have studied different aspect of fundamental Computer Science : Programming languages semantics, formal languages, calculability, logic. This enhances my understanding of computer science in general, in addition to the particular skills acquired.

Functionnal programming

I really enjoy functional programming languages, as well as advanced type systems. I have been programming in OCaml since my first year of university, and I am very passionate about this language. I have some experience with Scala and Rust, and I had a lot of fun exploring advanced C++ features. I also published a package on Opam, the Ocaml package manager : https://github.com/EmileTrotignon/ocaml_template_engine. It includes a PPX rewriter, and a small parser written with Menhir.

GUIs

I have experience with a few frameworks for programming GUIs : Qt and Dear ImGui with C++, WinForm with C#, Swing with Scala, Tkinter with Python.

Web development

Front-end : Good knowledge of HTML and CSS. One month experience during the summer of 2018.

Back-end : Professional experience developing a Node.js web app.

Miscellaneous

Use of a Unix system with the command line : file manipulation, Git, SSH. Image editing with GIMP. Typesetting with Latex.