Edern Gillot

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Education

Université Paris-Saclay *Paris, France*

Master 2 in Applied Algebra *Sept 2023 - Sept 2024*

- Top of the class
- **Courses:** Effective Algebra, Algebraic Curves, Algorithms and C, Advanced Algorithms and Cryptography, Elliptic Curves, Algebraic Complexity and Cryptography.

Imperial College London *London, UK*

MSci in Mathematics *Sept 2019 - June 2023*

- First-class distinction obtained every year.
- **Courses:** Elliptic Curves, Algebraic Geometry, Commutative Algebra, Homological Algebra, Mathematical Logic, Geometry of Curves and Surfaces, Number Theory, Algebraic Number Theory, Galois Theory, Graph Theory, Group Representation Theory, Group and Ring Theory.

Ecole Jeannine Manuel *Paris, France*

High School *Sept 2016 - June 2019*

- International Baccalaureate, specialised in Mathematics, Physics, and Chemistry.
- Extended Essay in Mathematics: "On the Cardinality of Infinity".
- Passed with 41 out of 42 points, including perfect score in Mathematics, Physics, and Chemistry.

Work Experience

LIP6 (CNRS - Sorbonne Université) *Paris, France*

PhD in Computer Science *Nov 2024 - Now*

- On designing and implementing fast algorithms for solving systems of polynomial constraints over the reals.
- Under the supervision of Sorbonne Université Professors Jérémy Berthomieu and Mohab Safey El Din.

LIP6 (CNRS - Sorbonne Université) *Paris, France*

Research Internship *March 2024 - Sept 2024*

- On finding points per connected component of real semi-algebraic sets defined by a single polynomial inequality. Developed an algorithm improving the state-of-the-art complexity for solving this problem, and implemented this algorithm to practically solve previously unreachable examples.
- Under the supervision of Sorbonne Université Professors Jérémy Berthomieu and Mohab Safey El Din.
- **Involved Skills:** Research skills, Presentation & Communication skills, SageMath, LaTeX, git.

L18A *Paris, France*

Internship *July 2022 - Sept 2022*

- Learned statistical tools used for mathematical finance (RSI, Bollinger bands, …) to analyse real-life data from stock market.
- Constructed an MLP neural network for the prediction of future trends of said data, and tested the network on recent data, with an average accuracy of 60%, and a peak accuracy of 90%.
- **Involved Skills:** Python with NumPy, Matplotlib, Pandas, Tensorflow.

TotalEnergies *Paris, France*

Internship *August 2021*

- Management and update of the company's IT service - Contracts section.
- **Involved Skills:** Excel, Powerpoint, Presentation & Communication skills.

University Projects

Fourth Year (Master) Project — The Local Kronecker–Weber Theorem *London, UK*

Imperial College London *Sept 2022 - June 2023*

- A year-long project consisting of a 50 pages report on Algebraic Number Theory, more specifically on proving the local version of the Kronecker–Weber theorem from mathematical results obtained in Third and Fourth year courses, and a presentation of said report. Uses Galois Theory, Algebraic Number Theory, Commutative Algebra, p-adic theory and Group Theory.
- Under the supervision of Imperial College Professor Alexei Skorobogatov.
- **Involved Skills:** LaTeX, Research skills, Report writing, Presentation skills.

Second Year Group Project — Riemann Surfaces and the Hyperbolic Metric *London, UK*

Imperial College London *May 2021 - June 2021*

- A term-long project in a group of 4, consisting of a 25 pages report on Riemann Surfaces and the Hyperbolic Metric, and a presentation of said report. Uses notions from Analysis, Topology and Group Theory.
- **Involved Skills:** LaTeX, Overleaf, Research skills, Report writing, Presentation skills, Teamwork.

First Year Project — Prime Numbers of the Form $x^2 + ny^2$ *London, UK*

Imperial College London *May 2020 - June 2020*

- A term-long project consisting of a poster on prime numbers of the form $x^2 + ny^2$, Fermat descent and quadratic reciprocity.
- **Involved Skills:** LaTeX, Overleaf, Research skills, Presentation skills.

Skills

Computer Python (Pandas, Tensorflow, NumPy, etc.), C (beginner), git, LaTeX, Excel, Powerpoint, Word.

Languages **French** (native), **English** (fluent), **Italian** (intermediate), **Spanish** (beginner)

Achievements

2018 **Selected,** French Mathematics Olympiads Preparation (32^{nd} place) *France*

2017 **Level 2,** European Bank Generation €uro Student's award *France*

Interests & Activities

Chess 1400 elo (rapid) FIDE.

E-sports Treasurer of the Imperial College Gaming and Esports society (2021-2023), 2^{nd} place in the National University Esports League.

Tutoring Tutoring final year pre-university students in mathematics.

Badminton Leisure sports activity.