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AHMANE Amar

"The mathematician's patterns, like the painter's or the poet's must be beautiful; the ideas like the colours or the words, must fit together in a harmonious way. Beauty is the first test: there is no permanent place in the world for ugly mathematics." — G. H. Hardy

Education

2024 – Today **M1 Hadamard**, *École Normale Supérieure Paris-Saclay*, Gif-sur-Yvette, France

Master of Science 1 in Mathematics. Courses are taught at **ENS Paris-Saclay**, **Orsay's Mathematical Institute** and **l'École Polytechnique (X)**.

- Courses followed : Real and Functional Analysis (ENS); Algebra and Galois Theory (Orsay); Advanced Probability Theory (Orsay); Algebraic Topology (X); Geometry (Orsay); Compact & Lie Groups (X); Mathematics for Image Processing (ENS).

2023 – 2024 **Magistère of Mathematics**, *École Normale Supérieure de Rennes*, Rennes, France

Result : Success at the entrance exam of the ENS Paris-Saclay (Rank 9).

- Courses followed : General Topology; Linear Algebra; Complex Analysis; Differential Calculus; General Group Theory; Measure Theory; Probability Theory; ODEs, Rings & Arithmetics; Formal languages and computability.

Secondary and post-secondary

2021 – 2023 **MP2I/MPI***, *Lycée Paul Valéry*, Paris 12e

Two years in a special higher education class that prepares for competitive entrance exams to french Grandes Écoles. "MPI" stands for "Mathematics, Physics and Computer Science". As a result of these two years, I was accepted in a highely selective Grande École : l'École Normale Supérieure de Rennes.

2019 – 2020 **Terminale S, spécialité Mathématiques**, *CNED*, 17,77/20

CNED is a french public institution that provides distance learning material. I completed my last year of high school working from home, succeeded at the french baccalauréat exam and applied to continue my studies in France.

Work experience and internships

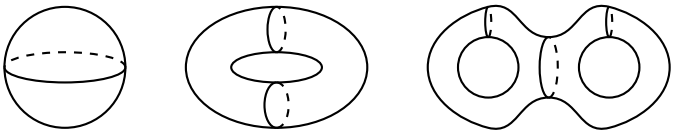
Research experience

Updated December 7, 2024

May 2024 — July 2024 **Research internship**, *Laboratoire de Mathématiques d'Orsay*, Orsay, France

Students of the Magistère de mathématiques de Rennes have to spend at least six weeks in a research internship at the end of the first year. Mine took place at the Laboratoire de Mathémaitques d'Orsay and was supervised by Anne Vaugon.
You can access my report here (there's only a french version for now).
During this internship, I worked on :

- Basics of Morse Theory;
- A proof of the classification of compact, connected, orientable and boundless surfaces.



$T_0 = \mathbb{S}^2$ $T_1 = \mathbb{S}^2$ $T_2 = \mathbb{T}^2 \# \mathbb{T}^2$

Work experience

2024 – Today **Mathematics examiner (Khôlleur MPI/MPI*)**, *Lycée Paul Valéry*, Paris 12e

I select exercices and grade CPGE students in weekly mathematics oral exams of 1 hour duration.

Since 2022 **Private lessons in Mathematics**, *Independant*

Computer Skills

Programming Java, OCaml, C, Python, Javascript.

Tools LaTeX, git, UNIX systems.

Languages

French Fluent

English C1

Arabic Fluent

Interests

Academic Probability Theory, Functional Analysis, Optimization, Formal Languages, Mathematics for Data Science

Other Video games (Minecraft, Strategy games, construction and management simulation), Tarot, 3D art...

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