

Research

I am currently working on the following projects:

- **Progressive Gradient Descent in Sparse Identification of Non-Linear Dynamics for Hamiltonian Learning**, work in progress.
 - **Symplectic Neural Operators for PDEs**, work in progress.
 - **Quantitative h-principle for isosymplectic embeddings and consequences on symplectic model reduction**, work in progress.
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Education

- since 2023 PhD student** at Institut de Recherche Mathématique Avancée, Université de Strasbourg
subject: *Geometric methods for waves problems*
supervisors: Emmanuel Franck, Emmanuel Opshtein and Laurent Navoret
- 2023 Master in applied mathematics**, Université de Strasbourg
Calcul Scientifique et Mathématiques de l'Information mention magistère de mathématiques
- 2021-23 Training programm (DU)** about interdisciplinarity in sciences, Université de Strasbourg
Mathematics and Applications, Research and Interaction
- 2021 Bachelor in mathematics**, Université de Strasbourg
- 2020 Bachelor in geography**, Université de Strasbourg
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Past projects and dissertations

- 2023 Non-linear reduced models for Hamiltonian systems** (master dissertation)
supervisors: Emmanuel Franck, Laurent Navoret and Emmanuel Opshtein
- 2023 Structure preserving methods on staggered grids** (master project)
supervisors: Emmanuel Franck, Laurent Navoret and Emmanuel Opshtein
- 2022 Reduced order models for partial differential equations using geometric dimensionality reduction methods** (master internship)
supervisors: Emmanuel Franck, Laurent Navoret and Emmanuel Opshtein
- 2022 Discrete differential geometry and dimensionality reduction** (master project)
supervisors: Emmanuel Franck, Laurent Navoret and Emmanuel Opshtein
- 2021 Cartan-Hadamard theorem for surfaces in dimension three** (bachelor dissertation)
supervisors: Emmanuel Opshtein
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Teaching

I have been teaching 64 hours per semester since I started my PhD.

- S. 2026 Géométrie axiomatique**, Université de Strasbourg
Construction of Euclidean geometry from Hilbert axioms for first year bachelor students (lessons in small classes and exercise sessions).

- F. 2025 Informatique S3, Université de Strasbourg
Programmation in Python for second year bachelor students (exercise sessions).
 - F. 2025 Techniques d'Analyse Numérique, Université de Strasbourg
Numerical analysis for third year bachelor students (exercise sessions).
 - F. 2024 Informatique S5, Université de Strasbourg
Introduction to programming in C++ and algorithmic for third year bachelor students (exercise sessions).
 - S. 2024/25 Mathématiques pour la biologie, Université de Strasbourg
Calculus for first year bachelor students in biology (exercise sessions).
 - F. 2023 Mathématiques pour la science, Université de Strasbourg
Calculus and analysis for first year bachelor students in physical sciences (lessons in small classes and exercise sessions).
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Conferences and seminars

- July 2026 Eccomas Conference (talk), München
to be coming
 - Sept 2025 Enumath Conference (talk), Heidelberg
Learning Hamiltonian functions of PDEs via SINDy method.
 - July 2025 Matheors Days (talk), Sainte-Marie-aux-Mines
A very brief introduction to h -principle.
 - June 2025 SMAI Congress (talk), Sainte-Marie-aux-Mines
Learning Hamiltonian functions.
 - March 2025 EMS SciML meeting (poster), Milano
Learning Hamiltonian functions.
 - Jan 2025 IRMA PhD seminar (talk), Strasbourg
Introduction to Nambu structures.
 - July 2024 SciML workshop (poster), Strasbourg
Learning Hamiltonian functions of ODEs and PDEs.
 - June 2024 Summer school on h -principle, Madrid
 - Feb 2024 IRMA PhD seminar (talk), Strasbourg
Two examples of non-linear data reduction methods: Isomap and Eigenmap.
 - Nov 2023 NumKin workshop, Garching
 - Sept 2023 Summer school Geometry and Data, Strasbourg
 - Sept 2022 Summer school Deep Learning and Applications, Strasbourg
 - Jan 2022 Master class EDP, Optimisation et Données, Strasbourg
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Outreach

- April 2025 co-organisation of **Rendez-vous des jeunes mathématiciennes et informaticiennes**, Université de Strasbourg
responsible for legal matters related to GDPR and reception of minors
- April 2024 co-organisation and co-supervision of **Rendez-vous des jeunes mathématiciennes et informaticiennes**, Université de Strasbourg

March 2024 Outreach presentation for secondary school students, Lycée Jean-Jacques Henner, Altkirch
Aperçus de thèses en mathématiques. ("A glimpse of PhD in mathematics")

Miscellaneous

- Between December 2023 and December 2025, I served as **IRMA's representative on the management committee of IRMIA++ Young Researcher Budget**.
During this period, I co-organised the **IRMIA++ Young Researcher Cohesion Day** in April 2024 with Yassin Khalil and Thibaut Eloy and I helped organise external speakers in IRMA PhD seminar.
 - In October 2024, I won a first prize at the poster session of École Doctorale MSII of Université de Strasbourg.
 - In May 2024, I participated to an AMIES **Semaine d'Étude Maths-Entreprises** at Université Savoie Mont-Blanc.
I was a member of the team working on the subject *Optimisation du système hydraulique des Wateringues* ("Optimisation of the Wateringues's hydraulic system") under the supervision of Antoine Vollant from SETEC-Hydratec.
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Skills

Programmation: Python (Tensorflow, Jax), C++

Languages: French (native language), English (fluent), German (rudiments)
