Mattéo Clémot, Ph.D. student

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Education

2023 – 2026	**Ph.D. candidate, Université Lyon 1** Thesis title: *Dimension reduction under topological constraints.* Supervised by Julien Tierny (LIP6, Sorbonne Université) & Julie Digne (LIRIS, Lyon 1).
2019 – 2023	**M.Sc. in fundamental computer science, École Normale Supérieure de Lyon**
2018 – 2019	**Engineering school, École Nationale des Ponts et Chaussées**
2016 – 2018	**Preparatory classes, Lycée Condorcet**, Paris Two-year undergraduate intensive course in mathematics and physics, with computer science option.

Research internships

Feb.–Apr. 2023	**The University of Edinburgh**, School of Informatics, Institute of Perception, Action and Behaviour *Vector-field design on implicit surfaces.* Supervised by Amir Vaxman.
Oct.–Dec. 2022	**LIP**, Team Ockham, Lyon *Solving ill-posed inverse problems involving partial differential equations with neural networks.* Supervised by Elisa Riccietti & Stefania Bellavia.
Feb.–July 2022	**LIRIS**, Team Origami, Lyon *Learning the topology of shapes given by point clouds.* Supervised by Julie Digne.
Apr.–July 2021	**GIPSA-lab**, Team GAIA, Grenoble *Surface reconstruction with Delaunay complexes.* Supervised by Dominique Attali.
June–July 2020	**INRIA Saclay / École polytechnique**, Team Tropical *Links between tropical linear programming, mean payoff games and parity games.* Supervised by Stéphane Gaubert & Xavier Allamigeon.

Publications

1. **M. Clémot**, J. Digne, and J. Tierny, *Topological Autoencoders++: Fast and accurate cycle-aware dimensionality reduction*, preprint, 2025. arXiv: 2502.20215 [cs.CG].

2. D. Attali, **M. Clémot**, B. B. Dornelas, and A. Lieutier, *When alpha-complexes collapse onto codimension-1 submanifolds*, accepted at SOCG 2025, 2024. arXiv: 2411.10388 [cs.CG].

3. **M. Clémot** and J. Digne, "Neural skeleton: Implicit neural representation away from the surface," *Computers & Graphics*, 2023, (SMI best paper award). 🔗 DOI: 10.1016/j.cag.2023.06.012.

Technical skills

Languages	C++, Python, OCaml, GLSL
Libraries	Deep Learning (PyTorch & LibTorch), Geometry/Topology (TTK, CGAL, Gudhi), Python bindings (nanobind)...
Misc. tools	Git, CMake, SQL, LaTeX...
Experience	Contributor to the Topology ToolKit (TTK) open-source library.

Teaching experience

2023 – 2026   **Courses and tutorials**, ISFA (Institut de Science Financière et d'Assurances), Lyon.
- L3 Actuarial science – C++ (course and tutorial)
- M1 Actuarial science – Databases & Microsoft Access (course and tutorial)
- M1 Econometrics & statistics – Probability (tutorial)

2020 – 2023   **Mathematics examiner in preparatory classes**, Lycée La Martinière Monplaisir, Lyon
Weekly oral exams (called *Colles*) in mathematics in first year of scientific preparatory classes (*Classes Préparatoires aux Grandes Écoles*: two-year undergraduate intensive course in mathematics and physics).

2019 – 2020   **Volunteer private tutoring**, ENSeigner, Lyon
Volunteer private tutoring in mathematics and physics.

2018 – 2019   **Private mathematics tutoring**, MyMentor, Paris
Private tutoring in mathematics.

Miscellaneous

Language certification

English   **C1 Advanced** (Cambridge English Advanced), obtained in 2022.

Interests

Sports   Climbing, hiking, trail running...

Music   Drums and guitar player

Misc.   Contributor to the french Wikipedia