Elodie Maignant

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Current position

Jan 2024 – present — **Postdoctoral position**, *Zuse Institute Berlin, Germany.*
"Geometric learning for Single-Cell RNA velocity modelling". PI: Christoph von Tycowicz.

Education

Oct 2020 – Dec 2023 — **PhD in Applied Mathematics**, *Université Côte d'Azur, France.*
"Barycentric embeddings for geometric manifold learning". Under the supervision of Xavier Pennec and Alain Trouvé.

Sep 2019 – Sep 2020 — **Master's degree in Applied Mathematics**, *ENS Paris-Saclay, France.*
Mathematics, Vision, Learning (MVA)

Sep 2016 – Sep 2020 — **Master's degree – Mathematics**, *ENS Paris-Saclay, France.*
2019 Master's degree in Higher Education in Mathematics with specialisation in Effective Algebra. Successful candidate to the Agrégation de Mathématiques (rank 66/308).
2017 Bachelor's degree in Mathematics.

Sep 2014 – Jul 2016 — **Classe préparatoire en Mathématiques et Physique**, *Lycée Saint Louis, Paris.*
Intensive two-year study course in Mathematics and Physics preparing for the competitive entrance examinations to the French "Grandes Écoles".

Research experience

Apr 2020 – Sep 2020 — **Master's research internship**, *ENS Paris-Saclay, France.*
"Data embedding and symmetric spaces with applications to molecular dynamics". Under the supervision of Alain Trouvé.

Apr 2018 - Jul 2018 — **Visiting Student**, *Albert-Ludwigs-Universität Freiburg, Germany.*
"Statistical analysis of geometric shapes with applications to anthropology". Visiting JProf. Philipp Harms.

Jan 2017 - Jun 2017 — **Bachelor's research internship**, *ENS Paris-Saclay, France.*
"Learning stochastic systems in high dimension". Under the supervision of Alain Trouvé.

Talks and conferences

Jan 2024 — **Workshop on small data analysis – Invited talk**, *Zuse Institute Berlin.*
"Barycentric subspace analysis of a set of graphs."

Dec 2023 — **Seminar on shape analysis – Oral presentation**, *Sorbonne Université.*
"Intrinsic methods for manifold-valued data."

Nov 2023 — **RT MIA Workshop on dimension reduction – Oral presentation**, *Lyon, France.*
"Barycentric subspace analysis of sets of graphs."

Aug 2023 — **GSI'23 – Oral presentation**, *Saint-Malo, France.*
"Riemannian locally linear embedding with application to Kendall shape spaces"

Aug 2023 — **GSI'23 – Oral presentation**, *Saint-Malo, France.*
"Towards quotient barycentric subspaces."

Aug 2023 — **Statistical Learning Theory Lab Seminar – Invited talk**, *Seoul National University.*
"Barycentric geometry on manifolds and application to non-Euclidean dimensionality reduction."

Jul 2023	**Workshop on shape analysis – Oral presentation**, *Tende, France.*
	"Geodesics of orbit spaces, affine mappings of simple manifolds and some related questions in barycentric geometry."
Sep 2022	**GESDA Introductory School – Poster presentation**, *Cargese, France.*
	"Looking for invariance in Locally Linear Embedding."
Jun 2022	**Curves and Surfaces 2022 – Poster presentation**, *Arcachon, France.*
	"Looking for invariance in Locally Linear Embedding."
Jan 2022	**GTTI (Working Group on Image Processing) – Invited talk**, *ENS Paris-Saclay.*
	"Introducing a generalisation of Locally Linear Embedding to manifold-valued data."
Nov 2021	**PhD Seminar in Analysis – Invited talk**, *Université Paris-Saclay.*
	"A generalisation of Locally Linear Embedding to manifold-valued data."
Oct 2021	**CJC-MA 2021 – Oral presentation**, *École Polytechnique.*
	"A generalisation of Locally Linear Embedding to manifold-valued data."
Aug 2021	**GTDAML 2021 – Oral presentation**, *Online*
	"Visualisation of Kendall shape spaces with Geomstats."
Jul 2021	**GSI'21 – Oral presentation**, *Paris, France.*
	"Parallel transport on Kendall shape spaces."

Publications

2023	**"Riemannian locally linear embedding with application to Kendall shape spaces"**, *GSI'23. Springer.*
	Elodie Maignant, Alain Trouvé, Xavier Pennec.
2023	**"Towards quotient barycentric subspaces"**, *GSI'23. Springer.*
	Anna Calissano, Elodie Maignant, Xavier Pennec.
2021	**"ICLR 2021 challenge for computational geometry & topology: Design and results."**, *ICLR 2021.*
	Nina Miolane, et al.
2021	**"Parallel transport on Kendall shape spaces"**, *GSI'21. Springer.*
	Nicolas Guigui, Elodie Maignant, Alain Trouvé, Xavier Pennec.
2021	**"Identification of the primary factors determining the specificity of the human VKORC1 recognition by thioredoxin-fold proteins"**, *International Journal of Molecular Sciences 22.2: 802.*
	Maxim Stolyarchuk, Julie Ledoux, Elodie Maignant, Alain Trouvé, Luba Tchertanov.
2019	**"Approximation of Riemannian distances and applications to distance-based learning on manifolds"**
	Philipp Harms, Elodie Maignant, Stefan Schlager.
2018	**"Approximations of distances and kernels on shape spaces"**, *Workshop on New Directions in Shape Analysis. Math in the Black Forest.*
	Philipp Harms, Elodie Maignant.

Teaching

Oct 2020 – Jun 2022	**Teaching assistant, in charge of tutorials**, *Université Paris-Saclay, France.*
	Global Analysis, Topology and Differential Calculus.
Sep 2018 – Sep 2020	**Interrogatrice en classe préparatoire**, *Lycée Saint-Louis, Paris.*
	Examiner in Mathematics for weekly oral interrogations in small groups.

Languages

French	Native	
English	Complete working knowledge	*Cambridge English Advanced C1*

Miscellaneous

Volunteering   I am active in promoting women in sciences and I have been involved in the organisation of several events aimed at this end. More generally, I enjoy teaching and am strongly committed to education for all. I am also devoted to the animal cause and have done voluntary work with a shelter.

Personal Interest   I am passionate about music and art. I have been singing and playing the viola and the saxophone since I was a very young age. I also practised judo at a high level for years.