# Arnaud de Mesmay

Laboratoire d'Informatique Gaspard Monge
5 Boulevard Descartes
Champs-sur-Marne
77454 Marne-la-Vallée Cedex 2
France

Born on December 21st, 1988
French citizen
http://monge.univ-mlv.fr/~demesma/
arnaud.de-mesmay@univ-eiffel.fr
8 Passage Ruelle
75018 Paris

## Employment

**2025-Present** *LIGM*, Université Gustave Eiffel : Permanent senior researcher (*Directeur de recherche de 2e classe*) at CNRS.

**2019-2025** *LIGM*, Université Gustave Eiffel : Permanent researcher (*Chargé de recherche Classe Normale*) at CNRS, Section 7 (now 3).

**2015-2019** *Gipsa-Lab*, Grenoble : Permanent researcher (*Chargé de recherche Classe Normale*) at CNRS, Section 7.

**2014-2015** *IST Austria*, Vienna : Post-doc in the group of Uli Wagner, with an ISTFELLOW fellowship (Marie Curie COFUND).

**2011-2014** *École normale supérieure* (ENS), Paris : research and teaching grant for PhD preparation (*Allocation couplée normalien*).

**2007-2011** *École normale supérieure* (ENS), Paris : Student (*Élève fonctionnaire stagiare*).

## Education and Diploma

**2022** *Université Paris Est* : Habilitation thesis : "Interactions between algorithms, geometry and topology in low dimensions".

**2014** *École normale supérieure* (ENS), Paris : PhD thesis : "Topics in Low Dimensional Computational Topology"under the supervision of Éric Colin de Verdière.

**2011** *École normale supérieure* (ENS), Paris : *Parisian Masters of Research in Computer Science (MPRI)*, awarded with the best mention, ranked first.

**2010** *École normale supérieure* (ENS), Paris : *Masters in Mathematical Logic and Foundations of Computer Science*, University Paris VII, awarded with the best mention.

**2007-2011** Student at *École normale supérieure* (ENS), Paris. Undergraduate studies in Mathematics and Computer Science (L3, M1) and *Agrégation* (ranked 5th).

**2005** French *Baccalauréat* and German *Abitur*.

## Awards

**2019** *Best paper award*, International Symposium on Computational Geometry (SoCG), with Vincent Cohen-Addad, Éric Colin de Verdière and Dániel Marx (single award from 60 accepted papers and 166 submissions).

# PUBLICATIONS

As is customary in theoretical computer science, articles are often published twice, first in a conference with peer-reviewed proceedings, and then in a journal. Below, each paper is only listed **once**, even if it appeared in multiple versions. As usual in my field, authors are always ordered alphabetically.

## Articles in refereed journals

- [J24] *A structural approach to tree decompositions of knots and spatial graphs*, with Corentin Lunel. Accepted for publication in Algebraic & Geometric Topology. Arxiv.
  Conference version in the Proceedings of the 39th International Symposium on Computational Geometry (SOCG), 2023.
- [J23] *Representing Matroids over the Reals is ER-complete*, with Eunjung Kim and Tillman Miltzow. Discrete Mathematics and Theoretical Computer Science, August 20, 2024, vol. 26 :2. Arxiv.
- [J22] *Fitting Metrics and Ultrametrics with Minimum Disagreements*, with Vincent Cohen-Addad, Chenglin Fan and Euiwoong Lee. SIAM Journal of Computing, Volume 54, Issue 1, 2025. Arxiv.
  Conference version in the Proceedings of the 53rd IEEE Symposium on Foundations of Computer Science (FOCS), 2022.
- [J21] *Universal families of arcs and curves on surfaces*, with Niloufar Fuladi and Hugo Parlier. Israel Journal of Mathematics, 2025. Arxiv.
- [J20] *Short Topological Decompositions of Non-Orientable Surfaces*, with Niloufar Fuladi and Alfredo Hubard. Discrete & Computational Geometry, Volume 72, pages 783–830, 2024. Arxiv.
  Conference version in the Proceedings of the 38th International Symposium on Computational Geometry (SOCG), 2022.
- [J19] *Finding Weakly Simple Closed Quasigeodesics on Polyhedral Spheres*, with Jean Chartier. Discrete & Computational Geometry, Volume 71, pages 95–120, 2024. Arxiv.
  Conference version in the Proceedings of the 38th International Symposium on Computational Geometry (SOCG), 2022. Invited to Special Issue of Discrete & Computational Geometry.
- [J18] *Distributed coloring and the local structure of unit-disk graphs*, with Louis Esperet and Sébastien Julliot. Theoretical Computer Science, Volume 944, Article 113674, 2023. Arxiv.
  Conference version in the Proceedings of the 17th International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS), 2021. Invited to Special Issue of Theoretical Computer Science.
- [J17] *Hard Diagrams of the Unknot*, with Benjamin A. Burton, Hsien-Chih Chang, Maarten Löffler, Clément Maria, Saul Schleimer, Eric Sedgwick and Jonathan Spreer. Experimental Mathematics, Volume 33, Issue 3, Pages 482–500, 2024. Arxiv.
- [J16] *Algorithms for Contractibility of Compressed Curves on 3-Manifold Boundaries*, with Erin W. Chambers, Francis Lazarus and Salman Parsa. Discrete & Computational Geometry, Volume 70, pages 323–354, 2023. Arxiv.
  Conference version in the Proceedings of the 37th International Symposium on Computational Geometry (SOCG), 2021. Invited to Special Issue of Discrete & Computational Geometry.
- [J15] *Tightening Curves on Surfaces Monotonically with Applications*, with Hsien-Chih Chang. ACM Transactions on Algorithms, Vol. 18, Issue 4, October 2022. Arxiv.
  Conference version in the Proceedings of the Thirty-First Annual ACM-Symposium on Discrete Algorithms (SODA), 2020. Invited to Special Issue of ACM Transactions on Algorithms.
- [J14] *Constructing monotone homotopies and sweepouts*, with Erin W. Chambers, Gregory R. Chambers, Tim Ophelders and R. Rotman. Journal of Differential Geometry, Volume 119(3), 2021. Arxiv.
- [J13] *Almost Tight Lower Bounds for Hard Cutting Problems in Embedded Graphs*, with Vincent Cohen-Addad, Éric Colin de Verdière and Dániel Marx. Journal of the ACM, Volume 68, Issue 4, 2021. Arxiv
  Conference version in the Proceedings of the 35th International Symposium on Computational Geometry (SOCG), 2019. **Best Paper Award**, invited to Journal of the ACM.
- [J12] *The unbearable hardness of unknotting*, with Yo'av Rieck, Eric Sedgwick and Martin Tancer. Advances in Mathematics, Volume 381, 2021. Arxiv.
  Conference version in the Proceedings of the 35th International Symposium on Computational Geometry (SOCG), 2019.

- [J11] *A Near-Linear Approximation Scheme for Multicuts of Embedded Graphs with a Fixed Number of Terminals*, with Vincent Cohen-Addad and Éric Colin de Verdière. SIAM Journal of Computing, Volume 50, Nr. 1, 1–31, 2021. Arxiv.
  Conference version in the Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018.
- [J10] *Link Crossing Number is NP-Hard*, with Marcus Schaefer and Eric Sedgwick. Journal of Knot Theory and Ramifications, Volume 29, Nr. 06, 2020. Arxiv.
- [J9] *Embeddability in $\mathbb{R}^3$ is NP-hard*, with Yo'av Rieck, Eric Sedgwick and Martin Tancer. Journal of the ACM, Volume 67, Nr. 4, 2020. Arxiv.
  Conference version in the Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018.
- [J8] *On the tree-width of knot diagrams*, with Jessica Purcell, Saul Schleimer and Eric Sedgwick/ Arxiv.. Journal of Computational Geometry, Volume 10, Nr. 1, 164–180, 2019.
- [J7] *Nœuds, mouvements de Reidemeister et algorithmes (d'après Lackenby)*, in French. Séminaire Bourbaki, Astérisque, Volume 407, Société Mathématique Française, 27–52, 2019. Online PDF.
- [J6] *Finding non-orientable surfaces in 3-manifolds*, with Benjamin A. Burton and Uli Wagner. Discrete & Computational Geometry, Volume 58, Issue 4, 871–888, 2017. Arxiv.
  Conference version in the Proceedings of the 32nd International Symposium on Computational Geometry (SOCG), 2016. Invited to Special Issue of Discrete & Computational Geometry.
- [J5] *Shortest path embeddings of graphs on surfaces*, with Alfredo Hubard, Vojtěch Kaluža and Martin Tancer. Discrete & Computational Geometry, Volume 58, Issue 4, 921–945, 2017. Arxiv.
  Conference version in the Proceedings of the 32nd International Symposium on Computational Geometry (SOCG), 2016. Invited to Special Issue of Discrete & Computational Geometry.
- [J4] *On the Complexity of Immersed Normal Surfaces*, with Benjamin Burton and Éric Colin de Verdière. Geometry & Topology, Volume 20, 1061-1083, 2016. Arxiv.
  Extended abstract presented at the European Workshop on Computational Geometry (EuroCG), 2014.
- [J3] *Discrete systolic inequalities and decompositions of triangulated surfaces*, with Éric Colin de Verdière and Alfredo Hubard. Discrete & Computational Geometry, Volume 53, Issue 3, pp 587–620, 2015. Arxiv.
  Conference version in the Proceedings of the 30th Annual Symposium on Computational Geometry (SOCG), ACM, pages 335–344, 2014. Invited to Special Issue of Discrete & Computational Geometry.
- [J2] *Testing graph isotopy on surfaces*, with Éric Colin de Verdière. Discrete & Computational Geometry, Volume 51, Issue 1, Pages 171–206, 2014. Arxiv.
  Conference version in the Proceedings of the Twenty-Eigth Annual Symposium on Computational Geometry (SOCG), ACM, pages 141–150, 2012.
- [J1] *Dimension reduction for finite trees in $\ell_1$*, with James R. Lee and Mohammad Moharrami. Discrete & Computational Geometry, Volume 50, Issue 4, Pages 977–1032, 2013. Arxiv.
  Conference version in the Proceedings of the Twenty-Third Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), pages 43-50, 2012.

**Articles in proceedings of peer-reviewed international conferences (which have not yet been published in journals)**

- [C10] *Hard diagrams of split links*, with Corentin Lunel and Jonathan Spreer. Proceedings of the 41st International Symposium on Computational Geometry (SOCG), 2025. Invited to special issue of Discrete & Computational Geometry.Arxiv.
- [C9] *Hopf Arborescent Links, Minor Theory, and Decidability of the Genus Defect*, with Pierre Dehornoy and Corentin Lunel. Proceedings of the 40th International Symposium on Computational Geometry (SOCG), 2024. Invited to special issue of Discrete & Computational Geometry. Arxiv.
- [C8] *A PTAS for $\ell_0$-Low Rank Approximation : Solving Dense CSPs over Reals*, with Vincent Cohen-Addad, Chenglin Fan, Suprovat Ghoshal, Euiwoong Lee, Alantha Newman and Tony Chang Wang. Proceedings of the 2024 Annual ACM-Symposium on Discrete Algorithms (SODA), 2024. Arxiv.
- [C7] *Degenerate crossing number and signed reversal distance*, with Niloufar Fuladi and Alfredo Hubard. Proccedings of the 31st International Symposium on Graph Drawing and Network Visualization (GD), 2023. Arxiv.

- [C6] *Voting algorithms for unique games on complete graphs*, with Antoine Méot, Moritz Mühlenthaler and Alantha Newman. Proceedings of 2023 Symposium on Simplicity in Algorithms (SOSA), 2023. Arxiv.
- [C5] *Homotopy Height, Grid-Major height and Graph-Drawing Height*, with Therese Biedl, Erin Wolf Chambers, David Eppstein and Tim Ophelders. Graph Drawing (GD), 2019. Arxiv.
- [C4] *Minimizing Intersections of Curves on Surfaces via Local Moves*, with Hsien-Chih Chang, Jeff Erickson, David Letscher, Saul Schleimer, Eric Sedgwick, Dylan Thurston and Stephan Tillmann. Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018. Online PDF.
- [C3] *The Bane of Low-Dimensionality Clustering*, with Vincent Cohen-Addad, Eva Rotenberg and Alan Roytman. Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018. Arxiv.
- [C2] *On the complexity of optimal homotopies*, with Erin Wolf Chambers and Tim Ophelders. Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018. Arxiv.
- [C1] *A fixed parameter tractable approximation scheme for the optimal cut graph of a surface*, with Vincent Viallat Cohen-Addad. Proceedings of the 23rd Annual European Symposium on Algorithms (ESA), 2015. Arxiv.

### Manuscripts

- [M2] *Crossing numbers of dense graphs on surfaces*, with Alfredo Hubard and Hugo Parlier. Arxiv.
- [M1] *Lecture Notes on Computational Topology*, with Francis Lazarus. Online PDF.

### Other Productions

- [O5] *Démêler des nœuds avec des boucles. Interstices*, INRIA, 2025. Outreach article on knot algorithms. Available here.
- [O4] *Interactions between algorithms, geometry and topology in low dimensions*, Habilitation Thesis, Paris-Est Sup, defended on February 16, 2022. Online PDF.
  - Reviewers : Xavier Goaoc (Université de Lorraine), Joel Hass (UC Davis) and Yusu Wang (UCSD).
  - Examiners : Sergio Cabello (University of Ljubljana), Victor Chepoi (Aix-Marseille Université), Éric Fusy (CNRS, Université Gustave Eiffel), Claire Mathieu (CNRS, IRIF) and Hugo Parlier (Luxembourg).
- [O3] *Mouvements locaux et algorithmique des nœuds*, in French. La Gazette des Mathématiciens, Société Mathématique Française, Octobre 2018, Nr. 158, pp. 33-41. Shortened version of [J7].
- [O2] *De la carte au territoire ?* with Éric Colin de Verdière. *Images des Mathématiques*, CNRS, 2014. Outreach article about our work in [J2]. Available here.
- [O1] *Topics in Low-Dimensional Computational Topology*, PhD Thesis, ENS, defended July 7, 2014, under the supervision of Éric Colin de Verdière. Online PDF.
  - Reviewers : Frédéric Chazal (INRIA, Paris Saclay), Jeff Erickson (UIUC) and Eric Sedgwick (dePaul University).
  - Examiners : Cyril Gavoille (Bordeaux), Pierre Pansu (Université Paris-Saclay), Jorge Ramìrez-Alfonsìn (Montpellier), Monique Teillaud (INRIA, Université de Lorraine).

## SERVICE

### Service at the international level

- *Program Committees* : SOSA 2026, STACS 2025, STOC 2024, CG :YRF 2023, SOCG 2023, SODA 2023, EuroCG 2020, WADS 2019, SOCG 2017.
- *Editorial Activities* : Editor of Computing in Geometry and Topology, a new diamond open access journal, since its creation in 2021.
- *Organization of international Scientific Events* :
  — Co-organizer (with Maike Buchin, Jean Cardinal and Jonathan Spreer) of the Dagstuhl Seminar "Triangulations in Geometry and Topology", 2024 (30 participants).
  — Organizer of a Mini-Symposium on Graphs Embedded on Surfaces (Arcachon, France, within Curves and Surfaces 2022).

— Co-organizer (with Vincent Despré, Alfredo Hubard, Hugo Parlier and Monique Teillaud) of the "Structures on Surfaces" Conference at CIRM, 2022 (100 participants).
— Co-organizer (with Maike Buchin, Anna Lubiw and Saul Schleimer) of the Dagstuhl Seminar "Computation and Reconfiguration in Low-Dimensional Topology", 2022 (30 participants).
— Co-organizer (with Ulrich Bauer and Uli Wagner) of the 9th annual Minisymposium on Computational Topology (Buffalo, USA, online, within CG week), 2021.

- *Conference Reviews* : External reviewer for SOCG (x14), SODA (x8), STOC (x3), FOCS, ESA (x5), STACS (x4), ICALP (x2), ISAAC (x2), SWAT, SIGGRAPH, EuroGraphics, IPCO, GD, JCDCGGG, EuroCG.
- *Journal reviews* : Reviewer for journals in **theoretical computer science** (Journal of the ACM, SIAM Journal on Computing, Discrete and Computational Geometry (x4), Journal of Applied and Computational Topology (x2), Journal of Computational Geometry (x4), ACM Transactions on Algorithms (x2), Mathematical Cryptology, Combinatorics, Probability and Computing, Innovations in Graph Theory, Discrete Mathematics and Theoretical Computer Science (x2), Discrete Mathematics, Journal of Graph Algorithms and Applications) but also in **geometry and topology** (Transaction of the American Mathematical Society, Geometriae Dedicata (x2), Algebraic and Geometric Topology, Proceedings of the London Mathematical Society, Proceedings of the Edinburgh Mathematical Society) as well as for MathSciNet, ZentralBlatt and the special issue Journey Through Discrete Mathematics, A Tribute to Jiri Matousek.

### Service at the national level

- *Committees :*
  — Member of the scientific board of GT Complexité et Algorithmes (CoA), within GDR-IFM (formerly GDR-IM).
  — Member of the jury of the Gilles Kahn Thesis award (2021-2023).
- *Organization of Events :*
  — Co-organizer (with Alfredo Hubard and Lionel Pournin) of the Paris Discrete and Computational Geometry Seminar.
  — Co-organizer (with Sébastien Tavenas) of the 4th workshop Complexité et Algorithmes, November 2024 (100 participants), Institut Henri Poincaré.
  — Co-organizer (with Francis Lazarus and Boris Thibert) of the French Computational Geometry Days, 2020, CIRM, Luminy, France.
- *PhD Thesis Committees* : Jean Chartier (Université Gustave Eiffel, 2025, advisor), Corentin Lunel (Université Gustave Eiffel, 2024, advisor), Hélène Langlois (Université Gustave Eiffel, 2023), Niloufar Fuladi (Université Gustave Eiffel, 2023, advisor), Owen Rouillé (Université Côté d'azur, 2022), Thomas Magnard (Université Gustave Eiffel, 2021).
- *Reviews* : Outside reviewer for an ANR Grant, a Labex project and two Master theses.

### Service at the local level

- Head of the team ADA (Algorithmique Discrète et Applications, about 20 permanent members) of LIGM since January 1st, 2025. In 2023 and 2024, I was co-head of the team with Gregory Kucherov.
- Member of the lab council of LIGM (monthly meetings).
- Since 2025 : In charge of overseeing the graduate student committees (CSI) at LIGM. 2022-2023 : Co-responsible (with Marie-Pierre Béal, Éric Fusy, Walid Hachem and David Picard) of the organization of these graduate student committes.
- Member since 2022 with the direction of LIGM and Corinne Palescandolo of the *Commission bureaux* of LIGM, in charge of assigning offices.

## PRESENTATIONS

In these lists, I omit the presentations of my accepted papers at conferences.

### Invited presentations in international venues

- Geometry and Computing, CIRM, France (2024).
- Foundations of Computational Mathematics (FOCM), Paris, France (2023).
- Special Lecture, Winterbraids Summer School, Tours (2023).
- Low-Dimensional Topology, Oberwolfach, Germany (2023).
- Topological methods in geometry, Barcelona, Spain (2022).
- AMS-EMS-SMF Joint Congress of Mathematics, Grenoble, France (2022).
- Computational Geometry, Dagstuhl, Germany, online (2021).
- Lost in Translation Surfaces, Université du Luxembourg, Luxembourg (2020).
- Computation in Low-Dimensional Geometry and Topology, Dagstuhl, Germany (2019).
- Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM), Vancouver, Canada (2019).
- Computational Geometry, Dagstuhl, Germany (2019).
- International Symposium on Mathematical Programming (ISMP), Bordeaux, France (2018).
- Computation in Geometric Topology, Warwick, UK (2017).
- Foundations of Computational Mathematics, Barcelona, Spain (2017).
- Computational Geometric and Algebraic Topology, Oberwolfach, Germany (2015).

### Conferences in France

- Journées Mathématiques X-UPS, Polytechnique, France (2025).
- Journées Graphes et Complexité, ENS Lyon, France (2025).
- École d'été Graphadon, Rouen, France (2024).
- 3rd Workshop Complexité et Algorithmes, Paris, France (2023).
- 2nd Workshop Journées Complexité et Algorithmes, Paris, France (2022).
- Graph Searching, Theory and Applications, Porquerolles (2022).
- SoS Workshop, CIRM, Luminy (2022).
- Journées de Combinatoire de Bordeaux, Bordeaux (2020).
- Summer School in Geometric and Algebraic Combinatorics, Paris (2019).
- Journées de Géométrie Algorithmique, La Bresse (2019).
- Workshop in Geometric Analysis, Paris (2018).
- Séminaire Flajolet, Paris (2018).
- Astonishing Workshop, Nancy (2017).
- Journées ANR GATO, Paris (2017).
- Conférence SIGMA, Luminy (2017).
- Séminaire Bourbaki, Paris (2016).
- Journées Graphes et surfaces, Grenoble (2016).
- Journées de Géométrie Algorithmique, Cargèse (2015).
- Journée du GDR-IM, Bordeaux (2015).
- Journées de Géométrie Algorithmique, Luminy (2013).
- Journées Complexité et Algorithmes, Université Paris 7 (2013).
- École Jeunes Chercheurs en Informatique Mathématique, Université de Perpignan (2013).
- Journées de Géométrie Algorithmique, Cluny (2012).

### Invited talks at Math or CS Seminars

- Séminaire AMACC, Caen, France (2024).
- Topology Seminar, University of Iowa (2023).
- IRIF Algocomp seminar, France (2022).
- Séminaire AMACC, Caen, France (2022).
- SoS Seminar, Nancy, Luxembourg, online (2021).
- Combinatorics and Complexity seminar, UCLA, online (2021).
- Graphs and Optimization seminar, LABRI, online (2021).
- Séminaire DATASHAPE, INRIA, online (2021).
- Conseil Scientifique du Labex Bézout, Université Paris Est, France (2020).

- Séminaire d'algorithmique, LIGM, Université Paris Est, France (2019).
- Algorithms Seminar, Bergen, Norway (2019).
- Séminaire de Topologie, Institut Fourier, Grenoble, France (2019).
- Topology Seminar, University of Arkansas, Fayetteville (2018).
- EADS Seminar, University of Copenhagen, Denmark (2017).
- Séminaire de Géométrie Algorithmique, Collège de France, Paris, France (2017).
- Geometry and Topology Seminar, IST Austria, Austria (2017).
- DATASHAPE Seminar, INRIA Sophia-Antipolis, France (2016).
- Discrete Mathematics seminar, Charles University, Prague, Czech republic (2016).
- Séminaire de Théorie spectrale et Géométrie, Institut Fourier, Grenoble, France (2016).
- Computational and Combinatorial Geometry Seminar, Institut Henri Poincaré, France (2015).
- GT Combi du LIX, Ecole Polytechnique, Palaiseau, France (2015).
- Images et Signal Seminar, Gipsa-Lab, Grenoble, France (2015).
- Geometry and Topology Seminar, IST Austria, Austria (2014).
- Séminaire Complexité et Algorithmes du LIAFA, Paris, France (2014).
- Geometry Processing, Shapes and Images Workgroup, Saclay, France (2014).
- Pure Mathematics Seminar, University of Queensland, Australia (2012).

## GRANTS

**2021-2025** Participant of the *3DMAPS* project, ANR PRC project. PI : Adrian Tanasa.

**2020-2024** Participant of the *MINMAX* project, ANR PRC project. PI : Stéphane Sabourau.

**2020-2022** Participant of the *SoS* project, ANR-FNR PRCI project. PIs : Monique Teillaud, Hugo Parlier (Luxembourg).

**2018** PI of the *COMP3D* project, PEPS JCJC funded by INS2I, 6500€.

**2018-2020** Participant of the *FOCAL* project, ANR JCJC project. PI : Vincent Cohen-Addad. The project was interrupted with the PI's departure for Google.

**2017-2018** Participant of the *EMBEDS2* Czech-French collaboration, PHC Barrandes. PIs : Xavier Goaoc, Martin Tancer.

**2016-2021** Participant of the *GATO* project, ANR PRC project. PI : Francis Lazarus.

## SUPERVISION

(Post-)Graduate :

**2021-2024** Corentin Lunel (Main advisor of M2 and PhD), with Pierre Dehornoy. Co-author of [J24, C9, C10]. Now post-doc at IMAG in Montpellier with Clément Maria.

**2020-2025** Jean Chartier (co-supervisor of PhD), with Laurent Hauswirth and Stéphane Sabourau at LAMA. Co-author of [J19]. Now ATER at UGE.

**2020-2023** Niloufar Fuladi (Main advisor of M2 and PhD), with Alfredo Hubard. Co-author of [C7, J20, J21]. Now post-doc at LORIA with Xavier Goaoc and KAIST (South Korea) with Andreas Holmsen.

**2019-2020** Chenglin Fan (Post-doc), co-advised with Vincent Cohen-Addad. Co-author of [J22, C8].

Undergraduate :

I have (co-)advised six undergraduate internships, including two from foreign students (IST, MIT).

# TEACHING

## Research-level courses

At École Polytechnique :

**2025** Journées Mathématiques X-UPS. 2-hour course on matroid algorithms and loc-concave polynomials. Lecture notes (in French)

At Université Gustave Eiffel :

**2021-** Algorithms and combinatorics of embedded graphs. M2 course in the Bézout Maths-CS track, co-taught with Frédéric Meunier (2021-2022), Laurent Hauswirth (2023-2024), 15 hours. About 8 students on average.

At *Master Parisien de Recherche en Informatique* (MPRI) :

**2020-** Algorithms and combinatorics of geometric graphs. M2 course at Master Parisien de Recherche en Informatique, co-taught with Luca Castelli Aleardi and Vincent Pilaud, 6 (2022-2023), 12 (2020-2021) hours. About 25 students on average.

At ENS Lyon :

**2016-2018** M2 course in *Computational Topology* co-taught with Francis Lazarus, 12 hours. About 20 students on average.

## Undergraduate courses

At Université Gustave Eiffel :

**2022-** Web programming, L1. Lectures (2023-2024 : 18 hours, 2024-2025 : 6 hours), about 300 students. Lab sessions (2022-2024), 18 hours, about 20 students.

**2019-2021** Algorithms course, exercise and practical sessions, 48 hours, ESIPE, first year, about 20 students.

At University Denis Diderot (now Université Paris Cité), during my PhD.

**2011-2014** *Moniteur* (192h). Courses : Introduction to programming, Data types and objects, Automata. About 30 students.