

Éric COLIN de VERDIÈRE

October 11, 2023

Born in 1977 in Paris, France
Married, five children
French citizen
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Research Interests

Computational and combinatorial geometry and topology, graph algorithms. In particular, low-dimensional computational topology (on surfaces and three-manifolds) and optimization algorithms for graphs in a geometric or topological context.

Employment

- 2016–... CNRS senior researcher at Laboratoire d'Informatique Gaspard Monge (LIGM), Marne-la-Vallée (section 07; promoted to DR1 in 2022)
- 2004–2016 CNRS research scientist at the computer science department of École normale supérieure, Paris (ENS) (section 06 and/or 07)
- 2001–2004 *Allocation couplée* (research and teaching grant for Ph.D. preparation) at ENS
- 1997–2001 Student at ENS (*élève fonctionnaire stagiaire*)

Education and Diploma

- 2012 *Habilitation à diriger des recherches* in computer science, ENS
- 2003 Ph.D. in algorithms, University Paris 7, prepared at the Computer Science Department of ENS. Advisor: Michel Pocchiola
- 2000 DEA (advanced graduate class) in algorithms of University Paris 7
- 1997–1999 Studies in mathematics at ENS: *Licence* (B.A.), *Maîtrise* (M.S.), *Agrégation* (national competitive exam for recruiting teachers)
- July 1997 Admission at ENS (mathematics section)
- July 1995 *Baccalauréat* (scientific section)

Distinctions and Awards

- 2020–2023 Recipient of the *Prime d'excellence scientifique*
- 2019 Best paper award, *International Symposium on Computational Geometry (SoCG)*¹, with Vincent Cohen-Addad, Dániel Marx, and Arnaud de Mesmay (single award from 60 accepted papers and 166 submissions) [3]
- 2013–2016 Recipient of the *Prime d'excellence scientifique* (without teaching requirement)
- 2012 Best paper award, *Symposium on Computational Geometry (SoCG)*, with Grégory Ginot and Xavier Goaoc (2 awards from 44 accepted papers and 126 submissions) [12]
- 2004 *Accessit* of Ph.D. thesis award of *Specif (Société des Personnels Enseignants-Chercheurs en Informatique de France)*
- 2004 Ph.D. thesis award of *Association Française d'Informatique Fondamentale*

¹The *Symposium on Computational Geometry* was affiliated with ACM until 2014, and then became independent by community decision, renamed as *International Symposium on Computational Geometry*. See http://www.computational-geometry.org/about_acm_affiliation.html.



Research

Publications (Each paper is listed only once, even if it appeared in multiple versions.)

Book Chapter

- [1] Éric Colin de Verdière. Computational topology of graphs on surfaces. In Jacob E. Goodman, Joseph O'Rourke, and Csaba Toth, editors, *Handbook of Discrete and Computational Geometry*, third edition, chapter 23, pages 605–636. CRC Press LLC, 2018.

Journal Articles

- [2] Éric Colin de Verdière, Thomas Magnard, and Bojan Mohar. Embedding graphs into two-dimensional simplicial complexes. *Computing in Geometry and Topology*, 6:1:1–23, 2022.
Preliminary version in *Proceedings of the 34th International Symposium on Computational Geometry (SoCG)*, pages 27:1–27:14, 2018.
- [3] Vincent Cohen-Addad, Éric Colin de Verdière, Dániel Marx, and Arnaud de Mesmay. Almost tight lower bounds for hard cutting problems in embedded graphs. *Journal of the ACM*, 68(4):30:1–30:26, 2021.
Preliminary version in *Proceedings of the 35th International Symposium on Computational Geometry (SoCG)*, 2019, 27:1–27:16. **Best paper award.**
- [4] Vincent Cohen-Addad, Éric Colin de Verdière, and Arnaud de Mesmay. A near-linear approximation scheme for multicuts of embedded graphs with a fixed number of terminals. *SIAM Journal on Computing*, 50(1):1–33, 2021.
Preliminary version in *Proceedings of the 29th ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 1439–1458, 2018.
- [5] Sergio Cabello and Éric Colin de Verdière. Hardness of minimum barrier shrinkage and minimum installation path. *Theoretical Computer Science*, 835:120–133, 2020.
- [6] Éric Colin de Verdière, Carolina Medina, Edgardo Roldán-Pensado, and Gelasio Salazar. Embeddability of arrangements of pseudocircles on surfaces. *Discrete & Computational Geometry*, 64:386–395, 2020.
- [7] Éric Colin de Verdière, Vojtěch Kaluža, Pavel Paták, Zuzana Patáková, and Martin Tancer. A direct proof of the strong Hanani-Tutte theorem on the projective plane. *Journal of Graph Algorithms and Applications*, 21(5):939–981, 2017.
Invited to special issue of this journal after preliminary version in *Proceedings of the 24th International Symposium on Graph Drawing and Network Visualization (GD)*, pages 454–467, 2016.
- [8] Éric Colin de Verdière. Multicuts in planar and bounded-genus graphs with bounded number of terminals. *Algorithmica*, 78(4):1206–1224, 2017.
Invited to special issue of this journal after preliminary version in *Proceedings of the European Symposium on Algorithms (ESA)*, volume 9294 of *Lecture Notes in Computer Science*, pages 373–385, 2015.
- [9] Sergio Cabello, Éric Colin de Verdière, and Francis Lazarus. Finding shortest non-trivial cycles in directed graphs on surfaces. *Journal of Computational Geometry*, 7(1):123–148, 2016.
Preliminary version in *Proceedings of the 26th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 156–165, 2010.
- [10] Benjamin A. Burton, Éric Colin de Verdière, and Arnaud de Mesmay. On the complexity of immersed normal surfaces. *Geometry and Topology*, 20:1061–1083, 2016.

- [11] Éric Colin de Verdière, Alfredo Hubard, and Arnaud de Mesmay. Discrete systolic inequalities and decompositions of triangulated surfaces. *Discrete & Computational Geometry* 53(3):587–620, 2015.
Invited to special issue of this journal after preliminary version in *Proceedings of the 30th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 335–344, 2014.
- [12] Éric Colin de Verdière, Grégory Ginot, and Xavier Goaoc. Multinerves and Helly numbers of acyclic families. *Advances in Mathematics* 253:163–193, 2014.
Preliminary version in *Proceedings of the 28th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 209–218, 2012. **Best paper award.**
- [13] Éric Colin de Verdière and Arnaud de Mesmay. Testing graph isotopy on surfaces. *Discrete & Computational Geometry* 51(1):171–206, 2014.
Preliminary version in *Proceedings of the 28th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 141–150, 2012.
- [14] Alexandre Boulch, Éric Colin de Verdière, and Atsuhiko Nakamoto. Irreducible triangulations of surfaces with boundary. *Graphs and Combinatorics* 29(6):1675–1688, 2013.
- [15] Sergio Cabello, Éric Colin de Verdière, and Francis Lazarus. Algorithms for the edge-width of an embedded graph. *Computational Geometry: Theory and Applications*, 45:215–224, 2012.
Invited to special issue of this journal after preliminary version (under slightly different title) in *Proceedings of the 26th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 147–155, 2010.
- [16] Sergio Cabello, Éric Colin de Verdière, and Francis Lazarus. Finding cycles with topological properties in embedded graphs. *SIAM Journal on Discrete Mathematics*, 25:1600–1614, 2011.
- [17] Éric Colin de Verdière and Alexander Schrijver. Shortest vertex-disjoint two-face paths in planar graphs. *ACM Transactions on Algorithms*, 7(2), Article No. 19, 2011.
Preliminary version in *Proceedings of the 25th Annual International Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 181–192, 2008.
- [18] Éric Colin de Verdière and Jeff Erickson. Tightening non-simple paths and cycles on surfaces. *SIAM Journal on Computing*, 39(8):3784–3813, 2010.
Preliminary version in *Proceedings of the 17th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 192–201, 2006.
- [19] Erin W. Chambers, Éric Colin de Verdière, Jeff Erickson, Sylvain Lazard, Francis Lazarus, and Shripad Thite. Homotopic Fréchet distance between curves — or, walking your dog in the woods in polynomial time. *Computational Geometry: Theory and Applications*, 43:295–311, 2010.
Invited to special issue of this journal after preliminary version (under slightly different title) in *Proceedings of the 24th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 101–109, 2008.
- [20] Erin W. Chambers, Éric Colin de Verdière, Jeff Erickson, Francis Lazarus, and Kim Whittlesey. Splitting (complicated) surfaces is hard. *Computational Geometry: Theory and Applications*, 41(1–2):94–110, 2008.
Preliminary version in *Proceedings of the 22nd Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 421–429, 2006.
- [21] Éric Colin de Verdière and Francis Lazarus. Optimal pants decompositions and shortest homotopic cycles on an orientable surface. *Journal of the ACM*, 54(4):Article No. 18, 2007.
Preliminary version in *Proceedings of the 11th Annual Symposium on Graph Drawing (GD)*, volume 2912 of *Lecture Notes in Computer Science*, pages 478–490, 2003.
- [22] Pierre Alliez, Éric Colin de Verdière, Olivier Devillers, and Martin Isenburg. Centroidal Voronoi diagrams for isotropic surface remeshing. *Graphical Models*, 67(3):204–231, 2005.
Invited to special issue of this journal after preliminary version in *Proceedings of the International Conference on Shape Modelling and Applications (SMI)*, pages 49–58, 2003.

- [23] Éric Colin de Verdière and Francis Lazarus. Optimal system of loops on an orientable surface. *Discrete & Computational Geometry*, 33(3):507–534, 2005.
Preliminary version in *Proceedings of the 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pages 627–636, 2002.
- [24] David Cohen-Steiner, Éric Colin de Verdière, and Mariette Yvinec. Conforming Delaunay triangulations in 3D. *Computational Geometry: Theory and Applications*, 28(2–3):217–233, 2004.
Invited to special issue of this journal after preliminary version in *Proceedings of the 18th Annual Symposium on Computational Geometry (SoCG)*, ACM, pages 199–208, 2002.
- [25] Éric Colin de Verdière, Michel Pocchiola, and Gert Vegter. Tutte’s barycenter method applied to isotopies. *Computational Geometry: Theory and Applications*, 26(1):81–97, 2003.
Invited to special issue of this journal after preliminary version in *Abstracts for the 13th Canadian Conference on Computational Geometry (CCCG)*, pages 57–60, 2001.

Articles in International Conferences with Reviewing (when no journal version is available)

- [26] Éric Colin de Verdière, Vincent Despré, and Loïc Dubois. Untangling graphs on surfaces. In *Proceedings of the 35th ACM–SIAM Symposium on Discrete Algorithms (SODA)*, 2024. To appear.
- [27] Éric Colin de Verdière and Thomas Magnard. An FPT algorithm for the embeddability of graphs into two-dimensional simplicial complexes. In *Proceedings of the 29th European Symposium on Algorithms (ESA)*, pages 32:1–32:17, 2021.
- [28] Éric Colin de Verdière and Salman Parsa. Deciding contractibility of a non-simple curve on the boundary of a 3-manifold. In *Proceedings of the 28th ACM–SIAM Symposium on Discrete Algorithms (SODA)*, pages 2691–2704, 2017.
- [29] Vincent Cohen-Addad, Éric Colin de Verdière, Philip N. Klein, Claire Mathieu, and David Meierfrankenfeld. Approximating connectivity domination in weighted bounded-genus graphs. In *Proceedings of the 48th ACM Symposium on the Theory of Computing (STOC)*, pages 584–597, 2016.
- [30] Éric Colin de Verdière. Shortest cut graph of a surface with prescribed vertex set. In *Proceedings of the 18th European Symposium on Algorithms (ESA), part 2*, volume 6347 of *Lecture Notes in Computer Science*, pages 100–111, 2010.

Other Productions

- [31] Stephen Kiazzyk, Sébastien Lorient, and Éric Colin de Verdière. Triangulated surface mesh shortest paths. CGAL package. In *CGAL User and Reference Manual*. Computational Geometry Algorithms Library, 2016.
- [32] Éric Colin de Verdière and Arnaud de Mesmay. De la carte au territoire ? *Images des Mathématiques*, CNRS, 2014. Popularization article (in French) based on [13].
- [33] Éric Colin de Verdière. Algorithms for embedded graphs. Course notes, 2008–2021. Available at <http://monge.univ-mlv.fr/~colinde/cours/all-algo-embedded-graphs.pdf>.
- [34] Éric Colin de Verdière. *Topological algorithms for graphs on surfaces*. Habilitation thesis, École normale supérieure, May 2012.
Referees: Victor Chepoi, Bojan Mohar, Jack Snoeyink.
Examiners: Jean-Daniel Boissonnat, Victor Chepoi, Michel Habib (chair), Sylvain Petitjean, Jean Ponce, Gilles Schaeffer, Jean-Marc Schlenker.
- [35] Éric Colin de Verdière. *Raccourcissement de courbes et décomposition de surfaces*. Ph.D. thesis, University Paris 7, December 2003.
Referees: Herbert Edelsbrunner, Günter Rote, Marie-Françoise Roy.
Examiners: Christian Choffrut (chair), Christiane Frougny, Michel Pocchiola (advisor), Günter Rote, Marie-Françoise Roy, Brigitte Vallée.

Long Visits (each of at least two weeks)

- 2012 18-day visit at University of Queensland, Brisbane (Australia), as “Ethel Raybould Visiting Fellow”; work with Benjamin Burton
- 2005–2006 2 visits of 2 weeks at University of Illinois at Urbana-Champaign (UIUC), work with Jeff Erickson
- 2004 6-month visit at CWI Amsterdam (Netherlands), work with Alexander Schrijver
- 2000 2-week visit at INRIA Sophia-Antipolis, work with David Cohen-Steiner and Mariette Yvinec
- 2000 3-month internship at University of Groningen (Netherlands), work with Gert Vegter
- 1999 3-month programming internship at Inria Nancy, work with Sylvain Lazard and Sylvain Petitjean

Presentations

Conference and Workshop Presentations, on Invitation

AMS-EMS-SMF conference (Grenoble, July 2022) – Polytopes in Paris (Paris, June 2022) – Conference in memoriam Pierre Rosenstiehl (Paris, June 2022) – Conference in honor of Michael R. Fellows (Paris, May 2022) – Dagstuhl Computational geometry seminar (online, May 2021) – Strasbourg-Zurich joint meeting “Frontiers in Analysis and Probability” (Zurich, Switzerland, Nov. 2019) – 9th Slovenian International Conference in Graph Theory (Bled, Slovenia, June 2019) – Discrete and Computational Geometry seminar (Paris, Mar. 2018) – Foundations of Computational Mathematics (Barcelona, Spain, July 2017) (2 talks) – Combinatorial Geometry Days (Grenoble, Mar. 2017) – ANR GATO (École polytechnique, Jan. 2017) – STOC-SoCG Workshop “Algorithms on topologically restricted graphs” (Boston, USA, June 2016) – Workshop “Computational geometric and algebraic topology” (Oberwolfach, Germany, Oct. 2015) – ANR EGOS (Bordeaux, Nov. 2014) – Workshop “Knot theory: Algorithms, complexity and computation” (Shonan, Japan, Apr. 2014) – ANR EGOS, École Polytechnique (Nov. 2013) – Journées Informatique et Géométrie (1-hour plenary talk, Nancy, Nov. 2013) – Philippe Flajolet Combinatorics Seminar (Paris, Oct. 2013) – Scientific Council of INS2I-CNRS (Paris, May 2013) – Workshop “High-Complexity Discrete Geometry” (Berlin, Germany, Oct. 2011, poster presentation) – Journées Graphes et Algorithmes (1-hour plenary talk, Marseille, Nov. 2010) – SIAM Symposium on Discrete Mathematics (Austin, USA, June 2010) – Subdivide and Tile (Leiden, Netherlands, Nov. 2009, poster presentation) – Spécif workshop (Clermont-Ferrand, Jan. 2005) – Autour de l’Homotopie (Paris, Mar. 2003) (2 talks) – Journées Nationales de Calcul Formel (Marseille, Jan. 2003) – Journées du GDR ALP (Paris, Jan. 2003) – Planar Maps CGAL days (Inria Sophia-Antipolis, Nov. 1999)

Invited Talks at Math. or CS Departments

Seminar “Graphs and distributed algorithms”, IRIF (Sep. 2023) – AATRN Rips–Vietoris online seminar (Dec. 2022) – Mathematics seminar, Marne-la-Vallée (Sep. 2021) – LIGM seminar, Marne-la-Vallée (Mar. 2018) – Geometry Seminar of University of Luxembourg (Feb. 2018) – Geometry Seminar of Institut Mathématique de Jussieu (Dec. 2016) – G-Scop, Grenoble (Oct. 2016) – École normale supérieure de Lyon (Jan. 2016) – CS Laboratory, Marseille (June 2015) – Yokohama topological graph theory seminar (Apr. 2014) – Mathematics Department, Marseille (Jan. 2014) – IST Vienna, Austria (Aug. 2013) – LIGM, Marne-la-Vallée (Dec. 2012) – University of Queensland (seminar, July 2012) – University of Queensland (colloquium, June 2012) – LIAFA, Université Paris 7 (Jan. 2011) – Clermont-Ferrand (May 2010) – Inria Nancy (May 2009) – LIRMM, Montpellier (Dec. 2008) – École normale supérieure de Lyon (Dec. 2008) – Clermont-Ferrand (Oct. 2006) – University of Illinois at Urbana-Champaign, USA (Nov. 2005) – Ljubljana, Slovenia (May 2005) – Inria Nancy (Oct. 2004) – CWI, Amsterdam, Netherlands (two talks, Apr. 2004) – LRI, Orsay (Apr. 2004) – EHESS, Paris (Nov. 2003) – Univ. Bourgogne (Nov. 2003) – Combinatorics Seminar of Univ. Paris 6 (June 2003) – CS Laboratory, Marseille (Mar. 2003) – Inria Sophia-Antipolis (Apr. 2002) – CS Students seminar of ENS (Jan. 2002) – University of Groningen, Netherlands (July 2000) – Inria Lorraine (Feb. 2000)

Other Conference and Workshop Presentations

European Symposium on Algorithms (ESA) (online, Sep. 2021) – Astonishing workshop (Nancy, Sep. 2017) –

ACM-SIAM Symposium on Discrete Algorithms (SODA) (Barcelona, Spain, Jan. 2017) – Journées Informatique et Géométrie (Marne-la-Vallée, Oct. 2015) – European Symposium on Algorithms (ESA) (Patras, Greece, Sep. 2015) – Symposium on Computational Geometry (SoCG), ACM (Chapel Hill, USA, June 2012) – Journées de Géométrie Algorithmique (Cluny, Apr. 2012) – Workshop on Triangulations (Inria Sophia-Antipolis, Dec. 2010) – European Symposium on Algorithms (ESA) (Liverpool, UK, Sep. 2010) – Symposium on Computational Geometry (SoCG), ACM (Snowbird, USA, June 2010) – Symposium on Theoretical Aspects of Computer Science (STACS) (Bordeaux, Feb. 2008) – Journées de Géométrie Algorithmique (Le Bessat, Jan. 2006) – ACM-SIAM Symposium on Discrete Algorithms (SODA) (Miami, USA, Jan. 2006) – Géométrie Algorithmique et Discrète (Paris, Oct. 2005) – Géométrie Algorithmique et Discrète (Marne-la-Vallée, Sep. 2004) – International Symposium on Graph Drawing (Perugia, Italy, Sep. 2003) – Journées Graphes et Algorithmes (Dijon, Apr. 2003) – IEEE Symposium on Foundations on Computer Science (FOCS) (Vancouver, Canada, Nov. 2002) – ECG workshop (Inria Sophia-Antipolis, Oct. 2002) – Journées de Géométrie Algorithmique (Obernai, Oct. 2002) – European Workshop on Computational Geometry (EuroCG) (Warsaw, Poland, Oct. 2002) – Journées de Géométrie Algorithmique (Masgrangeas, Oct. 2001) – ECG workshop (Leiden, Netherlands, Oct. 2001) – ARC “3D visibility” (Paris, Sep. 2001) – Canadian Conference on Computational Geometry (CCCG) (Waterloo, Canada, Aug. 2001) – Journées de Géométrie Algorithmique (Marseille, Oct. 2000) – ARC “Géométrica” (Paris, Feb. 2000)

Collaboration Projects

- 2019–2023 Participant to the *Min-max* project, funded by French ANR (National Research Agency). PI: Stéphane Sabourau
- 2018–2023 Local coordinator of the *SoS* project (*Structures on Surfaces*), funded by French ANR (National Research Agency) and Luxembourg. PIs: Monique Teillaud and Hugo Parlier
- 2015–2018 Participant to the bilateral French-Czech projects *Embeds* and then *Embeds 2* (*Partenariats Hubert Curien*). PIs: Xavier Goaoc and Martin Tancer
- 2012–2017 Participant to the *RDAM* project (*Algorithmic Techniques for Restricted Data Access Models*), funded by French ANR (National Research Agency). PI: Frédéric Magniez
- 2009–2010 PI, with Sergio Cabello, of a bilateral project *Algorithms for Graphs on Surfaces* (*Partenariat Hubert Curien*)
- 2007–2011 Participant to the *Triangles* project (*New Challenges in Triangulations*), funded by French ANR. PI: Olivier Devillers
- 2005–2008 Participant to the *GeoTopAl* project (*Topology, Differential Geometry, and Algorithms*), funded by ANR. PI: Frédéric Chazal
- 2005–2007 PI, with Jeff Erickson, of a project *Optimization Problems in Computational Topology*, funded by CNRS, INRIA, and University of Illinois at Urbana-Champaign
- 2000–2004 Participant to the European project *ECG* (*Effective Computational Geometry for Curves and Surfaces*)
- 1999–2000 Participant to the ARC project *Visibilité 3D*
- 1999–2000 Participant of the ARC project *Géométrica* (*Axiomatization of Geometric Algorithms*)

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Mentorship and Teaching

Student and Post-Doc Mentorship

- 2022–... Loïc Dubois, Ph.D. student (co-advised with Vincent Despré) [26]
- 2017–2021 Thomas Magnard, Ph.D. student [2, 27]; passed *Agrégation* of Computer Science, now teacher in high school
- 2018–2020 Galatée Hémerly, Ph.D. student (Ph.D. halted to become teacher in high school; secondary advisor; co-advised with Xavier Goaoc)
- 2011–2014 Arnaud de Mesmay, Ph.D. student (officially co-advised with Jean Ponce in 2011–2012) [10, 11, 13, 32], now CNRS researcher at LIGM, Marne-la-Vallée

- 2015–2016 Salman Parsa, post-doc [28], now assistant professor at DePaul University, USA
 2012–2013 Alfredo Hubbard, post-doc [11], now assistant professor at LIGM, Université Gustave Eiffel
- 2022 Loïc Dubois, *M2* 4-month internship, co-advised with Vincent Despré
 2018 Malavika Mukundan, *L3* 2-month internship, co-advised with Stéphane Sabourau
 2017 Galatée Hémary, *M1* 4-month internship, co-advised with Xavier Goac
 2017 Thomas Magnard, *M2'* (pre-doctoral) 4.5-month internship
 2016 Thomas Magnard, *M2* (pre-doctoral) 4.5-month internship
 2014 Stephen Kiazzyk, Google Summer of Code, co-advised with Sébastien Lorient
 2014 Marc de Visme, *M1* reading project in Mathematics, 5 months
 2013 Nicholas Gaya, *M1* 2-month internship, co-advised with Claire Mathieu
 2012 Ambroise Marigot, *M1* 2-month internship
 2011 Arnaud de Mesmay, *M2* (pre-doctoral) 4.5-month internship
 2011 Nicolás Matte Bon and Florent Urrutia, *M1* reading project in Mathematics, co-advised with Pierre Pansu, 5 months
 2010 Alexandre Boulch, *M1* 5-month internship [14]
 2010 Floriane Dardard and Damien Garreau, *M1* reading project in Mathematics, co-advised with Pierre Pansu, 5 months
 2009 Nathanaël François and David Gontier, *M1* reading project in Mathematics, co-advised with Pierre Pansu, 5 months
 2008 Preyas Popat, *L3* 2-month internship
 2008 Arnaud de Mesmay and Michaël Monerau, *M1* reading project in Mathematics, co-advised with Pierre Pansu, 5 months
 2007 Laurent Jouhet, *M2* (pre-doctoral) 5-month internship
- 2022–... *Tuteur* (informal advisor) for ~ 2 students/year (“apprentis”) who combine studies with work in a company
 2021–2022 Mentoring a group of 6 engineering students (Last Project ESIPÉ) for a programming project
 2004–2016 *Tuteur* (informal advisor) for a few students at ENS

Diploma Committees

Habilitation thesis committees: Valentin Bonzom (Université Sorbonne Paris-Nord, 2023), Michail Lampis (Université Paris-Dauphine, 2022), Jérémie Chalopin (Marseille, 2020), Daniel Gonçalves (Montpellier, 2018, reviewer), Cédric Bentz (Paris 6, 2017, reviewer), Matěj Stehlík (Grenoble, 2017, reviewer), Benjamin Lévêque (Grenoble, 2016), Lionel Pournin (Paris, 2013).

Ph.D. thesis committees: Bastien Rivier (Clermont-Ferrand, 2023), Claire Hilaire (Bordeaux, 2023), Thomas Magnard (Marne-la-Vallée, 2022, advisor), Iván Rasskin (Montpellier, 2021), Onur Çağırıcı (Brno, Czech Republic, 2021, reviewer), Kristóf Huszár (IST Vienna, Austria, 2020), Rado Rakotonarivo (Paris 13, 2020, reviewer), Valentin Garnero (Montpellier, 2016, reviewer), Arnaud de Mesmay (ENS, Paris, 2014, advisor), Mikhail Bogdanov (Nice, 2013), Guillaume Batog (Nancy, 2011), Nicolas Catusse (Marseille, 2011), Manuel Caroli (Nice, 2010), Jean-Marie Favreau (Clermont-Ferrand, 2009).

Qualification committee (after first year of Ph.D. program): Isaac Mabillard (IST Vienna, Austria, 2013).

Instruction

At Université Gustave Eiffel:

- 2024– 20 hours/year practical sessions in 1st-year level on “web programming”
 2018– 8 hours/year lectures in 5th-year level on “discrete aspects of systolic geometry” in 2018, 2020, 2022
 2016– 14 hours/year exercise session in 4th-year level on “complexity of problems” (not in 2021, 2023)

At ENS and/or within *Master Parisien de Recherche en Informatique* (MPRI):

- 2008– 12 hours/year lecture in 5th-year level on algorithms for graphs on surfaces (not in 2018, 2020, 2022)
- 2006–2008 20 hours/year exercise sessions on discrete and computational geometry (4th-year level)

At University Paris 7:

- 2003–2004 28 hours exercise sessions on Unix and Automata at level *DEUG MIAS 2* (2nd-year level)
- 2002–2004 56 hours exercise sessions on Algorithms at level *Licence* (3rd-year level) of Computer Science
- 2002–2003 3 hours lecture on Computational Topology of Surfaces at level *DEA* (5th-year level) Algorithms
- 2002–2003 42 hours exercise and lab sessions in Mathematics at level *IUP 1* (1st-year level)
- 2001–2002 80 hours exercise and lab sessions in Computer Science at level *DEUG MIAS 1* (1st-year level)

Other:

- 2000–2001 47 hours oral exam in Mathematics for students in *classes préparatoires* (1st and 2nd-year level) in a private institute
- 1998–1999 30 hours oral exam in Mathematics in *classes préparatoires MPSI* (1st-year level)

Examination Committees

2009–2010: Examiner for entrance exams to ENS (Computer Science, written part)

Popularization

- 2022 Organization of a 1-day meeting “mathematics, computer science, and city” for professors of “classes préparatoires”
- 2022 Mentoring of a group of 6 students from engineering school Imac on a project “mathematics and art”
- 2014 With Arnaud de Mesmay, publication of an article on the popularization website *Images des Mathématiques* [32].

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Service

Direction

- 2018–2022 Director of the Bézout Labex, fostering interactions between mathematics and computer science in the East of Paris. Also director of the Bézout Research Federation (2019–2022), and initiator and director of the Bézout Graduate Program of the SFRI project GP-DS (2021–2022)
- 2015–2016 Head of the Talgo research team at the CS dept. of ENS
- 2009–2012 Head of the GéCoal research team at the CS dept. of ENS

National Committees

- 2022–... Scientific expert for the French ministry for research (evaluation of approx. 10 bilateral projects per year)
- 2019–2023 Appointed member of the Scientific Steering Committee of Institut Henri Poincaré
- 2011–2015 Appointed member of the French *Conseil National des Universités*, section 27 (computer science), in charge of qualification and promotion of junior university professors

Hiring Committees (Section 27, Computer Science)

- 2023 Member of the hiring committee of professor at Université Paris-Dauphine
- 2023 Member of the hiring committee of professor at Université Gustave Eiffel
- 2023 Member of the hiring committee of assistant professor at ESIEE Paris
- 2022 Member of the hiring committee of assistant professor at ESIEE Paris
- 2022 Member of the hiring committee of assistant professor at Université Gustave Eiffel
- 2020 Member of the hiring committee of professor at Université Gustave Eiffel
- 2019 Member of the hiring committee of professor at Université Paris-Est Marne-la-Vallée
- 2013 Member of the hiring committee of temporary researcher at ENS
- 2007–2017 (2007, 2009, 2011, 2017) Member of the hiring committee of assistant professor at University Nancy (1 and/or 2)
- 2011 Member of the hiring committee of assistant professor at École Polytechnique—CNRS
- 2010 Member of the hiring committee of assistant professor at ENS
- 2007 Member of the hiring committee of assistant professor at ENS (substitute)

Other Local Committees / Responsibilities

- 2008–2016 Member of the laboratory committee of the CS department at ENS
- 2012–2016 Delegate of the CS department at ENS for the relations with the library
- 2007–2016 Webmaster of `www.di.ens.fr`

Editorial Service in Journals

2012–2022: *Executive Editor* for the *European Journal of Combinatorics*. In charge of the submission and refereeing process, in close cooperation with the two Editors in Chief.

Other editorial responsibility:

- 2019–... Associate Editor for the *Journal of Computational Geometry*
- 2021–... Editor for the *Computing in Geometry and Topology*

Program Committee Memberships for Conferences

In 2021, *co-chair*, with Kevin Buchin, of the program committee for the 37th International Symposium on Computational Geometry (SoCG), initially planned in Buffalo, USA, and eventually held online. 164 submissions, 58 accepted; 24 PC members. Guest editor, with Kevin Buchin, of special issues of this conference in *Discrete & Computational Geometry* and *Journal of Computational Geometry*.

Other program committee memberships:

- 2022 European Workshop on Computational Geometry (EuroCG), Perugia, Italy
- 2019 European Symposium on Algorithms (ESA), track A, Munich, Germany
- 2017 European Workshop on Computational Geometry (EuroCG), Malmö, Sweden
- 2017 International Conference on Algorithms and Complexity (CIAC), Athens, Greece
- 2016 International Symposium on Computational Geometry (SoCG), Boston, USA
- 2015 International Colloquium on Automata, Languages, and Programming (ICALP), Kyoto, Japan
- 2015 European Workshop on Computational Geometry (EuroCG), Ljubljana, Slovenia
- 2011 Symposium on Computational Geometry (SoCG), ACM, Paris
- 2009 ACM-SIAM Symposium on Discrete Algorithms (SODA), New York
- 2008 Computational Topology in Image Context (CTIC), Poitiers

Organization of Scientific Events

(As director of the Bézout Labex / Research Federation / Graduate Program, I have personally organized related one-day events between 2018 and 2022.)

- 2022 Organization of a 3-day conference in honor of Pierre Rosenstiehl in Paris (with Marthe Bonamy, Reza Naserasr, Jaroslav Nešetřil, Patrice Ossona de Mendez, Z. Wang)
- 2018 Organization of a school *Low-Dimensional Geometry and Topology: Discrete and Algorithmic Aspects* in Paris (with Xavier Goaoc, Laurent Hauswirth, Alfredo Hubard, and Stéphane Sabourau; one week, 90 participants)
- 2014–2017 Organization of the *Discrete and Computational Geometry seminar* in Paris (with two other colleagues; 20 talks per year)
- 2016 Organization of the *École de Printemps d’Informatique Théorique* in Marseille (with Gilles Schaeffer; one week, 70 participants)
- 2015 Organization of a workshop *Computational Geometry in non-Euclidean spaces* in Nancy (with Jean-Marc Schlenker and Monique Teillaud; 3 days, 30 participants)
- 2010 Organization of the *French Computational Geometry Week* in Marseille (with Boris Thibert; one week, 55 participants)

Refereeing and Reviewing

Referee for: Discrete & Computational Geometry (8) – Computational Geometry: Theory and Applications (8) – SIAM Journal on Computing (4) – Combinatorica (1) – Bulletin of the London Mathematical Society (1) – Journal of Differential Geometry (1) – Journal on Combinatorial Theory, Series B (1) – Algorithmica (1) – Theoretical Computer Science (1) – Journal of Computational Geometry (1) – Journal of Discrete Algorithms (1) – Discrete Optimization (1) – Electronic Journal of Combinatorics (1) – Graphs and Combinatorics (1) – Theory of Computing Systems (1) – Canadian Journal of Mathematics (1) – Computer Aided Geometric Design (1) – IEEE Transactions on Visualization and Computer Graphics (1) – book chapters (3)

External reviewer for: Symposium on Computational Geometry (SoCG), 2002, 2006, 2008, 2009, 2010, 2012, 2013, 2014, 2015, 2019, 2020, 2022, 2023 (23) – ACM-SIAM Symposium on Discrete Algorithms (SODA) 2007, 2010, 2011, 2012, 2013, 2015, 2018, 2020, 2023, 2024 (13) – Symposium on Theoretical Aspects of Computer Science (STACS) 2007, 2008, 2009, 2010 (6) – European Symposium on Algorithms (ESA) 2009, 2010, 2014 (4) – ACM Symposium on the Theory of Computing (STOC) 2014, 2015, 2018 (3) – IEEE Symposium on Foundations of Computer Science (FOCS) 2015, 2018 (2) – International Conference on Automata, Languages, and Programming (ICALP) 2016, 2018 (2) – European Conference on Combinatorics, Graph Theory and Applications (EuroComb) 2023 (1) – Scandinavian Symposium and Workshops on Algorithm Theory (SWAT) 2020 (1) – Algorithms and Data Structures Symposium (WADS) 2019 (1) – International Symposium on Algorithms and Computation (ISAAC) 2014 (1) – Workshop on Graph-Theoretic Concepts in Computer Science (WG) 2017 (1) – International Symposium on Graph Drawing and Network Visualization (GD) 2017 (1) – International Symposium on Mathematical Foundations of Computer Science (MFCS) 2014 (1) – SIAM Symposium on Algorithm Engineering and Experimentats (ALENEX) 2023 (1) – Conference on Real Numbers and Computers (RNC) 2006 (1) – Eurographics 2011 (1) – SIAM Conference on Geometric and Physical Modeling 2011 (1)

External reviewer for six projects submitted to ANR (National Research Agency), one project for the French Ministry of Foreign and European Affairs, one project for the Czech Science Foundation, one project for the Polish National Science Center, and one project within a Labex.