Romain Bourneuf

Master 2 student at ENS de Lyon.

✉ romain.bourneuf@ens-lyon.fr   📞 +33 6 80 17 92 61

🌐 My Website   📝 The latest version of my CV

Education

2021 – 2023
Master's Degree in Computer Science (ENS de Lyon, France)
Fundamental Computer Science
Graph Decompositions, Combinatorics, Geometric Graphs, WQOs, Polynomials in Combinatorics,
Graph Theory, Distributed Algorithms, Optimization & Approximation, Algebra, Number Theory.
Graduated with highest honors, ranked first.

2020 – 2021
Bachelor's Degree in Computer Science (ENS de Lyon, France)
Fundamental Computer Science
Algorithmics, Probability, Algebra, Logic, Programming, Topology, Complexity.
Graduated with highest honors, ranked first.

2018 – 2020
Scientific Preparatory Class MPSI and MP* (Rennes, France)
Mathematics, Physics, Computer Science.

Research Internships

February 2024 – July 2024
Structural and Algorithmic Properties of Hereditary Graph Classes.
Supervision: Under Marcin Pilipczuk, University of Warsaw, Warsaw.
About: Understanding structural properties of hereditary graph classes and using them to build efficient algorithms.

September 2023 – February 2024
Decomposing graphs into 4-connected components.
Supervision: Under Johannes Carmesin, University of Birmingham, Birmingham.
About: Studying the decomposition of graphs into 4-connected components, both structurally and algorithmically.

February 2023 – July 2023
Polynomial χ-Boundedness of Graphs of Bounded Twin-Width.
Supervision: Under Stéphan Thomassé, ENS de Lyon, Lyon.
About: Studying various properties of structures of bounded twin-width, with a focus on the connection between the clique number and the chromatic number of such graphs.

Summer 2022, 4 months
TFNP and Extremal Combinatorics.
Supervision: Under Alon Rosen, Bocconi University, Milan.
About: Understanding the complexity of search problems related to extremal combinatorics.

Summer 2021, 6 weeks
Brandes' Algorithm for Betweenness Centrality in a Graph.
Supervision: Under Marthe Bonamy, LaBRI, Bordeaux.
About: Looking for fast algorithms to calculate betweenness centrality in various classes of graphs.

Research Publications

5. **On polynomial degree-boundedness**, with Matija Bucić, Linda Cook and James Davies, preprint.
https://arxiv.org/abs/2311.03341

4. **Factoring Pattern-Free Permutations into Separable ones**, with Édouard Bonnet, Colin Geniet and Stéphan Thomassé, **SODA 2024**.
https://arxiv.org/abs/2308.02981

3. **A tamed family of triangle-free graphs with unbounded chromatic number**, with Édouard Bonnet, Julien Duron, Colin Geniet, Stéphan Thomassé and Nicolas Trotignon, preprint.
https://arxiv.org/abs/2304.04296

2. **Bounded twin-width graphs are polynomially χ-bounded**, with Stéphan Thomassé, preprint.
https://arxiv.org/abs/2303.11231

1. **PPP-Completeness and Extremal Combinatorics**, with Lukáš Folwarczný, Pavel Hubáček, Alon Rosen and Nikolaj Ignatieff Schwartzbach, **ITCS 2023**.
https://arxiv.org/abs/2209.04827

Conferences & Workshops

Conferences

- Innovations in Theoretical Computer Science, ITCS 2023, MIT.
  PPP-Completeness and Extremal Combinatorics.

Workshops as a speaker

- 3rd Workshop on Complexity and Algorithms, CoA 2023, Paris.
  PPP-Completeness and Extremal Combinatorics.
- FPT Fest in the honour of Mike Fellows, Bergen, 2023.
  Bounded twin-width graphs are polynomially χ-bounded.
- 1st workshop on twin-width, Aussois, 2023.
  Bounded twin-width graphs are polynomially χ-bounded.

Workshops as a non-speaker

- EPIT - Graphs and Algorithms: Conjectures, Aussois, 2024.
- Sparse Graphs Coalition 2024 Session 1, Online, 2024.
- Structural Graph Theory Workshop, Będlewo, 2023.
- Structural Graph Theory Bootcamp, Warsaw, 2023.
- Digraphs meeting, Sète, 2023.
- Milan Theory Workshop, Bocconi, 2022.

Reviewing activities

- Reviewer for JCTB (x2), EuJC.

References

Marthe Bonamy
CNRS Researcher
LaBRI,
Bordeaux, France.
(Preferably by email)
✉ marthe.bonamy@u-bordeaux.fr
🌐 Marthe's personal page

Stéphan Thomassé
Professor
ENS de Lyon,
Lyon, France.
(Preferably by phone)
✉ stephan.thomasse@ens-lyon.fr
🌐 Stéphan's personal page