

Gabriel BATHIE

Computer Science Graduate Student,
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Currently: Fall 2021 **Research Student**, supervised by Claire MATHIEU and Adrian VLADU, IRIF, Université de Paris, Paris, France, 5 months.

- Title: Networks, Percolation and Algorithms: applications to epidemics control.

Education

- 2019–2021 **M.Sc. in Theoretical Computer Science**, *École Normale Supérieure de Lyon*, France, with *Highest Honors*, ranked *first*.
- 1st year courses: Computational Complexity, Parallel Algorithms, Optimization, Information Theory, Cryptography, Machine Learning, Computer Algebra.
 - 2nd year courses: Parameterized Complexity, Theory of Graph Coloring, Mathematical Automata Theory, Advanced Information Theory, Quantum Information and Computation, Advanced Machine Learning.
 - Organization of a reading group on Algorithmic Game Theory.
- 2018–2019 **B.Sc. in Theoretical Computer Science**, *École Normale Supérieure de Lyon*, France, with *Highest Honors*, ranked *first*.
- Courses : Intro. to Algorithms, Graph Algorithms and Data structures, Computability Theory, Probability and Randomized algorithms, Computer Architecture, Systems and Networks, Theory of Programming Languages, Logic, Algebra, Competitive Programming.
- Fall 2017 **Exchange semester, Mathematics**, *University of Texas at Austin*, Austin, TX.
- Courses: Mathematical Modelling, Applied Number Theory, Stochastic Processes, Numerical Analysis
 - GPA: 4.0
- 2015–2018 **B.Sc. in Applied Mathematics**, *INSA Toulouse*, France.
- First year: Top 10%. Second Year: Top 5%. Third Year: Top 3.5%.

Research Experience

- Spring 2021 **Research Internship**, supervised by Nicolas BOUSQUET and Théo PIERRON, LIRIS, Université Lyon I, Lyon, France, 5 months.
- Title: Efficient kernels for various graph edition problems.
 - We also participated to the 2021 PACE Challenge: we got the 3rd place on the exact and heuristic tracks. See <https://pacechallenge.org/2021/results/> for more information.
- Spring 2020 **Research Internship**, supervised by Tatiana STARIKOVSKAYA, DI, ENS Paris, France, 4 months.
- Title: Property testing of regular languages and applications.
 - Design of an asymptotically optimal algorithm for the problem of property testing of regular languages, with a proof of a matching lower bound.
- Summer 2019 **Research Internship**, supervised by Loris MARCHAL and Yves ROBERT, Laboratoire de l'Informatique du Parallélisme (LIP), ENS de Lyon, France, 6 weeks.
- Title: Dynamic scheduling of DAGs under memory constraints.
 - Design of scheduling algorithms, proofs of hardness of scheduling problems.
- Summer 2018 **Research Internship**, supervised by Pierre WEISS, Institut des Technologies Avancées en sciences du Vivant (ITAV), Toulouse, France, 1 month.
- Title: Contrast invariant SNR and isotonic regressions.
 - Design and implementation of an algorithm for measuring the similarity of two images, independently of contrast changes.

Skills

Programming Languages

- **Advanced:** Python, C/C++, OCaml, LaTeX
- **Bases:** Matlab, Java, Kotlin, R, C#, Bash, Javascript, Haskell

Languages

- French: Mother Tongue
English: Fluent (Cambridge Advanced Exam - C2)

References

- Research advisor **Tatiana Starikovskaya**, *Assistant Professor in Computer Science*, TALGO, DI ENS, École Normale Supérieure de Paris, France.
E-mail: tat.starikovskaya@gmail.com
- Research advisor, Teacher **Yves Robert**, *Professor in Computer Science*, Laboratoire de l'Informatique du Parallélisme (LIP), École Normale Supérieure de Lyon, de Lyon, France.
E-mail: yves.robert@ens-lyon.fr, Phone: (+33) 4 26 23 38 76

Publications

Conference articles

- [1] Gabriel Bathie, Nicolas Bousquet, and Théo Pierron. (sub)linear kernels for edge modification problems towards structured graph classes. In *International Symposium on Parameterized and Exact Computation (IPEC)*, 2021.
- [2] Gabriel Bathie, Loris Marchal, Yves Robert, and Samuel Thibault. Revisiting dynamic dag scheduling under memory constraints for shared-memory platforms. In *2020 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPS)*, pages 597–606. IEEE, 2020.
- [3] Gabriel Bathie and Tatiana Starikovskaya. Property testing of regular languages with applications to streaming property testing of visibly pushdown languages. In *48th International Colloquium on Automata, Languages, and Programming (ICALP)*, 2021.

Journal articles

- [4] Gabriel Bathie, Loris Marchal, Yves Robert, and Samuel Thibault. Dynamic DAG scheduling under memory constraints for shared-memory platforms. *International Journal of Networking and Computing*, 11:27–49, 2021.
- [5] Pierre Weiss, Paul Escande, Gabriel Bathie, and Yiqiu Dong. Contrast invariant SNR and isotonic regressions. *International Journal of Computer Vision*, 127(8):1144–1161, 2019.

Miscellaneous

- Sports Badminton, Climbing
- Competitive programming Finalist of the 2019 Prologin National Competition, Participation in ACM ICPC: Finalist of the 2019 and 2020 SWERC