Antoine Dailly

Curriculum Vitae

Work Experience

2024– **Junior researcher**, *INRAE, TSCF*, Clermont-Ferrand.
Research in optimization, algorithms, graphs, sensor networks, models for time and uncertainty.

2022–2024 **Postdoc**, *Université Clermont Auvergne, LIMOS, Algorithms, Graphs, Complexity team*, Clermont-Ferrand, France.
Research on algorithmic aspects of metric problems in graphs in the ANR project GRALMECO under the supervision of Florent Foucaud.
Supervision of practical courses in Systems Programing (30h) and XML (24h) in L3 and Mathematical tools (32h) in BUT1.

2021–2022 **ATER (assistant teacher and researcher)**, *IUT2 de Grenoble, G-SCOP, OC team*, Grenoble, France.
Tutorials and practical courses in Computer Science
Domains taught: Algorithms and Programming, Graphs, Probability and Statistics, Web Development.
Research in graphs and combinatorics.

2019–2021 **Postdoc**, *Instituto de Matemáticas, National Autonomous University of Mexico*, Juriquilla.
Research in graph theory and Ramsey theory, under the supervision of Adriana Hansberg.
Teaching in computability and complexity.

2018–2019 **ATER (assistant teacher and researcher)**, *Université Grenoble Alpes, G-SCOP, OC team*, Grenoble, France.
Tutorials and practical courses in Computer Science (135h)
Domains taught: Graphs, Complexity, Operational Research, Algorithmics, Programming in Python and Compilation.
Research in graphs and combinatorics (reconfiguration, combinatorial games, criticality).

2015–2018 **PhD in Computer Science (Ministry of Higher Education and Research funding)**, *Université Claude Bernard Lyon I, LIRIS, GOAL team*, Lyon, France.
Criticality, identification and vertex deletion games on graphs
Director: Hamamache Kheddouci.
Advisors: Aline Parreau et Éric Duchêne.
Defended on September 27th 2018.

2015–2018 **Assistant teacher**, *ISFA*, Lyon, France.
Lectures, tutorials and practical courses in Computer Science (198h)
Domains taught: Unix, Algorithmics, Programming in Python, C++ and Java

2015–2018 **Scientific popularization**, *Maths à Modeler*, Lyon, France.
Introduction to research in Mathematics and Theoretical Computer Science directed towards primary and secondary students

INRAE, Bureau C1.16 – 9 avenue Blaise Pascal - 63178 Aubière CEDEX
(+33)4 73 44 06 75 • *antoine.dailly@inrae.fr*
https://daillya.github.io/

2011–2015 **Mentoring**.
Mentoring of secondary and superior students in Mathematics, Algorithmics, Theoretical Computer Science and Programming

Education

2015–2018 **PhD in Computer Science**, *Université Claude Bernard Lyon I*.
Criticality, identification and vertex deletion games on graphs
Director: Hamamache Kheddouci. Advisors: Aline Parreau and Éric Duchêne.
Defended on September 27th, 2018, with the jury:

- Cristina Bazgan (president)
- Frédéric Havet (reviewer)
- Mickael Montassier (reviewer)
- Elzbieta Sidorowicz (examiner)
- Hamza Si Kaddour (examiner)
- Hamamache Kheddouci (director)
- Éric Duchêne (adviser)
- Aline Parreau (adviser)

2014–2015 **Master's Degree in Computer Science – Artificial Intelligence specialization**, *Université Claude Bernard Lyon I*, Lyon, France, with honors, ranked 1/22.

2013–2014 **Master 1 in Computer Science**, *Université Claude Bernard Lyon I*, Lyon, France, with honors, ranked 2/98.

2012–2013 **Bachelor's Degree in Theoretical Computer Science**, *École Normale Supérieure de Lyon*, Lyon, France.

2011–2012 **Licence 2 in Mathematics and Computer Science**, *Université Montpellier II*, Montpellier, France, with honors.

2010–2011 **Classe Préparatoire aux Grandes Écoles – Mathematics, Physics and Industrial Sciences specialization**, *Lycée Pierre de Fermat*, Toulouse, France.

2010 **High School Diploma – Mathematics specialization**, *Lycée Georges Clemenceau*, Montpellier, France, with honors.

Research stays and internships

2017 **Research stay**, *Instituto de Matemáticas*, Juriquilla, Mexico.
Two-months research stay to study the Murty-Simon Conjecture.
Mentor: Adriana Hansberg.

2015 **Research internship**, *LIRIS – GOAL team*, Lyon, France.
Five-months internship on octal games on graphs.
Advisors: Aline Parreau and Éric Duchêne

2014 **Research internship**, *ERIC*, Lyon, France.
Two-months internship on the adaptation of multi-agents paradigm to the Map&Reduce model.
Advisor: Nadia Kabachi

2013 **Research internship**, *INRIA Sophia Antipolis – WIMMICS team*, Valbonne, France.
Three-months internship on semantic similarity measures.
Advisors: Elena Cabrio and Julien Cojan

Responsibilities

2023 **Intern supervision**.
Vincent Astolfi (BUT2, Clermont-Ferrand) : reading of a research paper on identification of points in the plane.

2013–2015 **Voluntary activities**, *AML (Association des Miagistes et Informaticiens de Lyon), a student organization*, Lyon, France.
Active volunteer (2013–2014), then secretary of the organization (2014–2015)

2013–2015 **Student representative**, *Computer Science Department Council*, Lyon, France.
2013–2015

Special Skills

French	Native speaker	
English	Fluent, C1 level	*B2 level validated by the CLES in 2013*
Spanish	Basic	
Theor. CS	Algorithmics, Combinatorial Game Theory, Graph Theory, Complexity Theory	
Programming Languages	C/C++, Python, Java, LaTeX, Scheme	
Systems	Linux, Windows	

Publications in international journals

J10 Dailly, A., & Sidorowicz, E. (2023). **Neighbour sum distinguishing edge-weightings with local constraints**, *Discrete Applied Mathematics*, 336, 109-124.
`https://hal.science/hal-03615738`
`https://doi.org/10.1016/j.dam.2023.04.005`

J09 Dailly, A., Eslava, L., Hansberg, A., & Ventura, D. (2023). **The balancing number and list balancing number of some graph classes**, *The Electronic Journal of Combinatorics*, 30(1).
`https://hal.science/hal-03015201`
`https://doi.org/10.37236/10032`

J08 Dailly, A., Duchêne, E., Parreau, A., & Sidorowicz, E. (2022). **The neighbour sum distinguishing relaxed edge colouring**, *Applied Mathematics and Computation*, 419, 126864.
`https://hal.archives-ouvertes.fr/hal-03064954`
`https://doi.org/10.1016/j.amc.2021.126864`

J07 Dailly, A., Hansberg, A., & Ventura, D. (2021). **On the balanceability of some graph classes**, *Discrete Applied Mathematics*, 291, 51-63.
`https://hal.science/hal-02497933`
`https://doi.org/10.1016/j.dam.2020.12.005`

J06 Dailly, A., Duchêne, E., Larsson, U., & Paris, G. (2020). **Partition Games**, *Discrete Applied Mathematics*, 285, 509-525.
`https://hal.science/hal-01723190`
`https://doi.org/10.1016/j.dam.2020.05.032`

J05 Dailly, A., Moncel, J., & Parreau, A. (2019). **Connected Subtraction Games on Subdivided Stars**, *INTEGERS*, 19.
https://hal.science/hal-01849181
http://math.colgate.edu/~integers/tg3/tg3.Abstract.html

J04 Dailly, A., Foucaud, F., & Hansberg, A. (2019). **Strengthening the Murty-Simon conjecture on diameter 2 critical graphs**, *Discrete Mathematics*, 342(11), 3142-3159.
https://hal.science/hal-01959683
https://doi.org/10.1016/j.disc.2019.06.023

J03 Dailly, A., Gledel, V., & Heinrich, M. (2019). **A generalization of Arc-Kayles**, *International Journal of Game Theory*, 48(2), 491-511.
https://hal.science/hal-01587921
https://doi.org/10.1007/s00182-018-0639-5

J02 Beaudou, L., Coupechoux, P., Dailly, A., Gravier, S., Moncel, J., Parreau, A., & Sopena, E. (2018). **Octal Games on Graphs: The game 0.33 on subdivided stars and bistars**, *Theoretical Computer Science*, 746, 19-35.
https://hal.science/hal-01418153
https://doi.org/10.1016/j.tcs.2018.06.018

J01 Bousquet, N., Dailly, A., Duchene, E., Kheddouci, H., & Parreau, A. (2017). **A Vizing-like theorem for union vertex-distinguishing edge coloring**, *Discrete Applied Mathematics*, 232, 88-98.
https://hal.science/hal-01313088
https://doi.org/10.1016/j.dam.2017.07.002

Publications in proceedings of international conferences

C6 Chakraborty, D., Dailly, A., Foucaud, F., & Klasing, R. (2024). **Algorithms and complexity for path covers of temporal DAGs**, *In 49th International Symposium on Mathematical Foundations of Computer Science (MFCS 2024). Leibniz International Proceedings in Informatics (LIPIcs), Volume 306, pp. 38:1-38:17, Schloss Dagstuhl – Leibniz-Zentrum für Informatik*.
https://hal.science/hal-04493029
https://doi.org/10.4230/LIPIcs.MFCS.2024.38

C5 Beaudou, L., Bergé, P., Chernyshev, V., Dailly, A., Gérard, Y., Lagoutte, A., Limouzy, V., & Pastor, L. (2024). **The Canadian Traveller Problem on outerplanar graphs**, *In 49th International Symposium on Mathematical Foundations of Computer Science (MFCS 2024). Leibniz International Proceedings in Informatics (LIPIcs), Volume 306, pp. 38:1-38:17, Schloss Dagstuhl – Leibniz-Zentrum für Informatik*.
https://arxiv.org/abs/2403.01872
https://doi.org/10.4230/LIPIcs.MFCS.2024.19

C4 Bok, J., Dailly, A., & Lehtilä, T. (2024). **Resolving Sets in Temporal Graphs**, *In Rescigno, A.A., Vaccaro, U. (eds) Combinatorial Algorithms. IWOCA 2024. Lecture Notes in Computer Science, vol 14764. Springer, Cham*.
https://hal.science/hal-04511235
https://doi.org/10.1007/978-3-031-63021-7_22

C3 Dailly, A., Lafourcade, P., & Marcadet, G. (2024). **Swish: complexity and unplayable positions**, *In 12th International Conference on Fun with Algorithms (FUN 2024). Leibniz International Proceedings in Informatics (LIPIcs), Volume 291, pp. 10:1-10:19, Schloss Dagstuhl – Leibniz-Zentrum für Informatik*.
https://hal.science/hal-04489238
https://doi.org/10.4230/LIPIcs.FUN.2024.10

C2 Dailly, A., Foucaud, F., & Hakanen, A. (2023). **Algorithms and hardness for Metric Dimension on digraphs**, *Proceedings of the 49th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2023). Lecture Notes in Computer Science*, 14093:232-245.
https://hal.science/hal-04216265
https://doi.org/10.1007/978-3-031-43380-1_17

C1 Chakraborty, D., Dailly, A., Das, S., Foucaud, F., Gahlawat, H., & Ghosh, S. K. (2022). **Complexity and algorithms for Isometric Path Cover on chordal graphs and beyond**, *Proceedings of the 33rd International Symposium on Algorithms and Computation (ISAAC 2022), Leibniz International Proceedings in Informatics*, 248,12:1-12:17.
https://hal.science/hal-03710812
https://doi.org/10.4230/LIPIcs.ISAAC.2022.12

Papers submitted to international journals and conferences

S1 Burke, K., Dailly, A., & Oijid, N. (2024+). **Complexity and algorithms for Arc-Kayles and Non-Disconnecting Arc-Kayles**, *submitted for publication*.
https://hal.science/hal-04495881

S2 Dailly, A., Gledel, V., Nowakowski, R. & Santos, C. (2024+). **Simple Chopsticks: Playing with any number of hands and fingers**, *submitted for publication*.
https://hal.science/hal-04611135

S3 Dailly, A., Gahlawat, H., & Myint, Z. M. (2024+). **The Closed Geodetic Game: algorithms and strategies**, *submitted for publication*.
https://hal.inrae.fr/hal-04715333

SJ Journal versions of C1, C2 and C4.

Talks in international conferences and colloquiums

June 2023 ***Algorithms and hardness for Metric Dimension on digraphs*** , *WG2023*, Fribourg, Switzerland.

January 2023 ***Subtraction Games on Graphs***, *CGTC4*, São Miguel, Azores, Portugal.

July 2022 ***Neighbour sum-distinguishing edge colorings with local constraints***, *ICGT 2022*, Montpellier, France.

January 2019 ***Connected Subtraction Games on Graphs*** , *CGTC3*, Lisbon, Portugal.

July 2018 ***A strengthening of the Murty-Simon Conjecture***, *ICGT 2018*, Lyon, France.

January 2017 ***Octal Games on Graphs*** , *CGTC2*, Lisbon, Portugal.

Nov. 2016 ***A Vizing-like theorem for union vertex-distinguishing edge coloring***, *BGW 2016*, Bordeaux, France.

Talks in national conferences and colloquiums

Nov. 2023 ***Partition en chemins et théorème de Dilworth dans les graphes temporels***, *JGA 2023*, Lyon, France.

Nov. 2022 ***Isometric Path Cover : complexité et algorithmes sur les graphes cordaux***, *JGA 2022*, Paris, France.

Nov. 2021 ***La coloration d-relaxée somme-distinguante*** , *JGA 2021*, Online.

Nov. 2020 ***Équilibrabilité et nombre d'équilibrage des cycles***, *JGA 2020*, Online.

March 2020 ***Balancing graphs using bicolored edges***, *XXXV Coloquio Víctor Neumann-Lara de Teoría de Gráficas, Combinatoria y su Aplicaciones*, Santiago de Querétaro, Mexico.

Nov. 2018 ***Renforcer la conjecture de Murty-Simon sur les graphes critiques de diamètre 2*** , *JGA 2018*, Grenoble, France.

Nov. 2016 ***Coloration d'arêtes union-distinguante***, *JGA 2016*, Paris, France.

Nov. 2015 ***Jeux octaux sur les graphes : 0.03***, *JGA 2015*, Orléans, France.

Talks in seminars

C6 **Path covers of temporal graphs**.
Séminaire d'équipe RO du LIP6 (Paris, France, online, April 2024)
Séminaire LITIS (Le Havre, France, March 2024)
Séminaire LIFO (Orléans, France, February 2024)

C2 ***Algorithms for the Metric Dimension problem on directed graphs***.
Séminaire d'équipe GALaC du LISN (Paris, France, March 2023)
Séminaire algorithmique distribuée et graphes de l'IRIF (Paris, France, March 2023)
Séminaire LIMOS (Clermont-Ferrand, France, March 2023)
Séminaire Algo (Caen, France, February 2023)

J07, J09 ***Balanceability***.
Séminaire AlCoLoCo (Clermont-Ferrand, France, October 2022)
Séminaire de mathématiques discrètes (Grenoble, France, October 2021)
Séminaire ACRO (Marseille, France, online, February 2021)

J02, J05, J06 ***Subtraction Games on Graphs: Complexity, regularity and polynomial algorithms***.
Séminaire LIGM (Paris, Champs-sur-Marne, France, March 2022)
Groupe de travail GaMoC (Orléans, France, October 2020)

J04 ***Strengthening the Murty-Simon Conjecture on diameter-2-critical graphs*** .
VCU Discrete Mathematics Seminar (Virginia Commonwealth University, online, October 2021)
Seminario Preguntón (UNAM Juriquilla, Mexico, September 2019

J02 ***Jeux octaux dans les graphes***.
Séminaire ACRO (Marseille, France, April 2019)
Séminaire LIB (Dijon, France, March 2019)
Séminaire Optimisation Combinatoire (Bordeaux, France, January 2019)
Séminaire AlCoLoCo (Clermont-Ferrand, France, December 2018)
Graphes@Lyon (Lyon, France, October 2015)

J03 ***Rooks and* Arc-Kayles**.
Seminario Preguntón (UNAM Juriquilla, Mexico, December 2017)

J01 ***Coloration d'arêtes union-distinguante***.
Séminaire des doctorants de la SIF (Paris, France, April 2016)

Posters

January 2020 ***Gráficas balanceables***, UNAM Juriquilla, Mexico.

INRAE, Bureau C1.16 – 9 avenue Blaise Pascal - 63178 Aubière CEDEX
(+33)4 73 44 06 75 • antoine.dailly@inrae.fr
https://daillya.github.io/