CURRICULUM VITAE

Herman Goulet-Ouellet ®

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—— Employment —— Postdoctoral researcher. 2024-2025 (ongoing) CTU, Czech Republic. Funded by the CTU Global Postdoc Fellowship program. Collaboration with Štěpán Starosta. Postdoctoral researcher. 2023 IRIF, France. Funded by the ANR CODYS project (ANR-18-CE40-0007). Collaboration with Valérie Berthé. —— Education —— PhD in Mathematics. With highest praise (com Distinção e Louvor). 2022 University of Coimbra, Portugal. ADVISORS: Jorge Almeida and Alfredo Costa. THESIS: Schützenberger groups of minimal shift spaces. Master in Mathematics. With highest praise (Excellent). 2018 Université du Ouébec à Montréal, Canada. ADVISOR: Franco Saliola. Bachelor in Mathematics. 2016 Université du Québec à Montréal, Canada. 2013 Diploma of College Studies in Computer science and mathematics.

Papers

Collège de Maisonneuve, Montreal, Canada.

— Publications –

J. Almeida, H. Goulet-Ouellet, and O. Klíma. What makes a Stone topological algebra profinite. Algebra Universalis, vol. 84, no. 1 (2023). doi: 10.1007/s00012-023-00804-w. arXiv: 2109.07286v1.

V. Berthé and H. Goulet-Ouellet. **On substitutions preserving their return sets**. In: *Words 2023*. Ed. by A. Frid and R. Mercas. vol. 13899. Lecture Notes in Computer Science. 2023. doi: 10.1007/978-3-031-33180-0_6. hal: hal-04311379.

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- H. Goulet-Ouellet. Freeness of Schützenberger groups of primitive substitutions. *International Journal of Algebra and Computations*, vol. 32, no. 06 (2022), pp. 1101–1123. doi: 10.1142/S0218196722500473. arXiv: 2109.11957v1.
- H. Goulet-Ouellet. **Pronilpotent quotients associated with primitive substitutions**. *Journal of Algebra*, vol. 606 (2022), pp. 341–370. doi: 10.1016/j.jalgebra.2022.05.021. arXiv: 2204.05706v1.
- H. Goulet-Ouellet. Suffix-connected languages. *Theoretical Computer Science*, vol. 923 (2022), pp. 126–143. doi: 10.1016/j.tcs.2022.05.001. arXiv: 2106.00452v1.

Preprints

V. Berthé and H. Goulet-Ouellet. **Obstructions to return preservation for episturmian morphisms**. 2024. arXiv: 2404.08072.

V. Berthé, H. Goulet-Ouellet, C.-F. N. Brodda, D. Perrin, and K. Petersen. **Density of group languages in shift spaces**. 2024. arXiv: 2403.17892.

F. Gheeraert, H. Goulet-Ouellet, J. Leroy, and P. Stas. Algebraic characterization of dendricity. 2024. arXiv: 2406.15075.

—— Teaching experience ———

Teaching assistant. 2023

Université Paris Cité. Object Oriented Programming in Java, 48 h.

Mini course on profinite monoid and symbolic dynamics. 2023

IRIF, Paris. Duration: 6 h.

Teaching assistant. 2015–2018

Université du Québec à Montréal.

YEAR	TOPIC	RESPONSABILITIES	Duration
2018	Advanced linear algebra	Teaching, grading	150 h
2017	Theory of equations	Teaching, grading	108 h
2017	Matrix algebra	Grading	26 h
2016	Theory of equations	Teaching	60 h
2015	Matrix algebra	Grading	21 h
2015	Algorithmics	Teaching, grading	150 h

----- Talks ------

Conferences

Relative invertibility for primitive substitutions.

July 3, 2024

Theoretical and Computational Algebra 2024, Aveiro, Portugal.

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Profinite bridges between semigroup theory and symbolic dynamics. June 20-21, 2024 North British Semigroups and Applications Network 2024, Manchester, United Kingdom. Return words and derived sequences. May 17, 2024 Student conference on Combinatorics on Words, Janov nad Nisou, Czech Republic. Profinite approach to conjugacy of substitutive shifts. July 5, 2023 Dyadisc 6, Amiens, France. On substitutions preserving their return sets. June 15, 2023 Words 2023, Umeå, Sweden. Forays beyond dendricity. May 26, 2023 Numeration 2023, Liège, Belgium. Pronilpotent quotients associated with primitive substitutions. September 5, 2022 18th Mons Theoretical Computer Science Days, Prague, Czech Republic. A pronilpotent look at maximal subgroups of free profinite monoids. June 24, 2022 Topology, Algebra, and Categories in Logic (TACL), Coimbra, Portugal. Suffix-connected languages. Online. July 12-16, 2021 Encontro Nacional da Sociedade Portuguesa de Matemática, Portugal. Suffix-connected languages. Online. Poster. July 8-9, 2021 Dyadisc4, Amiens, France. Seminars Density of group languages in shift spaces. June 27, 2024 Algebra logic and topology seminar, University of Coimbra, Portugal. Density of group languages in minimal shifts. Online. January 30, 2024 SymPA seminar, Université de Picardie Jules Verne, France. Densité des langages rationnels dans les espaces symboliques. January 12, 2024 LACIM seminar, UQAM, Canada. Density of rational languages under invariant measures. Online. October 24, 2023 One World Combinatorics on Words seminar. Obstructions to return preservation for episturmian morphisms. September 29, 2023 Discrete Mathematics seminar, ULiège, Beligum. Monoïdes profinis et dynamique symbolique. August 25, 2023 LACIM seminar, UQAM, Canada.

April 21, 2023

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What lies inside free profinite monoids.

Automata and applications seminar, Université Paris Cité, France.

Freeness of Schützenberger groups of primitive substitutions. Online.

April 29, 2022

Semigroups, automata and languages seminar, University of Porto, Portugal.

Awards -

PhD scholarship. Duration: 4 years.

2018

Fundação para a Ciência e a Tecnologia.

Scholarship - 2nd cycle. Duration: 1 year.

2017

Fonds de recherche du Québec - Nature et technologies.

Alexander Graham Bell Canada Graduate Scholarships. Duration: 1 year.

2016

Natural Sciences and Engineering Research Council of Canada.

Undergraduate Student Research Award. Duration: 15 weeks.

2014, 2015 and 2016

Natural Sciences and Engineering Research Council of Canada.

Programming —

Python

SageMath

Haskell

• Git

• C++

LaTeX

Java

• GAP

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