

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 Québec à Montréal, Canada.
ADVISOR: Franco Saliola.
- Bachelor in Mathematics.** 2016
Université du Québec à Montréal, Canada.
- Diploma of College Studies in Computer science and mathematics.** 2013
Collège de Maisonneuve, Montreal, Canada.

Publications

Papers

- 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.

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.

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

Profinite approach to conjugacy of substitutive shifts. Invited speaker. July 5, 2023

Dyadisc 6, Amiens, France

On substitutions preserving their return sets. June 15, 2023

Words 2023, Umeå, Sweden

Forays beyond dendricity. Numeration 2023, Liège, Belgium.	May 26, 2023
Pronilpotent quotients associated with primitive substitutions. 18 th Mons Theoretical Computer Science Days, Prague, Czech Republic.	September 5, 2022
A pronilpotent look at maximal subgroups of free profinite monoids. Topology, Algebra, and Categories in Logic (TACL), Coimbra, Portugal.	June 24, 2022
Suffix-connected languages. Online. Encontro Nacional da Sociedade Portuguesa de Matemática, Portugal.	July 12–16, 2021
Suffix-connected languages. Online. Poster. Dyadisc4, Amiens, France.	July 8–9, 2021
Seminars	
Density of group languages in minimal shifts. Online. SymPA seminar, Université de Picardie Jules Verne, France.	January 30, 2024
Densité des langages rationnels dans les espaces symboliques. LACIM seminar, UQAM, Canada.	January 12, 2024
Density of rational languages under invariant measures. Online. One World Combinatorics on Words seminar.	October 24, 2023
Obstructions to return preservation for episturmian morphisms. Discrete Mathematics seminar, ULiège, Belgium.	September 29, 2023
Monoïdes profinis et dynamique symbolique. LACIM seminar, UQAM, Canada.	August 25, 2023
What lies inside free profinite monoids. Automata and applications seminar, Université Paris Cité, France.	April 21, 2023
Freeness of Schützenberger groups of primitive substitutions. Online. Semigroups, automata and languages seminar, University of Porto, Portugal.	April 29, 2022

Awards

PhD scholarship. Duration: 4 years. Fundação para a Ciência e a Tecnologia.	2018
Scholarship – 2nd cycle. Duration: 1 year. Fonds de recherche du Québec – Nature et technologies.	2017
Alexander Graham Bell Canada Graduate Scholarships. Duration: 1 year. Natural Sciences and Engineering Research Council of Canada.	2016
Undergraduate Student Research Award. Duration: 15 weeks. Natural Sciences and Engineering Research Council of Canada.	2014, 2015 and 2016

Programming

- Python
- C++
- SageMath
- LaTeX
- Haskell
- Java
- Git
- GAP