

Jaël Champagne Gareau

Montréal, QC, Canada

+1 514 826-3867

✉ champagne_gareau.jael@courrier.uqam.ca

🌐 <https://jaelgareau.com>

Career goal

Use my mathematical skills of problem modeling and deductive reasoning, as well as my knowledge of algorithms and artificial intelligence (AI) in order to solve complex problems and contribute to the advancement of knowledge in these domains for the benefit of society. Participate in training the next generation of scientists

Education

Ph. D in Computer Science (supervised by Pr. Éric Beaudry and Vladimir Makarenkov) <i>Université du Québec à Montréal</i>	4.30/4.30 2019–2024
M. Sc in Computer Science (supervised by Pr. Éric Beaudry and Vladimir Makarenkov) <i>Université du Québec à Montréal</i>	4.20/4.30 2017–2019
Advanced Certificate in software development <i>Université du Québec à Montréal</i>	4.30/4.30 2016–2017
B. Sc in Pure Mathematics <i>Université du Québec à Montréal</i>	3.97/4.30 2013–2016
College studies in Sciences, Computer Science and Mathematics <i>Collège de Maisonneuve</i>	R-rank: 32 2010–2012

Work and research experiences

Teaching assistant

<i>Université du Québec à Montréal</i>	2016–2023
<ul style="list-style-type: none">○ MAT0339 : General mathematics○ INF1132 : Mathematics for computer science○ INF3105 : Data structures and algorithms○ INF3135 : Software development and maintenance○ INF4230 : Artificial Intelligence○ INF5130 : Design and analysis of algorithms○ INF6120 : Fonctionnal and logic programming	

Lecturer for INF3105: Data structures and algorithms

<i>Université du Québec à Montréal</i>	Automne 2020
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Research and development of Machine-Learning algorithms

<i>Université du Québec à Montréal</i>	2017–2019
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Scholarships and awards

○ Doctoral Scholarship from Fonds de Recherche du Québec — Nature et Technologies (FRQNT)	2022–2024
○ Alexander Graham-Bell Canada Graduate Scholarship (CGS, NSERC)	2019–2022
○ Master Scholarship from Fonds de Recherche du Québec — Nature et Technologies (FRQNT)	2018–2019
○ Excellence Scholarship from the Faculty of Sciences of UQAM (granted by Hydro-Québec)	2017–2018
○ Master's recruitment Scholarship from UQAM's Faculty of Sciences	2017–2018
○ Inscription on the UQAM's Dean of the Faculty of Sciences' list of excellence	2013–2014

Social experiences and volunteering

Université du Québec à Montréal

President of the student's graduate studies in Computer Sciences' Association (AECSI-UQAM) 2018–2024

Réseau Technoscience

Volunteer for the evaluation of scientific projects at Montréal and Québec's finals for Expo-Sciences 2018–2024

Université du Québec à Montréal

Member of the Master and Ph. D Computer Science program Committee 2017–2024

Technical and personal skills

- **Programming languages:** C, C++, Java, Python, Haskell, Prolog
- **Other Computer Science skills:** Algorithms, Data Structures, \LaTeX , Linux, Bash
- **General skills:** Professional writing of scientific documents, good communication of scientific concepts
- **Linguistic skills:** French (native language), English (advanced)
- **Other:** Good problem-solving skill, Good basis in Mathematics (Analysis and Algebra)

Publications

- J. Champagne Gareau, G. Gosset, É. Beaudry, and V. Makarenkov. Cache-efficient dynamic programming MDP solver. In *Proceedings of the 26th European Conference on Artificial Intelligence (ECAI 2023)*, volume 372 of *Frontiers in Artificial Intelligence and Applications*, pages 373–380, Krakow, 2023. IOS Press. ISBN 978-1-64368-437-6. doi: 10.3233/FAIA230293.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. Fast and optimal branch-and-bound planner for the grid-based coverage path planning problem based on an admissible heuristic function. *Frontiers in Robotics and AI*, 9, 2023. ISSN 2296-9144. doi: 10.3389/frobt.2022.1076897. <https://www.frontiersin.org/articles/10.3389/frobt.2022.1076897>.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. Cache-efficient memory representation of Markov Decision Processes. In *Proceedings of the Canadian Conference on Artificial Intelligence*, pages 87–96. Canadian Artificial Intelligence Association (CAIAC), 2022. ISBN 978-3-030-91608-4. doi: 10.21428/594757db.0e910d58. <https://caiac.pubpub.org/pub/pq25qiqh>.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. pcTVI: Parallel MDP solver using a decomposition into independent chains. In P. Brito, J. G. Dias, B. Lausen, A. Montanari, and R. Nugent, editors, *Classification and Data Science in the Digital Age – IFCS 2022*, Studies in Classification, Data Analysis, and Knowledge Organization, pages 101–109, Cham, 2023. Springer International Publishing. ISBN 978-3-031-09034-9. doi: 10.1007/978-3-031-09034-9_12.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. Fast and optimal planner for the discrete grid-based coverage path-planning problem. In H. Yin, D. Camacho, P. Tino, R. Allmendinger, A. J. Tallón-Ballesteros, K. Tang, S.-B. Cho, P. Novais, and S. Nascimento, editors, *Intelligent Data Engineering and Automated Learning – IDEAL 2021*, pages 87–96, Cham, 2021. Springer International Publishing. ISBN 978-3-030-91608-4. doi: 10.1007/978-3-030-91608-4_9.
- J. Milot, J. Champagne Gareau, and E. Beaudry. An energy-efficient method with dynamic GPS sampling rate for transport mode detection and trip reconstruction. In C. Goutte and X. Zhu, editors, *Advances in Artificial Intelligence – Canadian AI 2020*, page 408–419, Cham, 2020. Springer International Publishing. ISBN 978-3-030-47357-0. doi: 10.1007/978-3-030-47358-7_42.
- J. Champagne Gareau, E. Beaudry, and V. Makarenkov. An efficient electric vehicle path-planner that considers the waiting time. In *Proceedings of the 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, SIGSPATIAL '19, page 389–397, New York, NY, USA, 2019. ACM. ISBN 9781450369091. doi: 10.1145/3347146.3359064.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. A fast electric vehicle planner using clustering. In T. Chadjipadelis, B. Lausen, A. Markos, T. R. Lee, A. Montanari, and R. Nugent, editors, *Data Analysis and Rationality in a Complex World – IFCS 2019*, Studies in Classification, Data Analysis, and Knowledge Organization, pages 17–25, Cham, 2021. Springer International Publishing. ISBN 978-3-030-60104-1. doi: 10.1007/978-3-030-60104-1_3.