

# Jaël Champagne Gareau | CV

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## Education

### Postdoctoral Research in Computer Science

Université TÉLUQ — supervised by Pr. Daniel Lemire

2025–

Title: Efficient generation of decimal character strings from binary floating-point numbers

### Ph. D in Computer Science

4.30/4.30

2019–2024

Université du Québec à Montréal — supervised by Prs. Éric Beaudry and Vladimir Makarenkov  
Title: Efficient resolution of Markov decision processes by exploiting structural and algorithmic approaches taking advantage of modern computer architecture

### M. Sc in Computer Science

4.20/4.30

2017–2019

Université du Québec à Montréal — supervised by Prs. Éric Beaudry and Vladimir Makarenkov  
Title: Route planning for electric vehicles with uncertain availability of charging stations

### Advanced Certificate in Software Development

4.30/4.30

2016–2017

Université du Québec à Montréal

### B. Sc in Pure Mathematics

3.97/4.30

Université du Québec à Montréal

2013–2016

## Work and research experiences

### Artificial Intelligence Consultant

Centre d'accès à l'information Juridique (CAIJ)

2026–

### Lecturer

Université du Québec à Montréal

○ INF3105 : Data structures and algorithms 2 contracts: 2020, 2024

### Teaching assistant

Université du Québec à Montréal

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| ○ INF3105 : Data structures and algorithms       | 5 contracts: 2019–2024 |
| ○ INF4230 : Artificial Intelligence              | 4 contracts: 2020–2024 |
| ○ INF5130 : Design and analysis of algorithms    | 4 contracts: 2017–2021 |
| ○ INF5171 : Concurrent and parallel programming  | 2021                   |
| ○ INF6120 : Fonctionnal and logic programming    | 3 contracts: 2019–2020 |
| ○ INF1132 : Mathematics for computer science     | 7 contracts: 2017–2020 |
| ○ INF3135 : Software development and maintenance | 5 contracts: 2017–2020 |
| ○ MAT0339 : General mathematics                  | 2016                   |

### Research and development of Machine-Learning algorithms

Travailleur contractuel en association avec GEVA Solutions et l'Université du Québec à Montréal

2017–2019

### Undergrad research internship in Mathematics (algebraic curves)

Université du Québec à Montréal (CIRGET, ISM), supervised by Pr. Olivier Collin

Summer 2014

## Scholarships and awards

### ○ Scholarships and grants:

- Postdoctoral research grant from Fonds de Recherche du Québec (FRQ) 2025–2027
- 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
- UQAM's Registrar's Office Scholarship in Computer Science 2017–2018
- Master's recruitment Scholarship from UQAM's Faculty of Sciences 2017–2018

<input type="radio"/> <b>Distinctions:</b>		
- Best paper award (Canadian AI 2022)		2022
- Honorable mention for Masters in Computer Science		2019
- Inscription on the UQAM's Dean of the Faculty of Sciences' list of excellence		2013–2014

## Academic Service

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<input type="radio"/> <b>Reviewer of academic papers:</b>		
- <i>Software: Practice and Experience (SPE)</i> (x5)		2024, 2025, 2026
- <i>Journal of Classification (CLAS)</i>		2026
- <i>International Conference on Robotics and Automation (ICRA)</i> (x3)		2020, 2025
- <i>IEEE Robotics and Automation Letters (RA-L)</i>		2024
- <i>Canadian AI Conference</i> (x4)		2022, 2023
- <i>European Conference on Artificial Intelligence (ECAI)</i> (x2)		2023
- <i>MDPI Actuators</i>		2023
- <i>IEEE Transactions on Games (TCIAIG)</i>		2021
- <i>Geoinformatica</i>		2020
<input type="radio"/> <b>Help in the organization and good progress of university events:</b>		
- Welcome day for new graduate students in computer science		2024, 2025
- Computer Science Career Day		2023
<input type="radio"/> <b>Help in the organization and management of conferences:</b>		
- <i>Automated Agents and Multiagent Systems (AAMAS)</i>		2024
- <i>Advances in Geographic Information Systems (ACM SIGSPATIAL)</i>		2019
- <i>Educational Data Mining (EDM)</i>		2019
- <i>Intelligent Tutoring Systems (ITS)</i>		2018
<input type="radio"/> <b>Invited speaker:</b>		
- Invited speaker for the research Wednesdays of the UQAM computer science department		February, 19th 2025
- Presentation at the UQAM's Faculty of Sciences research day		April, 4th 2024
- Invited speaker in the context of the INF9810 seminar course of UQAM		2019, 2020, 2023
- Poster presentation at the Day of Artificial Intelligence at UQAM		March, 28th 2019
- Presentation at a LATECE seminar at UQAM		March, 13th 2019
- Poster presentation at the Cognitive Computing Symposium at Université TÉLUQ		June, 20th 2018

## Social experiences and volunteering

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### Réseau Technoscience

Volunteer for the evaluation of scientific projects at Montréal and Québec's finals for Expo-Sciences 2018–2025

### Université du Québec à Montréal

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

### Université du Québec à Montréal

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

### Université du Québec à Montréal

Participation in the University's Financial vitality plan 2021

My proposal, *Digitization of theses and dissertations*, was retained by the Vice-Rectorate for Administration and Finance

## Technical and personal skills

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- Programming languages:** C, C++, Python, Java, Haskell, Prolog, Bash
- Other Computer Science skills:** Algorithms, Data Structures, L<sup>A</sup>T<sub>E</sub>X, Linux
- General skills:** Professionnal writing of scientific documents, good communication of scientific concepts
- Linguistic skills:** French (native language), English (advanced)

Publications marked with an asterisk (\*) at the end are conference papers that I presented myself.  
This list is non-exhaustive and is limited to a selection of my main publications.

## Publications

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- J. Champagne Gareau and D. Lemire. Converting binary floating-point numbers to shortest decimal strings: An experimental review. *Software: Practice and Experience*, 2026. Accepted for publication; in production.
- M. Gravel and J. Champagne Gareau. Topology-driven solver selection for stochastic shortest path mdps via explainable machine learning. In *Proceedings of the 38<sup>th</sup> Canadian Conference on Artificial Intelligence (Canadian AI 2025)*. Canadian Artificial Intelligence Association (CAIAC), 2025.
- J. Champagne Gareau, É. Beaudry, and V. Makarenkov. Towards topologically diverse probabilistic planning benchmarks: Synthetic domain generation for Markov decision processes. In J. Trejos, T. Chadjipadelis, A. Grané, and V. Mario, editors, *Data Science, Classification and Artificial Intelligence for Modeling Decision Making – IFCS 2024*, Studies in Classification, Data Analysis, and Knowledge Organization, pages 63–70, Cham, 2024. Springer International Publishing. (\*).
- J. Champagne Gareau, G. Gosset, M.-A. Lavoie, É. Beaudry, and V. Makarenkov. Increased plan stability in cooperative electric vehicles path-planning. In *ICAPS 2024 Workshop on Human-Aware Explainable Planning*, 2024. URL <https://openreview.net/forum?id=vtWg28K6Lu>.
- J. Champagne Gareau, M.-A. Lavoie, G. Gosset, and É. Beaudry. Cooperative electric vehicles planning. In *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems*, AAMAS '24, pages 290–298, Richland, SC, 2024. International Foundation for Autonomous Agents and Multiagent Systems. ISBN 9798400704864. (\*).
- 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. URL <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. URL <https://caiac.pubpub.org/pub/pq25qiqh>. Best-paper Award. (\*).
- 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 É. 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*, pages 408–419, Cham, 2020. Springer International Publishing. ISBN 978-3-030-47357-0. doi: 10.1007/978-3-030-47358-7\_42.
- Z. Aouabed, M. Abdar, N. Tahiri, J. Champagne Gareau, and V. Makarenkov. A novel effective ensemble model for early detection of coronary artery disease. In M. Serrhini, C. Silva, and S. Aljahdali, editors, *Innovation in Information Systems and Technologies to Support Learning Research*, pages 480–489, Cham, 2020. Springer International Publishing. doi: 10.1007/978-3-030-36778-7\_53.
- J. Champagne Gareau, É. 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, pages 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. (\*).