

Kaari Landry

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'Education is not the filling of a pot but the lighting of a fire.' – W.B. Yeats

Education

- 2020–2025 **Ph.D. Science**, *University of Manitoba*, Winnipeg MB, GPA 4.5/4.5
Advisor Dr. Olivier Tremblay-Savard in the Bioinformatics Lab. Thesis-based stream on the topic "Efficient Algorithms in Phylogenetic Networks".
- 2019–2020 **M. Science**, *University of Manitoba*, Winnipeg MB, GPA 4.5/4.5
No degree awarded. Originally started a Masters program, advisor Dr. Olivier Tremblay-Savard. Transferred to a Ph.D. program.
- 2016–2019 **B. Computer Science, Honours**, *Dalhousie University*, Halifax NS, GPA 3.44/4.3
Degree with honours thesis completed under the supervision of Dr. Norbert Zeh. Also attended humanities and science (biology) classes here before enrolment.
- 2012–2016 **B. Fine Arts, Studio**, *NSCAD University*, Halifax NS, GPA 3.68/4.3
Interdisciplinary studio major with experience in foundry, animation, and printing. Self-directed work focused on mixed-media and life drawing and painting.
- 2008–2010 **B. Education / B. Fine Arts**, *University of Lethbridge*, Lethbridge AB, GPA 3.37/4.0
No degree awarded. Pursued combined degree programme with minor in French education including linguistics. Included one semester practicum in-classroom placement.

Experience

Research Positions

- 2025–2026 **Postdoctoral Researcher**, *Université de Montréal*
Under the direction of Dr. Nadia El-Mabrouk in the Laboratoire de Biologie informatique et Théorique (Computational and Theoretical Biology Lab) I am continuing my research on algorithms on phylogenetic networks. The position is codirected by Dr. Nadia Tahiri of Université de Sherbrooke.

Teaching and Marking

- 2025 **Sessional Instructor**, *University of Manitoba*
Duties include planning and presenting class sessions, designing assessments and their evaluation schemes including assignments and tests, managing marking and markers, holding office hours and guiding student progress through the course (COM2150 Object Orientation)
- 2019–2024 **TA and Marker**, *Dalhousie University and University of Manitoba*
Teaching Assistant duties include planning and leading lab sessions, holding office hours, marking labs, and monitoring class forum and live chat. Marking duties include marking assignments, exams, and invigilating.

University of Manitoba		Dalhousie University	
name	semesters	name	semesters
1010 Intro to CS (TA)	2	1110 Intro to CS (TA)	1
1020 Intro to CS 2 (TA)	5		
2140 Data Structures and Algorithms (TA)	2	2110 Data Structures and Algorithms (TA)	1
3030 Automata Theory and Formal Languages (M)	2	3136 Principles of Programming Languages (TA/M)	1
4820 Bioinformatics (M)	2		

2019–2023 **Assistant**, *Dalhousie Computer Science Resource Centre, Halifax NS and University of Manitoba Computer Science Help Centre, Winnipeg MB*
 Provided homework and study help one-on-one and in small groups for all undergraduate CS courses.

2012–2015 **Private Tutor**, Halifax NS
 One-on-one English as a Foreign Language (EFL) writing and reading specialty.

Academic Service

2026 **Peer Review Committee Member**, *Canadian Institutes of Health Research - Strategic Master's Award, CIHR-SMA*
 Serving on review committee for award competition.

2025 **Subreviewer**, *Research in Computational Molecular Biology, RECOMB*
 Served as subreviewer for one article in the corresponding conference proceedings.

2024 **Committee Member**, *Faculty of Science Endowment Committee*, University of Manitoba
 Committee to assign allotment of endowment funds for the direct support of undergraduate teaching and learning. One of two science graduate students selected, entry was competitive based on written justification of suitability, as well as having TA experience.

2024 **Subreviewer**, *Research in Computational Molecular Biology - Comparative Genomics, RECOMB-CG*
 Served as subreviewer for one article in the corresponding conference proceedings.

2023 **Subreviewer**, *Intelligent Systems for Molecular Biology and European Conference on Computational Biology, ISMB and ECCB*
 Served as subreviewer for one article in the corresponding conference proceedings.

2022 **Subreviewer**, *Intelligent Systems for Molecular Biology, ISMB*
 Served as subreviewer for one article in the corresponding conference proceedings.

2021 **Committee Member**, *Computer Science Department Head Search Committee*, University of Manitoba
 Search committee for hiring new CS department head. My responsibility, in addition to attending and contributing to all committee meetings to find and rank appropriate candidates, was to organize and host student interview and meet and greet session with each interviewed candidate.

Relevant Activities

Education and EDIA

Fall 2024 **EDIA 0100: Foundations**, *UM Extended Education, Winnipeg Canada*
 Course offered in partnership with the Office of Equity Transformation and with the support of the UM President's Office. Includes group workshops, emphasis on self-reflection.

Spring 2023 **Canadian Symposium on Academic Integrity**, *CSAI, Winnipeg Canada*
 Attendee of 3rd biannual meeting of Canada's leading conference on academic integrity in post-secondary education. Included keynotes and workshops on EDIA topics.

2019-2022 **Certificate of Completion**, *SEDA, Winnipeg MB*
Level 1: Novice Graduate Teaching Program offered by The Centre for the Advancement of Teaching and Learning at University of Manitoba, accredited by SEDA (Staff and Educational Development Association), a UK-based professional association whose mission is the enhancement of higher education. Includes group workshops, emphasis on written reflections.

Science Communication and Project Management

- 2024 **Lobbyist**, *Event: Citizens for Climate*, Citizen's Climate Lobby (CCL) Canada, Winnipeg Chapter I helped with planning, technical work, and execution of this lobbying event that connected provincial MLAs across party lines with a group of non-profits in both environmental activism and in the health sector on the topic of climate effects on health.
- 2022 **Lobbyist**, *Event: All Together Now*, Citizen's Climate Lobby (CCL) Canada, Winnipeg Chapter I co-hosted this national educational conference bringing together federal and provincial representatives with the creators and experts of MIT's and Climate Interactive's global climate policy simulator En-ROADS.
- Fall 2020 **ComSciConCanWest**, *Harvard University*, Virtual, Western Canada
ComSciCon is the communicating science workshop for graduate students. Competitive entry was gained with my submission *Living Hybrids: The Hybridization of Heliconius Butterflies in Central America*, written and illustrated for a general audience.

Complementary Activities

- Winter 2017 **Certificate of Participation**, *Mental Health Commission of Canada*, Halifax NS
Mental Health First Aid for Adults who Interact with Youth. This multi-day course offers preparation to confidently interact with youth (aged 14-25) in acute mental health situations. Topics included mental health and stigma, recognizing signs and symptoms, and how to provide effective intervention.

Research

Postdoctoral Research

- title *Simultaneously Building and Reconciling a Synteny Network*
supervisor Dr. Nadia El-Mabrouk, Dr. Nadia Tahiri
description This program of research develops evolutionary models on networks by expanding the complexity of evolutionary events considered by the model. Specifically, we incorporate synteny (colocated and coevolving groups of genes) information into. reconciliation models. We improve the runtime complexity of associated algorithms using parameterization techniques associated with the local complexity of network structures.

Ph.D. thesis

- title *Efficient Algorithms on Phylogenetic Networks*
supervisor Dr. Olivier Tremblay-Savard
description We defined a new network distance based on a network trimming operation and show it is NP-hard. We designed an algorithm to calculate this distance with a small (when compared to input size) exponential parameter that reflects the network complexity. The algorithm was implemented, with optimization and heuristic design improvements, in a publicly available software package (CherryRed). We tested the software package on simulated and real data sets, showing the effectiveness and applicability of the distance and the design improvements.

Undergraduate honours thesis

- title *Reliability of Clustering for Binary Phylogenetic Trees*
supervisor Dr. Norbert Zeh
description Considering a problem of constructing networks from large sets of binary trees, we asked if we can compute it on the equally-labelled subtrees of the set (which we call clustered input). We showed that the aggregated results computed on subnetworks accurately reflect the result computed on the network as a whole. Known results for clustering were summarised, two new results were proved, and a clustering algorithm was provided.

Publications

- [1] Kaari Landry. *Comparing networks of life: Cherry picking the path between orchards*. PhD thesis, University of Manitoba, 2025.
- [2] Kaari Landry and Olivier Tremblay-Savard. CherryRed: A software implementation of cherry distance with a new optimization and heuristic. *Journal of Computational Biology*, TBD.
- [3] Kaari Landry and Olivier Tremblay-Savard. Fast calculation of cherry distance on level-1 orchard networks: Optimization, heuristic and implementation. In *RECOMB International Workshop*

on *Comparative Genomics*, pages 157–177. Springer Nature Switzerland Cham, 2025. (Includes conference presentation at international conference RECOMB-CG).

- [4] Kaari Landry, Olivier Tremblay-Savard, and Manuel Lafond. A fixed-parameter tractable algorithm for finding agreement cherry-reduced subnetworks in level-1 orchard networks. *Journal of Computational Biology*, 31:360–79, 2024.
- [5] Kaari Landry, Olivier Tremblay-Savard, and Manuel Lafond. Finding agreement cherry-reduced subnetworks in level-1 networks. In Katharina Jahn and Tomáš Vinař, editors, *Comparative Genomics*, pages 179–195. Springer Nature Switzerland, 2023. (Includes conference presentation at international conference RECOMB-CG).
- [6] Kaari Landry, Aivee Teodocio, Manuel Lafond, and Olivier Tremblay-Savard. Defining phylogenetic network distances using cherry operations. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 20:1654–1666, 2022.
- [7] Kaari Landry, Aivee Teodocio, Manuel Lafond, and Olivier Tremblay-Savard. Novel phylogenetic network distances based on cherry picking. In *International Conference on Algorithms for Computational Biology*, pages 57–81. Springer, 2021. (Includes conference presentation at international conference AICoB).

Awards and Fellowships

- 2021-2024 **Mark and Sharon Evans Grad Fellowship in Computer Science**, *Dr. Mark and Mrs. Sharon Evans*, University of Manitoba
Annual award based on academic achievement, amount varies \$1,875 - \$5,275 annually, to students in good academic standing and who have demonstrated research potential.
- Winter 2021 **Research Completion Scholarship**, *Faculty of Graduate Studies*, University of Manitoba
Awarded to those who are in good academic standing and who have defended their thesis proposal, in the amount of \$5000.
- 2021 **Manitoba Scholarship and Bursary Initiative**, *Province of Manitoba*, University of Manitoba
Provincial funding matches private donations 1:2 in this program that awards scholarships, bursaries, and grants to qualifying Manitoba residents through educational institutions under the program, one-time award of \$2,150.
- 2020-present **Fellowship for Education Purposes**, *Computer Science Department and Faculty of Graduate Studies*, University of Manitoba
Benefit given for the purpose of advancing one's education, Ph.D. program amount of \$22,500 awarded annually.
- 2019-2020 **Fellowship for Education Purposes**, *Computer Science Department and Faculty of Graduate Studies*, University of Manitoba
Benefit given for the purpose of advancing one's education, Master's program amount of \$19,000 awarded annually.
- 2014 **Alicia Little Memorial Bursary**, *Blue Ocean Contact Centers (Employer)*, Halifax NS
A competitive bursary in the amount of \$1000, awarded to the winner of an essay contest.