

Cait Harrigan, MSc.

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I am a graduate student at the University of Toronto supervised by [Quaid Morris](#) and [Kieran Campbell](#). I'm a graduate researcher at the [Vector Institute](#) and Doctoral Fellow at the [UofT Data Sciences Institute](#). I did my undergraduate studies at the University of Toronto, in Computational Biology and Statistics. I use machine learning to understand cancer genomics by modelling the evolutionary constraints that underlie how mutation events occur in DNA. I'm passionate about open science, and promoting great mentorship in the sciences.

EDUCATION

- 2021 — **PhD in Computer Science** University of Toronto
- 2019 — 2021 **MSc in Computer Science** University of Toronto
- 2015 — 2019 **Honours BSc. Awarded with distinction** University of Toronto

WORK EXPERIENCE

- May 2021 **Visiting Graduate Researcher** Memorial Sloan Kettering Cancer Center
- 2018 — 2019 **Undergraduate Research Assistant** Donnelly Centre for Cellular and Biomolecular Genetics
- May 2017 **Undergraduate Research Assistant** SickKids Hospital
- May 2016 **Intern** Eviviz Vancouver

PUBLICATIONS

1. Caitlin Timmons, Quaid Morris, and **Caitlin F. Harrigan**. "[Regional mutational signature activities in cancer genomes](#)". En. In: *PLOS Computational Biology* 18.12 (Dec. 2022), p. e1010733.
2. Agata A. Bielska, **Caitlin F. Harrigan**, Yeon Ju Kyung, Quaid Morris, Wilhelm Palm, and Craig B. Thompson. "Activating mTOR mutations are detrimental in nutrient-poor conditions". Eng. In: *Cancer Research* (Jul. 2022).
3. **Caitlin F. Harrigan**, Gabriella Morgenshtern, Anna Goldenberg, and Fanny Chevalier. "[Considerations for Visualizing Uncertainty in Clinical Machine Learning Models](#)". Realizing AI in Healthcare: Challenges Appearing in the Wild, Workshop at CHI 2021 Online Virtual Conference, May. 2021.
4. **Caitlin F. Harrigan**, Yulia Rubanova, Quaid Morris, and Alina Selega. "[TrackSigFreq : subclonal reconstructions based on mutation signatures and allele frequencies](#)". In: *Pacific Symposium on Biocomputing* 25 (Jan. 2020), pp. 238-249.
5. Yulia Rubanova, Ruian Shi, **Caitlin F. Harrigan**, Roujia Li, Jeff Wintersinger, Nil Sahin, Amit Deshwar, and Quaid Morris. "[Reconstructing evolutionary trajectories of mutation signature activities in cancer using TrackSig](#)". In: *Nature Communications* 11.1 (Feb. 2020), pp. 1-12.

TALKS

- Nov 2021 **DAMUTA: Dirichlet allocation of mutations as a function of both damage and DNA repair**
Cold Spring Harbour Laboratory Meeting: Genome Informatics
Selected Talk
- Jan 2020 **TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies** Pacific Symposium on Biocomputing
Selected Talk, Poster

POSTERS

- Jul 2022 **Dirichlet Allocation of Mutations Captures the Action of DNA Damage and Misrepair Processes** Intelligent Systems for Molecular Biology
- Nov 2021 **Dirichlet Allocation of Mutations in Cancer Genomes** Machine Learning in Computational Biology
- Dec 2019 **TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies** Machine Learning in Computational Biology

SERVICE

Peer review: Genome Biology, iScience, Genome Medicine

Conference program committee: Machine Learning in Computational Biology (2019), Pacific Symposium on Biocomputing (2020)

GRANTS & AWARDS

- 2022 — **NSERC Postgraduate Scholarship - Doctoral**
- 2022 — **DSI Doctoral Student Fellowship Award**
- Jul 2022 **Queen Elizabeth II Graduate Scholarship in Science & Technology**
- 2021 — 2022 **Ontario Graduate Scholarship**
- 2020 — 2022 **ACM SIGHPC Computational & Data Science Fellowship**
- Aug 2021 **JXTX foundation Genome Informatics Scholarship**
- Sep 2020 **General Motors Women in Science and Mathematics Award**
- Nov 2019 **NIH Conference Travel Fellowship**
- Jul 2017 **The Audrey Taylor Award**

TEACHING

Unless otherwise noted, school is University of Toronto

- Jan 2023 **JSC370: Data Science II**
- Jan 2023 **JSC270: Data Science I**
- Sep 2022 **STA313: Data Visualization**
- Jan 2022 **JSC370: Data Science II**
- Sep 2021 **CSC197: Privacy in the Age of Big Data Collection**
- Jan 2021 **STA4273: Minimizing Expectations**
- Sep 2020 **CSC197: Privacy in the Age of Big Data Collection**
- Jan 2020 **JSC270: Data Science I**
- Sep 2019 **CSC373: Algorithm Design, Analysis & Complexity**

EVENT ORGANIZATION

- Mar 2020 **Volunteer Coordinator** Grad Visit Day, Department of Computer Science, University of Toronto
- Mar 2018 **Event chair: BioHacks** Bioinformatics and Computational Biology Hackathon

PROGAM ADMINISTRATION

- 2021 — **Program Organizer** UofT Graduate Application Assistance Program
- 2020 — 2021 **Project Manager** STEMHub Foundation
- 2018 — 2019 **Founder and treasurer** Bioinformatics and Computational Biology Student Union, University of Toronto