

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

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

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

POSTERS

- 2022 **Dirichlet Allocation of Mutations Captures the Action of DNA Damage and Misrepair Processes** Intelligent Systems for Molecular Biology
- 2021 **Dirichlet Allocation of Mutations in Cancer Genomes** Machine Learning in Computational Biology
- 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**
- 2022 **Queen Elizabeth II Graduate Scholarship in Science & Technology**
- 2021 — 2022 **Ontario Graduate Scholarship**
- 2020 — 2022 **ACM SIGHPC Computational & Data Science Fellowship**
- 2021 **JXTX foundation Genome Informatics Scholarship**
- 2020 **General Motors Women in Science and Mathematics Award**
- 2019 **NIH Conference Travel Fellowship**
- 2017 **The Audrey Taylor Award**

TEACHING

Unless otherwise noted, school is University of Toronto

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

EVENT ORGANIZATION

- 2020 **Volunteer Coordinator** Grad Visit Day, Department of Computer Science, University of Toronto
- 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