# Cait Harrigan, MSc.

cait.harrigan@mail.utoronto.ca | View this CV online at caitharrigan.ca/cv

I am a graduate student at the University of Toronto supervised by Quaid Morris and Kieran Campbell, and a graduate researcher at the Vector Institute. I did my undergraduate studies at the University of Toronto, in Computational Biology and Statistics. My thesis work pertains to cancer genomics, and 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.

## MEMBERSHIPS & AFFILIATIONS

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| Jul 2022 — present | Doctoral Fellow | *Data Science Institute, University of Toronto* |
| May 2020 — present | Graduate Researcher | *Ontario Institute for Cancer Research* |
| Sep 2019 — present | Graduate Researcher | *Vector Institute, Toronto, Canada* |

## EDUCATION

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|---|---|---|
| Jan 2021 — present | PhD in Computer Science, Co-Supervised by Quaid Morris and Kieran Campbell | *University of Toronto* |
| Sep 2019 — Mar 2021 | MSc in Computer Science, Supervised by Quaid Morris | *University of Toronto* |
| Sep 2015 — Jun 2019 | Honours BSc. in Bioinformatics and Computational Biology, Minor in Statistics, Awarded with distinction | *University of Toronto* |

## WORK EXPERIENCE

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

## PUBLICATIONS

1. 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).
2. Caitlin Timmons, Quaid Morris, and **Caitlin F Harrigan**. "Regional Mutational Signature Activities in Cancer Genomes". In: *bioRxiv [preprint]* (Jan. 2022).
3. **Caitlin F Harrigan**, Gabriella Morgenshtern, Anna Goldenberg, and Fanny Chevalier. "Considerations for Visualizing Uncertainty in Clinical Machine Learning Models". Workshop: Realizing AI in Healthcare: Challenges Appearing in the Wild, CHI 2021 Online Virtual Conference (originally Yokohama, Japan), 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 (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 & POSTERS

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| Jul 2022 | *Dirichlet Allocation of Mutations Captures the Action of DNA Damage and Misrepair Processes*<br>Intelligent Systems for Molecular Biology 2022 | *Poster* |
| Nov 2021 | *DAMUTA: Dirichlet allocation of mutations as a function of both damage and DNA repair*<br>Cold Spring Harbour Laboratory Meeting: Genome Informatics | *Oral Presentation* |
| Apr 2021 | *Tandem Signatures of DNA Damage and Misrepair in Cancer*<br>Computing Research Association's Grad Cohort for Women | *Poster* |
| Feb 2020 | *Undergraduate research opportunities: how to find them and make them work for you*<br>Invited by the Bioinformatics and Computational Biology Student Union, University of Toronto | *Talk* |
| Jan 2020 | *TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies*<br>Pacific Symposium on Biocomputing (PSB) 2020 | *Oral Presentation, Poster* |
| Dec 2019 | *TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies*<br>Machine Learning in Computational Biology (MLCB) 2019 | *Poster* |
| May 2019 | *How to hack your degree*<br>Invited by the Computer Science Student Union, University of Toronto | *Talk* |

## GRANTS & AWARDS

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| 2022 — present | **NSERC Postgraduate Scholarship - Doctoral**, University of Toronto |
| 2022 — present | **Doctoral Student Fellowship Award**, Data Science Institute, University of Toronto |
| 2022 | **Queen Elizabeth II Graduate Scholarship in Science & Technology**, University of Toronto |
| 2021 — 2022 | **Ontario Graduate Scholarship**, Department of Computer Science, University of Toronto |
| 2020 — 2022 | **ACM SIGHPC Computational & Data Science Fellowship**, Special Interest Group on High Performance Computing of the Association for Computing Machinery |
| 2021 | **JXTX foundation Genome Informatics Scholarship**, James P. Taylor Foundation for Open Science |
| 2020 | **General Motors Women in Science and Mathematics Award**, University of Toronto |
| 2019 | **NIH Conference Travel Fellowship**, International Society for Computational Biology |
| 2017 | **The Audrey Taylor Award**, New College, University of Toronto |

## SERVICE

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| Nov 2019 | Program committee member | *Machine Learning in Computational Biology (MLCB) 2019* |
| Oct 2019 | Program committee member | *Pacific Symposium on Biocomputing (PSB) 2020* |

## TEACHING

*Unless otherwise noted, school is University of Toronto*

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|---|---|
| Winter 2022 | JSC370: Data Science II |
| Jan 2022 | PRISM: Preparation for Research through Immersion, Skills, and Mentorship |
| Fall 2021 | CSC197: What, Who, How: Privacy in the Age of Big Data Collection |
| Winter 2021 | STA4273: Minimizing Expectations |
| Fall 2020 | CSC197: What, Who, How: Privacy in the Age of Big Data Collection |
| Winter 2020 | JSC270: Data Science I |
| Jan 2020 | Curriculum design and workshop series facilitator: “Environmental & Life Sciences”, STEMHub Foundation |
| Jan 2020 | Curriculum design and workshop facilitator: “R for bioinformatics”, Global Society for Genetics and Genome Biology |
| Fall 2019 | CSC373: Algorithm Design, Analysis & Complexity |

## EVENT ORGANIZATION & VOLUNTEERING

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| Sep 2021 — present | **Organizer**, Graduate Application Assistance Program, Department of Computer Science, University of Toronto<br>Organized mentorship program to aid prospective students from underrepresented backgrounds in finding editing support for their gradschool applications. Created pilot project, recruited mentors, implemented peer matching. |
| Sep 2020 — present | **Mentor**, ProjectX machine learning research competition<br>Worked with a group of 4 students to refine their research proposal, offer advice and guidance on their project design and execution. |
| Oct 2020 — May 2021 | **Project Manager**, STEMHub Foundation<br>STEMHub is a charity that aims to increase accessibility to STEM programs for underserved or low-income communities within Ontario. Led program planning. Designed hands-on science workshops for ages 10-14. Purchased and distributed materials. |
| Aug 2020 — Aug 2021 | **Mentor**, Her Code Camp, Toronto<br>Her Code Camp is a free computer science camp for senior high school students in the greater toronto area who identify as a woman, non-binary, or transgender. Over 3 weeks, mentors guide the development of a project in python, and cultivate curiosity in computer science. |
| May 2018 — May 2019 | **Founder and treasurer**, Bioinformatics and Computational Biology Student Union, University of Toronto<br>Managed the union’s annual budget, and event budgeting. I founded the union, and spearheaded the process of obtaining official group recognition by the university, and managing bank accounts, general administration, and writing the group’s constitution. |
| Sep 2016 — May 2019 | **Mentor**, SPROUT Peer Mentorship Program, New College, University of Toronto<br>Met bi-weekly one-on-one with 2-3 first year undergrad students. Focus on guiding the transition to university life. |