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 use machine learning to understand cancer genomics by modelling the evolutionary constraints that underlie how mutations occur in DNA. I'm passionate about open science, and promoting great mentorship in the sciences.

EDUCATION

01/21 - present **PhD in Computer Science**
University of Toronto
Supervised by Quaid Morris and Kieran Campbell

09/19 - 03/21 **MSc. in Computer Science**
University of Toronto
Supervised by Quaid Morris

09/15 - 06/19 **BSc. in Computational Biology**
University of Toronto
Awarded with distinction

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.

HONOURS & AWARDS

03/20 - present **Vector Institute Research Grant**
Vector Institute, Toronto, Canada

09/22 - present **NSERC Postgraduate Scholarship - Doctoral**
University of Toronto

09/22 - present **DSI Doctoral Student Fellowship Award**
Data Science Institute, University of Toronto

07/22 **Queen Elizabeth II Graduate Scholarship in Science & Technology**
(respectfully declined)

09/21 - 09/22 **Ontario Graduate Scholarship**
Department of Computer Science, University of Toronto

07/20 - 07/22 **ACM SIGHPC Computational & Data Science Fellowship**
Special Interest Group on High Performance Computing of the Association for Computing Machinery

08/21 **JXTX foundation Genome Informatics Scholarship**
James P. Taylor Foundation for Open Science

09/20 **General Motors Women in Science and Mathematics Award**
University of Toronto

11/19 **NIH Conference Travel Fellowship**
International Society for Computational Biology

07/17 **The Audrey Taylor Award**
New College, University of Toronto

RESEARCH EXPERIENCE

06/23 - present **Visiting Graduate Researcher**
Memorial Sloan Kettering Cancer Center
Hosted by Quaid Morris

05/21 - 09/21 **Visiting Graduate Researcher**
Memorial Sloan Kettering Cancer Center
Hosted by Quaid Morris

05/17 - 09/17 **Undergraduate Research Assistant**
SickKids Hospital
Supervised by Michael Wilson and Anna Goldenberg

TALKS

05/23 **Mutational Signautres for DNA Damage and Misrepair**
Mathematical Methods in Cancer Biology, Evolution and Therapy (BIRS 23w5084)
Invited talk

11/21 **DAMUTA: Dirichlet allocation of mutations as a function of both damage and DNA repair**
Cold Spring Harbour Laboratory Meeting: Genome Informatics
Selected Talk

01/20 **TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies**
Pacific Symposium on Biocomputing
Selected Talk, Poster

POSTERS

04/23 **Dirichlet allocation of mutations to model DDR in cancer**
Toronto DNA Damage & Repair Symposium

07/22 **Dirichlet Allocation of Mutations Captures the Action of DNA Damage and Misrepair Processes**
Intelligent Systems for Molecular Biology

11/21 **Dirichlet Allocation of Mutations in Cancer Genomes**
Machine Learning in Computational Biology

12/19 **TrackSigFreq: subclonal reconstructions based on mutation signatures and allele frequencies**
Machine Learning in Computational Biology