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

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

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

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

RESEARCH EXPERIENCE

Visiting Graduate Researcher 03/24 - present
The Francis Crick Institute, London, England
Hosted by Nicholas McGranahan

Visiting Graduate Researcher 06/23 - 09/23
Memorial Sloan Kettering Cancer Center, New York, USA
Hosted by Quaid Morris

SELECTED PUBLICATIONS

* Indicates equal contribution

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**, 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.
4. 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.

FELLOWSHIPS & AWARDS

Mitacs Graduate Research Award 03/24 - present
Mitacs, in partnership with UKRI

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

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

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

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

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

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

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

TALKS

Mutational Signatures for DNA Damage and Misrepair 05/23
BIRS: Mathematical Methods in Cancer Biology, Evolution and Therapy
Invited talk

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

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

RESEARCH MENTORSHIP

Fedir Zhydok 09/22 - 12/22
BS Student; Computer Science. Course project in Artificial Intelligence in Medicine "global classroom" program at University of Toronto.
Topic: Identifying metastatic tumours from mutational signatures

Caitlin Timmons 05/21 - 08/22
BA Student; Statistical and Datasciences, Biology. Research internship via Computational Biology Student Program at MSKCC. Went on to a Research Technician position at Dana-Farber Cancer Institute.
Topic: Modelling spatial distribution of mutational signatures in cancer genomes.

Haritha Lakshmanan 05/20 - 11/20
Highschool Student. Independent study at MSKCC. Went on to a combined BA/MD at Brooklyn College.
Topic: Automatic discovery of mutations predictive of survival in breast cancer patients

Last updated: Apr 2024