

# Calder Morton-Ferguson

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Department of Mathematics  
Massachusetts Institute of Technology  
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## Education

### **Massachusetts Institute of Technology**

Ph.D. Student, Mathematics; started August 2019.

### **University of Toronto**

Honours Bachelor of Science, June 2019. GPA: 4.0/4.0.

Mathematics Specialist, Computer Science Minor

## Research

### **NSERC Undergraduate Student Research Award, 2018**

Topology of quiver flag varieties, supervised by Professor Joel Kamnitzer

### **NSERC Undergraduate Student Research Award, 2017**

3-manifold topology, supervised by Professor Dror Bar-Natan

### **Undergraduate Research Project in Combinatorics, 2016**

The combinatorics of nested recursions, supervised by Professor Steve Tanny

## Publications

(with Anne Dranowski and Joel Kamnitzer) Appendix to *The Mirkovic-Vilonen basis and Duistermaat-Heckman measures* by Baumann P., Kamnitzer, J., and Knutson, A.; Acta Mathematica. arXiv:1905.08460.

## Conference Presentations

### **Canadian Undergraduate Math Conference, 2019**

“The Case for Recategorification” July 24-28, 2019. Queen’s University, Kingston, ON.

### **Canadian Undergraduate Math Conference, 2018**

“Quivers, Flags, and Varieties: Investigating a Conjecture by Counting” July 11-15, 2018. University of Saskatchewan, Saskatoon, SK.

### **Canadian Undergraduate Math Conference, 2017**

“Visualizing the Prime Decomposition of 3-Manifolds” July 19-23, 2017. University of Quebec at Montreal, Montreal, QC.

### **Canada Math Camp, 2017**

“Conway’s Sequences and Nested Recursions” July 31-August 4, 2017. University of Toronto, Toronto, ON.

### **Crime and Punishment at 150, 2016**

“The Changing Role of Urban Environments Since *Crime and Punishment*.” October 20-22, 2016. UBC, Vancouver, BC.

### **Canadian Undergraduate Math Conference, 2016**

“Why Some Sequences Are More Special Than Others.” July 13-17, 2016. University of Victoria, Victoria, BC.

**Workshops & Seminars**

**Summer School on Geometric and Algebraic Combinatorics**  
June 17-28, 2019. Institut de Mathématiques de Jussieu–Paris Rive Gauche, Paris.

**Thematic Program in Commutative Algebra & Algebraic Geometry**  
May 28-June 1, 2019. Notre Dame University, IN.

**Thematic Program in Geometric Representation Theory**  
June 11-15, 2018. Notre Dame University, IN.

**2018-2019 Geometric Representation Theory Seminar**  
September 2018-June 2019. Fields Institute, Toronto, ON.

**University of Toronto Perverse Sheaves Seminar**  
September 2018-April 2018. University of Toronto.

**Teaching**

**Teaching Assistant**, Massachusetts Institute of Technology  
18.725 (Graduate Algebraic Geometry I) Fall 2020

**Teaching Assistant**, University of Toronto  
MAT257Y1 (Analysis II) 2018-2019  
MAT137Y1 (Calculus) 2017-2018  
MAT136H1 (Calculus 1B) Spring 2017  
MAT135H1 (Calculus 1A) Fall 2016

**Awards**

MIT Presidential Fellowship, 2019  
Janet Paterson Scholarship (Top Graduating Student, Innis College), 2019  
Governor General’s Silver Medal, Innis College Nominee, 2019  
Top 500, William Lowell Putnam Mathematical Competition, 2018  
Norman Stuart Robertson Scholarship in Mathematics, 2018  
Samuel Beatty In-Course Scholarship, 2018  
Margaret Taylor and Thomas Taylor Scholarships in Mathematics, 2017  
University of Toronto Scholar, 2016-2018  
University of Toronto President’s Entrance Scholarship, 2015  
John F. Ross Department Awards of Excellence, English & Mathematics, 2015  
Euclid Mathematics Contest Regional Winner, 2015

**Experience**

**University of Toronto Mathematics Union**  
President, 2017-2018. Vice-President Communications, 2016-2017.

**Research Assistant**, Summer 2016  
TorchLight Canada

**Tutor and Student Transition Mentor**, 2013-2015  
John F. Ross CVI, Guelph

**Legislative Page**, Fall 2010  
Legislative Assembly of Ontario

**Languages & Skills**

Fluent in English, French, Java, and Python.  
Piano, accordion, and trombone; classical and jazz composition.  
National Novel Writing Month Winner, 2012.