

# MATTHEW LEIGHTON

matt@matthewleighton.com

## EDUCATION

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**Dalhousie University, Halifax, Canada**

2016-2020

B.Sc. in Mathematics & Physics

Member of the Varsity Track team

2016-2018

Choral Scholar with the University of King's College Chapel Choir

2016-2020

**Chalmers University of Technology, Gothenburg, Sweden**

January 2019-June 2019

Exchange Program, Studying Mathematics and Statistics

## EXPERIENCE

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**Undergraduate Researcher**

May 2018 - Present

*Dalhousie University, supervised by Andrew Rutenberg*

*Halifax, NS*

- Worked with Professor Andrew Rutenberg on mathematical and computational modelling of host-pathogen dynamics. More specifically, developed an agent-based stochastic model for invasion of host cells by *Salmonella* bacteria. Using this model we were able to gain a quantitative understanding of the impact of the ruffling mechanism on the statistics and dynamics of invasion. A paper detailing these results is currently being finalized.
- Currently working on a coarse grained liquid-crystal elastomer model of cross-linked collagen fibrils as part of an honours thesis. The goal is to better understand how intermolecular cross-linking determines the elastic properties of a fibril.

**Business Analyst**

May 2017-April 2018

*INETCO Systems*

*Vancouver, BC*

- Reported directly to the vice-president of product management. Responsibilities included developing financial models to determine pricing structures for new products, writing marketing documents, competitive analysis, managing marketing campaigns, and communicating with customers. Undertook the design and planning for the release of a major new product (a cloud-based transaction monitoring system for small banks and credit unions); wrote and presented the business plan at a quarterly board meeting for board approval. As a result, was hired to stay on as a consultant during the school year.

**Instructor**

March 2015-August 2016

*Pedalheads*

*Vancouver, BC*

- Worked as an instructor teaching young children (aged 4-13) beginner to advanced biking skills.

**Volunteer**

- Head coach for a Vancouver Hawks youth field hockey team.
- Assistant coach for one of Kitsilano Secondary School's junior ice hockey teams.

*Spring 2015/16/17  
2015-2016*

## AWARDS

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NSERC CGS-M Graduate Scholarship (2020-2021)

NSERC Undergraduate Summer Research Award (2018,2020)

U-Sports Academic All-Canadian (2016/17 and 2017/18)

Dalhousie Archibald Physics Prize (May 2017)

Dalhousie Chancellor's Scholarship (2016-2020)

Helen Roby Choral Scholarship (2016-2020)

Fiat Lux Bronze Award (3rd highest average (98%) in high school graduating class) (June 2016)

Sir Isaac Newton Physics Contest (59th in Canada) (May 2016)

## TALKS

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'Modelling Cross-Linking in Collagen Fibrils', *Canadian Undergraduate Physics Conference, November 2019*

'Stochastic modelling of cellular *Salmonella* infection', *Dalhousie Bioblast Seminar, August 2018*

'Modelling Cross-Linking in Collagen Fibrils', *Atlantic Undergraduate Physics Conference, January 2020*

'Modelling Cross-Linking in Collagen Fibrils', *APS March Meeting (via DSOFT Virtual Meeting), March 2020*