Justin Furlotte

MSc Mathematics

I am a graduate student researching mathematical physics (in particular, the quantum Hall effect) as a member of the Institute of Applied Mathematics at the University of British Columbia. Other than physics, I also have a strong interest in applied mathematics, including scientific computing, mathematical modelling, and machine learning.

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EDUCATION

MSc in Mathematics
University of British Columbia

09/2020 - Present *GPA: 86.2%*

- NSERC Canada Graduate Scholarship - Master's (CGS-M).
- Faculty of Graduate Studies Award (x2).

B.Sc (Honours) in Mathematics-Physics
University of New Brunswick

09/2015 - 12/2019 *GPA: 4.0*

- NSERC Experience Award (2018).
- The Arthur and Sandra Irving Primrose Scholarship (2015-2019).
- Murdock M. & Bessie Mann Memorial Scholarship (2019).
- Dr. Ker-Ping Lee Memorial Scholarship (2019).
- Dr. Theodore Weiner Memorial Scholarship (2019).
- Older awards available upon request.

RECENT WORK EXPERIENCE

Assistant Physicist
C-Therm Technologies

06/2017 - 08/2020 *Fredericton, NB, Canada*

- Programmed various analytical solutions of the heat equation which were developed to model the experimental configurations of C-Therm's sensors.
- Designed and implemented regression algorithms on these solutions in order to obtain thermal conductivity, diffusivity, or effusivity from an experimental curve.
- Developed the algorithm for C-Therm's "Flex TPS" (Transient-Plane-Source) sensor and other unreleased projects.
- Implemented solutions into software for customer use.
- Performed experiments to verify and improve test methods.

Natural Resources Technician
Nepisiguit Salmon Association

06/2016 - 08/2016 *Bathurst, NB, Canada*

- Created a program to perform thousands of statistical calculations that were originally done by hand.
- Collected data by electrofishing the juvenile population of salmon, trout, and various other species in local rivers.
- Recorded temperature and pH levels in local rivers.

SKILLS & COMPETENCES

Python | Machine Learning | Mathematics | Physics | LaTeX | Scientific Computing | Research

PUBLICATIONS

Listed as an author:

- M. Emanuel, M. Bhouri, J. Furlotte, D. Groulx, J. Maassen: Temperature Fields Generated by a Circular Heat Source (CHS) in an Infinite Isotropic Medium: Treatment of Contact Resistances with Application to Thin Films, International Journal of Heat and Mass Transfer 137:677-689 (April 2019).

Acknowledged as a contributor:

- M. Emanuel, A. Emanuel: Temperature fields generated by a circular heat source (CHS): Solution of a composite solid of two different isotropic semi-infinite media, Journal of Heat Transfer HT-19-1412 (August 2019).
- M. Emanuel, M. Bhouri, S. Ackermann, D. Groulx, J. Maassen: Temperature fields generated by a circular heat source (CHS) in an infinite medium: Analytical derivation and comparison to finite element modeling, International Journal of Heat and Mass Transfer 126 (November 2018).

TEACHING & COMMUNITY INVOLVEMENT

Head Teaching Assistant - UBC (01/2022 - 04/2022)
Introduction to Differential Calculus.

Teaching Assistant - UBC (09/2020 - 12/2021)
Applied Linear Algebra, Introduction to Differential Calculus.

Teaching Assistant - UNB (01/2019 - 04/2019)
Introduction to Integral Calculus.

Invited Speaker - UNB (10/2019)
Speaker at the BIG (Business, Industry, and Government) UNB mathematics networking event.

Invited Speaker - Atlantic Association of Research in the Mathematical Sciences (07/2019)
Presented in the 2019 industrial problem solving workshop on behalf of C-Therm Technologies.

Physics & Astronomy Club Secretary - UNB (2018 - 2019)
Organized events, sent emails to members, and managed social media accounts.

LANGUAGES

English ●●●●●

French ●●●○○