

Dr. Yurij Salmaniw

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EDUCATION

University of Alberta, Edmonton, Alberta

Doctor of Philosophy, September 2018 – June 2023

Major: Applied Mathematics

Advisors: Dr. Hao Wang, Dr. Zhongwei Shen

Thesis: “Global dynamics of diffusive animal movement models under habitat degradation, destruction, and fragmentation: eigenvalue problems and geometry at the landscape scale”

McMaster University, Hamilton, Ontario

Master of Science, Thesis stream, September 2016 – May 2018

Major: Applied Mathematics

Advisors: Dr. Lia Bronsard, Dr. Stanley Alama

Thesis: “Existence and Regularity of Solutions to Some Singular Parabolic Systems”

Cape Breton University, Sydney, Nova Scotia

Bachelor of Science with Honours, September 2012 – April 2016

Major: Mathematics

Advisor: Dr. Shaohua Chen

Thesis: “Global Existence for a Singular General Activator-Inhibitor Model”

WORK/TEACHING EXPERIENCE

Instructor

Edmonton, Alberta

September 2022 – December 2022

- Full instructor for MATH100 (entry level calculus) at the University of Alberta
- Lecture three times a week, providing enthusiastic and animated teaching for first year students
- Responsible for preparing lectures, providing regular office hours, responding to student emails, and answering course related questions

Teaching Assistant

Edmonton, Alberta

September 2018 – December 2021

- Work as a teaching assistant for introductory calculus, linear algebra, and differential equations
- During the COVID-19 pandemic, responsible for delivering engaging and accessible lectures virtually, along with providing lecture recordings and personal notes for students in distant time zones
- Responsible for creating lab notes, worked examples and quiz questions for differential equations and multivariable calculus courses
- Responsible for grading assignments/quizzes in a timely manner using the Assign2 grading system

Tutorial Instructor

Hamilton, Ontario

January 2018 – April 2018

- Responsible for conducting tutorials for a differential equations course three times a week
- Responsible for creating an interactive and encouraging learning environment while also providing a clear and understandable presentation of the relevant material
- Responsible for holding regular office hours to help students in a more personal environment
- Responsible for marking midterms in a timely manner

Teaching Assistant

Hamilton, Ontario

September 2016 – December 2017

- Working as a teaching assistant for introductory calculus and differential equations courses
- Responsible for helping students with the Matlab components of the courses

- Responsible for grading assignments and exams in a timely manner
- Responsible for providing interactive review sessions before midterms and final exams

Tutor

Hamilton, Ontario

September 2016 – December 2017

- Working as a tutor at the math help center within McMaster University
- Responsible for teaching and assisting students in various mathematical subjects, usually first- and second-year calculus or linear algebra
- Provide a welcoming environment and a positive attitude for undergraduate students

Student Research Assistant

Sydney, Nova Scotia

May 2016 – August 2016

- Worked as a research assistant under the supervision of Dr. Shaohua Chen
- Explored properties of some parabolic partial differential equations, primarily concerned with the existence and regularity of solutions to singular parabolic systems
- Reviewed papers for publication, wrote up sections of documents into latex, explored numerical simulations for theoretical results using Matlab

RA EXPERIENCE

Research Assistant

Received a Research Assistant (RA) contract for the following terms:

- Spring/Summer 2021
- Spring/Summer 2022
- Winter 2023
- Spring 2023

Each term was spent researching the effects of habitat loss on single- and multi-species models using partial differential equations

MENTORSHIP EXPERIENCE

Subgroup Leader - *Memory-based Movement and PDE/DDE Analysis*

ILMEE Lab Group

September 2022 – Present

- Primary organizational role for one of three distinct research subgroups
- First half of weekly meeting comprised of reading/writing activities, including reading through the entirety of William Strunk's *The Elements of Style*
- Second half of weekly meeting comprised of research presentations, including student-led discussions, explorations of different theoretical approaches, and discussions of model validity

MITACS Summer Student Mentor

ILMEE Lab Group

Spring/Summer of 2021/2022

- Senior mentorship role for three summer students (Nolan Ames, Jodie Price, Rivaldo Cifuentes Monroy), sponsored through the MITACS Research Internship program
- Provided challenging while accessible research problems for strong undergraduate students, along with guidance and resources to tackle these problems

SCHOLARSHIPS AND AWARDS

- | | |
|--|------|
| • Anton Alexander Cseuz Gold Medal in Mathematics – (\$15,000) | 2023 |
| • Faculty of Science Doctoral Dissertation Award | 2023 |
| • NSERC PDF Award (to be held at the University of Oxford) – (\$90,000 over 2 years) | 2023 |
| • Alberta Graduate Excellence Scholarship – (\$12,000) | 2022 |
| • Alberta Graduate Excellence Scholarship – (\$12,000) | 2021 |
| • President's Doctoral Prize of Distinction – (\$5800) | 2021 |

- Josephine Mitchell Research Prize – (\$7500) 2021
- President’s Doctoral Prize of Distinction – (\$5800) 2020
- Graduate Student Teaching Award 2020
- Alberta Graduate Excellence Scholarship – (\$12,000) 2020
- Eoin L Whitney Scholarship – (\$2200) 2019
- President’s Doctoral Prize of Distinction – (\$10,000) 2019
- NSERC PGS-D Graduate Scholarship – (\$63,000 over 3 years) 2019
- Pundit RD Sharma Memorial Award – (\$5000) 2019
- University of Alberta Entry Scholarship – (\$10,000) 2018
- Ontario Graduate Scholarship – (\$15,000) 2017
- McMaster Research Scholarship – (\$6000) 2016
- Milos Novotny Fellowship – (\$4000) 2016
- McMaster Graduate Scholarship – (\$6000) 2016
- NSERC Undergraduate Student Research Award – (\$6800) 2016
- NSERC Undergraduate Student Research Award – (\$6800) 2015
- Cape Breton University Incourse Scholarship – (\$500 per semester) 2012 – 2016

PUBLICATIONS

- (With J. Jacobs, B. Zhang, K.-Y. Lam, L. Zhang & H. Wang) “*Interplay of habitat fragmentation and locomotion: theoretical insights and experimental validation*” – submitted, *Current Biology*.
- (With D. Liu, H. Wang, J. Shi & J. Potts) “*Spatial movement directed by nonlocal memory*”, (2023) – submitted, *SIMA*.
- (With Z. Shen & H. Wang) “*The Impacts of Habitat Loss: A reaction-diffusion equation approach to the connections between habitat degradation and destruction*”, (2023) – To be submitted – *Nonlinearity*.
- (With H. Wang) Open problems in PDE models for knowledge-based animal movement via nonlocal perception and cognitive mapping. *J. Math. Biol.* 86, 71 (2023).
- (With P. Wu & X. Wang) "Threshold dynamics of a reaction-advection-diffusion schistosomiasis epidemic model with seasonality and spatial heterogeneity", (Submitted 2022) - Under review at *Journal of Mathematical Biology*.
- (With Z. Shen & H. Wang) “*Global dynamics of a diffusive competition model with habitat degradation*”, *Journal of Mathematical Biology*, 84 (2022), No. 18.
- (With Z. Wang & H. Wang) “*Persistence and propagation of a discrete-time map and PDE hybrid model with strong Allee Effect*”, *Nonlinear Analysis: Real World Applications* 61(2021).
- “*Global Boundedness of Weak and Classical Solutions to a Singular Parabolic Equation and Applications*”, *J. Math. Anal. Appl.* (2020), No 1.
- (With S. Chen & R. Xu) “*Bounded Solutions to a Singular Parabolic System*”, *J. Math. Anal. Appl.* 455 (2017), No. 2, 963-978.
- (With S. Chen & R. Xu) “*Global Existence for a Singular Gierer-Meinhardt System*”, *J. Diff. Eqs.* 262 (2017), No. 3, 2940-2960.

CONFERENCES, WORKSHOPS AND PRESENTATIONS (Attending & Presenting)

- Sheffield Spatial Ecology Workshop – *From animal movement processes to spatial distributions* July 2023
- (Attending only) Topics on Neuroscience, Collective Migration and Parameter Estimation July 2023
- (Invited) Cape Breton University Summer Research Speaker Series June 2023
- (Invited) AIMS Conference on Dynamical Systems, Differential Equations and Applications - Global or/and Blowup Solutions for Nonlinear Evolution Equations and Their Applications May/June 2023
- (Invited) AIMS Conference on Dynamical Systems, Differential Equations and Applications - Recent Advances on Population Models in Ecology and Epidemiology May/June 2023
- (Invited) Alberta Mathematics Dialogue – *Mathematical Modelling* May 2023

- University of Alberta MathBio Seminar March 2023
- (Invited) AMS Special Session – *Impulsive Models in Ecology and Socio-Economic Systems* January 2023
- (Invited) Fields Institute Workshop – *Modeling Population Dynamics in Ecology, Environment and Epidemiology* August 2022
- (Invited) CMS Summer Meeting – *Harmonic Analysis and PDEs* June 2022
- (Invited) CMS Summer Meeting – *Global Dynamics and Propagation Phenomena of Biological Systems* June 2022
- (Invited) CMS Winter Meeting – *Recent Advancement in Nonlinear PDEs* December 2021
- (Attended only) SMB Annual Meeting June 2021
- (Invited) Wisconsin Analysis/Applied Mathematics Seminar March 2021
- (Invited) McMaster AIMS Lab Seminar November 2020
- University of Alberta MathBio Seminar November 2019
- (Invited) Cape Breton University Summer Research Speaker Series August 2018
- 6th G.J. Butler Memorial Conference – *DE's Session* July 2018
- CMS Summer Meeting – *Student Research Session* June 2018
- McMaster University AIMS Lab Seminar January 2018
- McMaster University AIMS Lab Seminar November 2017
- Mathematical Congress of the Americas – *Student Research Session* July 2017
- CMS Winter Meeting – *Student Research Session* December 2016
- McMaster University AIMS Lab Seminar November 2016
- Cape Breton University SnapShot Thesis April 2016
- Science Atlantic Mathematics and Statistics Conference – *Student Session* October 2015
- Cape Breton University Student Research Talk Series August 2015

CONFERENCES AND WORKSHOPS (Organization)

Alberta Graduate Mathematics and Statistics Conference

Alberta

2022/2023

- Minor organizational role in the preparation for the second annual AGMSC
- Acted as the primary contact for the University of Alberta mathematics and statistics graduate students in the initial stages of organization
- Aided in securing funding for the mathematics and statistics students specifically attending the University of Alberta through PIMS
- Handed off further organizational efforts to the incoming (now current) SIGMAS President (Curtis Harvey) for the final months of preparation

Introductory LaTeX Workshop

Wilfrid Laurier University, Ontario

November 2018

- Hosted a one-day workshop for the students (undergraduate & graduate) of [Dr. Anne Wilson's](#) lab
- Tailored the focus towards psychology students, including initial compilation, required packages, providing a preamble, and an in-depth exploration of BibTeX for efficient referencing

EXTRA CURRICULAR ACTIVITIES

President of SIGMAS (Society in Graduate Mathematics and Statistics)

Edmonton, Alberta

July 2021 – March 2023

- Primary organizer of societal endeavors, including bimonthly meetings between other executive members and delegation of duties for societal events (movie nights, pizza nights, trivia nights etc.)
- Collaborate with outreach coordinators to bring mathematics into the youth community, primarily through hosting events at the University of Alberta for grade school children
- Attend monthly departmental meetings and monthly meetings with other departmental societies within the faculty of science
- Act as a representative for all departmental graduate students and relay important information to the department on behalf of the graduate students

- Coordinate with the undergraduate mathematics and statistics society for events and outreach
- Solicit nominations for the annual departmental mentorship award and aid in determination of winner

Graduate Student Representative of Departmental EDI (Equity, Diversity & Inclusivity) Committee

Edmonton, Alberta

January 2021 – January 2022

- Act as one of the intermediates between graduate students and the departmental EDI initiatives
- Responsible for helping create a graduate student exit survey to identify key issues amongst undergraduate as well as graduate students as they relate to EDI
- Responsible for helping organize outreach initiatives related to EDI, such as workshops tailored for undergraduates or grade school children focusing on the success of women and indigenous students in science and mathematics

Academic Coordinator of SIGMAS

Edmonton, Alberta

September 2019 – July 2021

- Primary role to organize and host the weekly graduate student colloquium (MATH601) course
- Provide students with relevant information regarding the graduation requirements related to completing the MATH601 course
- Act as a student representative for any academic issues faced by my fellow students, forwarded to the president of SIGMAS during our regular executive team meetings

Treasurer of SIAM McMaster Student Chapter

Hamilton, Ontario

April 2017 – May 2018

- Responsible for maintaining the SIAM student chapter bank account, particularly as it relates to using funds for student events
- Report to the President for the creation of the annual expense report

Co-President of CBU Mathematics Society

Sydney, Nova Scotia

September 2016 – April 2018

- Responsible for the continuation of the newly created math society at Cape Breton University
- Organize events and activities to encourage collaboration between undergraduate students in mathematics and engineering
- Provide prospective students with information regarding the math program and how they can get involved
- Organize and volunteer for outreach programs, such as visitations to local grade schools and assisting with the WISE (Women in Science and Engineering) outreach event