



Chirantan Mukherjee

CONTACT INFORMATION

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Department of Computer Science
University of Western Ontario

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EDUCATION

University of Western Ontario, Canada

Ph.D. in Computer Science, May 2024–present

- Advisor: Dr. Marc Moreno Maza
- Fast track to Ph.D. from M.Sc. in Computer Science, Sep. 2023–Apr. 2024
- Ph.D. coursework in Mathematics, Sep. 2022–Aug. 2023

University of Trento, Italy

M.Sc. in Advanced Mathematics, Sep. 2019–Mar. 2022

- Dissertation: Complete Segal Spaces as a model of Higher Categories
- Advisor: Dr. Nima Rasekh
- Erasmus+ Study in University of Warsaw, Poland

Institute of Mathematics and Applications, India

B.Sc. (Honors) in Mathematics and Computing, Aug. 2015–Apr. 2018

- Dissertation: Set Theory and Foundation of Mathematics
- Advisor: Dr. Shashi Mohan Srivastava

WORK EXPERIENCE

Maplesoft Incorporation, Canada

Internship, May. 2024–Nov. 2024

- Advisor: Dr. Jürgen Gerhard.
- Implemented a new Fourier-Motzkin Algorithm in C++ and Maple for the RegularChains library, improving the efficiency by 140%
- Developed the Double Description Method in C++ and Maple for the PolyhedralSets library to compute Vertices and Rays
- Created a connector for Maple programs to access external C++ data structures

PUBLICATIONS

Accepted

- 2025 R. Jing, Y. Lei, C. Maligec, C. Mukherjee and M. Moreno-Maza. *Quantifier Elimination Over the Integers*. ISSAC '25: Proceedings of the 2025 International Symposium on Symbolic and Algebraic Computation.
- 2025 C. Mukherjee and N. Rasekh. *Twisted Arrow Construction for Segal Spaces*. The Graduate Journal of Mathematics. arXiv:2203.01788

TEACHING EXPERIENCE

Courses

University of Western Ontario, Canada
Winter 2025 *CS 3350, Computer Organization*, Teaching Assistant
Fall 2024 *CS 3342, Organization of Programming Languages*, Teaching Assistant
Winter 2024 *CS 2214, Discrete Structures for Computing*, Teaching Assistant
Fall 2023 *CS 2214, Discrete Structures for Computing*, Teaching Assistant
Summer 2023 *Math 1600, Linear Algebra I*, Teaching Assistant
Winter 2023 *Math 1600, Linear Algebra I*, Teaching Assistant
Fall 2022 *Math 1228, Methods of Finite Mathematics*, Teaching Assistant

Projects

University of Western Ontario, Canada
Fall 2022 Sterling Ebel. *The Yoneda Lemma*. Directed Reading Program

AWARDS AND GRANTS	2024–2025	<i>Western Graduate Funding</i> , University of Western Ontario, Canada, \$26,799.12.
	Fall 2024	<i>MITACS Internship Grant - ACCELERATE</i> , \$10,000
	2024	<i>Second Place for Best Business Plan</i> , Graduate Students Innovation Scholars 2024, Canada.
	2023–2024	<i>Western Graduate Funding</i> , University of Western Ontario, Canada, \$31,950.46.
	2022–2023	<i>Western Graduate Funding</i> , University of Western Ontario, Canada, \$28,100.
	2021–2022	<i>Thesis Research Abroad</i> , University of Trento, Italy, €2,700.
	2020–2021	<i>Erasmus+ Grant</i> , Italian Erasmus+ Agency, Italy, €6,207
	2015–2018	<i>National Board for Higher Mathematics Scholarship</i> , Government of India, India, ₹2,500/month
TALKS AND PRESENTATION	Apr. 2025	<i>Quantifier Elimination Over the Integers</i> , UWROCS 2025, Canada
	Nov. 2024	<i>Fourier-Motzkin Elimination using Saturation Matrix</i> , Maplesoft, Canada
	Jul. 2024	<i>A New Algorithm for Computing Integer Hulls of 2D Polyhedral Sets</i> , Lalo 60, Canada
	Jun. 2024	<i>Using Saturation Matrix to Efficiently Remove Redundant Inequalities</i> , Maplesoft, Canada
	Jun. 2024	<i>The Polyhedral Model</i> , Distributed and Parallel Systems, University of Western Ontario, Canada
	Apr. 2024	<i>The Delinearization of C programs</i> , UWORCS 2024, University of Western Ontario, Canada
	Jul. 2023	<i>The Quickhull Algorithm for Higher Dimensional Convex Hulls</i> , Mathematical Computation, University of Western Ontario, Canada
	May 2023	<i>Twisted Arrow Construction for Segal Spaces</i> , Ottawa Mathematics and Statistics Conference, University of Ottawa, Canada
	Mar. 2023	<i>Model Structure on Simplicial Categories</i> , Graduate Student Seminar, University of Western Ontario, Canada
	Jul. 2022	<i>Complete Segal Spaces as a Model of Higher Categories</i> , GROOT Summer Seminar 2022, University of Notre Dame, US
	Jun. 2022	<i>Higher Category Theory</i> , Indian Statistical Institute, Kolkata, India
	Mar. 2021	<i>The $Conf_2$ space of rational homology of S^3 and propagators</i> , University of Warsaw, Poland
	Jan. 2021	<i>Differentiable manifolds and forms, de Rham cohomology</i> , University of Warsaw, Poland
Dec. 2020	<i>Products and cochains of equivariant cohomology theories</i> , University of Warsaw, Poland	
Nov. 2020	<i>Polish spaces</i> , University of Warsaw, Poland	
TECHNICAL SKILLS	Programming:	C, C++, Cilk, CSS, HTML, CUDA, Java, Julia, Python, SQL
	Software:	Bash, GAP, SageMath, Maple, Mathematica, \LaTeX
	Tools:	Wordpress, Git, Perforce, SVN, Google Suites, Microsoft Office, Linux/Unix
SERVICE AND OUTREACH	2023–2024	<i>Ombudsperson</i> , Society of Graduate Students, Canada Mediated graduate student conflicts, advised on policy improvements, and promoted fair resolution strategies
	2022–2023	<i>Math-Physics Accelerator Help Centre</i> , University of Western Ontario Provided in-person and virtual support to students in undergraduate math-physics courses
	2017	<i>Regional Mathematical Olympiad Training Camp</i> , Institute of Mathematics and Applications Trained junior awardees, emphasizing creative problem-solving