

# Amalrose Vayalinkal

**Email:** amalrose.vayalinkal@mail.utoronto.ca

**Website:** amalvayalin.github.io

<b>Education</b>	<b>PhD in Mathematics</b> , University of Toronto, Toronto, ON <b>Honours Bachelor of Science</b> , University of Toronto, Toronto, ON Mathematics Specialist and Psychology Major	Since Fall 2022 Convocated in June 2022
<b>Interests</b>	Algebraic Geometry, Algebraic Topology, Representation Theory, Dynamics	
<b>Awards</b>	Canadian Graduate Research Scholarship NSERC PGS-D (\$120,000/ 3 years) Ontario Graduate Scholarship (\$30, 000/ 2 years) City of Toronto Women in Math Scholarship (\$7000) Martin Shubik Graduate Award In Mathematics (\$8000) Women in STEM Scholarship (\$9,000) NSERC USRA with Prof. Almut Burchard (\$8,000)	2025 2023 2023 2023 2023 Summer 2021
<b>Ongoing Research</b>	<b>Mapping Class Group Action on Character Varieties</b> <b>Advisor:</b> Prof. Daniel Litt	2023-Present
	<b>Splitting Types for <math>S_n</math> covers of <math>\mathbb{P}^1</math></b> with Andy Ramirez-Cote, Charlie Wu, Simon Xu <b>Advisor:</b> Prof. Daniel Litt	2023-Present
<b>Preprints</b>	Vayalinkal, Amal. "Enumerating Finite Braid Group Orbits on $SL_2(\mathbb{C})$ -Character Varieties." arXiv:2407.21180 (accepted by Épjournal de Géométrie Algébrique)	2024
<b>Technical</b>	Magma code for computing middle convolution of matrices in $SL_2(\mathbb{C})$ and computing braid group orbit when known to be finite, available on website	
<b>Previous Research</b>	<b>Virtual Ring Routing Project</b> University of Toronto <b>Area of Study:</b> Graph Theory and Probability <b>Advisor:</b> Prof. Almut Burchard Developed models for Virtual Ring Routing (VRR) and explored the efficiency of the algorithm. Studied the scaling limits of aggregate stretch and other efficiency factors in the network with worst-case constructions.	2021-2022
	<b>SPCL Lab Research Assistant</b> University of Toronto <b>Area of Study:</b> Social Cognitive Psychology <b>Advisor:</b> Prof. Nicholas Rule Working in the SPeCiaL Lab, updating data analysis pipeline in R and preparing experimental stimuli. Contributed to a project exploring gender classification of faces via mouse-tracking analysis.	Feb 2021- Sep 2021
<b>Invited Talks</b>	<b>Junior Algebraic Geometry Seminar</b> University of Toronto Orbits of Flag Varieties <b>Bird's Eye Conference</b> University of Toronto Character Varieties of Surface Groups <b>Math Union Colloquium</b> University of Toronto Virtual Ring Routing <b>Undergraduate Seminar</b> University of Toronto - Mississauga Virtual Ring Routing	September 2025 March 2025 Fall 2021 Summer 2021

<b>Teaching</b>	<b>Course Instructor</b> University of Toronto	
	MAT224 Linear Algebra	Winter 2025
	<b>Teaching Assistant</b> University of Toronto	Winter 2026
	MAT224 Linear Algebra	Fall 2024
	MAT224 Linear Algebra	Summer 2024
	MAT257 Analysis II	Fall 2023
	MAT354 Complex Analysis	Spring 2024
	MAT235 Multivariable Calculus	Fall 2023
	MAT257 Analysis II	Summer 2023
	MAT354 Complex Analysis	Fall 2022
	MAT136 Calculus 1(B)	Spring 2022
	MAT135 Calculus 1(A)	Fall 2021
	Math Learning Centre	Fall 2021
	MAT133 Calculus for Commerce	Fall 2020
		Spring 2021
<b>Mentorship</b>	<b>High-School Mentorship Program</b> University of Toronto	Spring 2023-2024
	<b>Girls in STEM Workshop</b> University of Toronto	Jan 2023
<b>Leadership</b>	<b>Association for Women in Math</b> University of Toronto	2020-2021
	Secretary	
	Facilitated communication between members, executive team and faculty administration. Provided a space for math students to socialize and find support. Succeeded in passing a motion for a wider variety of courses, including gender studies, to meet the Mathematics ethics requirement	
	<b>Math Union</b> University of Toronto	2018-2019
	Academic Officer	