

CONTACT INFORMATION	Department of Mathematics, UTK Ayres Hall, 1403 Circle Dr, Knoxville, TN 37916	✉ Email cattanay@tennessee.edu Linkedin: <a href="https://www.linkedin.com/in/isuruabe/">linkedin.com/in/isuruabe/</a> Homepage: <a href="https://isuruabe.github.io">isuruabe.github.io</a>
RESEARCH INTERESTS	Differential geometry, partial differential equations, general relativity, quantum field theory, minimal surfaces, Ricci flow	
EDUCATION	<b>University of Tennessee</b> , Knoxville, TN Ph.D program, Department of Mathematics <b>Passed the qualifying examinations in both Analysis and Topology</b> MS Mathematics, Department of Mathematics	2023– 2023–Present 2023–2025
	<b>University of Colombo</b> , Sri Lanka B.Sc., Honors in Physics Thesis: <i>A theoretical study of high temperature superconductivity under extreme pressure</i> Advisors: Prof. Lakmal Weerawarne, Prof. Theja de Silva	2018–2022
PROJECTS AND TRAINING	<ul style="list-style-type: none"> <li>• Supersymmetry and Morse Theory (following Witten '82)</li> <li>• Minimal Surfaces (with Prof. Theodora Bourni)</li> <li>• Discrete Curvature from Effective Resistance: Inspired by a conversation with Sathya Rengaswami, followed the work by Karel Devriendt '22</li> <li>• General Relativity (Christian Bär), Uni Potsdam (A course in MMath)</li> <li>• Thesis: A theoretical study of high-temperature superconductivity under extreme pressure</li> <li>• Dynamical Systems (Dr. Kasun Fernando), Colombo</li> </ul>	2025– 2025– April, 2024 July 2021 2022 2019
INVITED TALKS	<ul style="list-style-type: none"> <li>• Ricci Solitons, Mathematics Department, University of Sri Jayawardeneprura</li> <li>• Quantum Fields, University of Colombo: Physics Society</li> </ul>	07/29/2025 07/18/2025
TALKS	<ul style="list-style-type: none"> <li>• Dirac equation, University of Tennessee: Graduate Student Seminar</li> <li>• University of Sri Jayewardeneprura: Math Seminars (Lie Groups)</li> <li>• Undergraduate Physics Talks, University of Colombo</li> </ul>	12/05/2024 2022 2018
TEACHING	<p><b>1. Graduate Teaching Associate</b>, UTK</p> <ul style="list-style-type: none"> <li>i. Currently works as a Stage 3 Experienced GTA</li> <li>ii. Primary instructor: Math 113- Mathematical Reasoning (Fall 2025, 2 classes), Math 125- Calculus I (Fall 2024, Spring 2025, 3 classes)</li> <li>iii. Secondary Instructor- Math 123- Finite Mathematics (Spring 2024, 2 classes), Math 119- College Algebra (Fall 2023, 1 class)</li> </ul>	2023–

	<b>2. Assistant Lecturer</b> , University of Colombo	2022–2023
	i. Teaching Assistant for mathematical methods in physics I	
	ii. Main Instructor for a lecture series on mathematics for physics students intended for a freshman, sophomore audience	
HONORS	• Graduate School Fellowship, University of Tennessee	2025-26
	• Graduate School Fellowship, University of Tennessee	2024-25
	• Early Advancement in the Ph.D program, Math Department Fellowship	Fall 2023
	• Graduate School Fellowship, University of Tennessee	2023-24
CONFERENCES AND WORKSHOPS	• Bloomington Geometry Workshop, IU Bloomington, IN	April 04-06, 2025
	• Geometry, Groups and Dynamics (GGD) Workshop, Purdue University	March 28-30, 2025
	• SCGAS Winter School and Conference, UC Irvine, CA	Feb 03-09, 2025
	• 68 <sup>th</sup> TGTC, Texas A & M University, College Station, TX	Nov 8-10, 2024
	• Buckeye Metric Geometry workshop, OSU, Columbus OH	Aug 16-18, 2024
ADVANCED GRADUATE COURSES	<b>Analysis and PDE</b> Functional Analysis I/II (2024-25), Advanced PDE I (Fall 2024)	
	<b>Geometric Analysis</b> Topics in Ricci Flow (Fall 2025), Geometric Measure Theory (Fall 2025), Mean Curvature Flow (Spring 2025), Topics in Geometric Analysis (Fall 2024)	
	<b>Geometry and Topology</b> Algebraic Topology I/II (2025-26), Riemannian Geometry I/II (2023-24), Geometric Group Theory (Spring 2024)	
	<b>Physics</b> Advanced Topics in Quantum Field Theory (Spring 2025)	
SERVICE	• General Relativity Seminar (Coordinator), University of Colombo	2021–2022
	• Jury Member: International Astronomy Olympiad	2018
ADDITIONAL INFORMATION	• TOEFL: 116/120, GRE: VR: 157 QR: 170	2023
	• Coding: SageMath 9.2 (Differential Geometry), Python(AstroPy), Matlab	
	• Utilities: Statistica, Altium Languages: Sinhalese (Native), English (Professional), German (A1)	
	• Bronze Medal, International Astronomy and Astrophysics Olympiad	2014
INTERESTS	• Astronomy, science writing, and independent research projects ranging from spectrometers to SIR models (Selected research projects and leisure activities)	
	• Country Music	
	• Hiking in the winter	