

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

	2. Assistant Lecturer , 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 th 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	Analysis and PDE Functional Analysis I/II (2024-25), Advanced PDE I (Fall 2024)	
	Geometric Analysis Topics in Ricci Flow (Fall 2025), Geometric Measure Theory (Fall 2025), Mean Curvature Flow (Spring 2025), Topics in Geometric Analysis (Fall 2024)	
	Geometry and Topology Algebraic Topology I/II (2025-26), Riemannian Geometry I/II (2023-24), Geometric Group Theory (Spring 2024)	
	Physics 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	