

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 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	2023– 2023–Present 2023–2025 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 Jayawardenepura• 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 Jayewardenepura: Math Seminars (Lie Groups)• Undergraduate Physics Talks, University of Colombo	12/05/2024 2022 2018
TEACHING	1. Graduate Teaching Associate , UTK 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 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	2022–2023
HONORS	<ul style="list-style-type: none"> Graduate School Fellowship, University of Tennessee Graduate School Fellowship, University of Tennessee Early Advancement in the Ph.D program, Math Department Fellowship Graduate School Fellowship, University of Tennessee 	2025-26 2024-25 Fall 2023 2023-24
CONFERENCES AND WORKSHOPS	<ul style="list-style-type: none"> Bloomington Geometry Workshop, IU Bloomington, IN Geometry, Groups and Dynamics (GGD) Workshop, Purdue University SCGAS Winter School and Conference, UC Irvine, CA 68th TGTC, Texas A & M University, College Station, TX Buckeye Metric Geometry workshop, OSU, Columbus OH 	April 04-06, 2025 March 28-30, 2025 Feb 03-09, 2025 Nov 8-10, 2024 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	<ul style="list-style-type: none"> General Relativity Seminar (Coordinator), University of Colombo Jury Member: International Astronomy Olympiad 	2021–2022 2018
ADDITIONAL INFORMATION	<ul style="list-style-type: none"> TOEFL: 116/120, GRE: VR: 157 QR: 170 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 	2023 2014
INTERESTS	<ul style="list-style-type: none"> 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 	