

Karthik Ravishankar

RESEARCH INTERESTS	Logic, Computability Theory, Enumeration Degrees, Computable Structure Theory, Algorithmic Randomness, Formalization in Lean
EDUCATION	University of Wisconsin–Madison Ph.D. in Mathematics, September 2022–May 2027 (expected) Advisor: Joseph S. Miller University of Wisconsin–Madison M.A. in Mathematics, September 2020–May 2022 Indian Institute of Technology Hyderabad B.Tech. (Honors) in Computer Science and Mathematics Minor in Economics August 2016–May 2020
PUBLICATIONS AND PREPRINTS	4. Matthew Harrison-Tranor, Karthik Ravishankar. Unions of spectra and local structure spectra. In preparation. 3. Karthik Ravishankar. The power of enumerations. In preparation. 2. Karthik Ravishankar. Contrasting the halves of an Ahmad pair. Submitted March 2026. [Preprint] 1. Chandran, L.S., Padinhatteeri, S. and Ravishankar, K., 2020, January. <i>List Distinguishing Number of Power of Hypercube and Cartesian Powers of a Graph</i>. In Conference on Algorithms and Discrete Applied Mathematics (pp. 235–247).
CURRENT PROJECTS	2. <i>Double jumps of linear orders</i> with Julia Knight and David Gonzalez. 1. <i>Joins of $\mathcal{K}$-pairs</i> with Mariya Soskova.
INVITED TALKS	7. <i>The power of enumerations</i>. Logic Seminar, University of Wisconsin–Madison, September 22, 2026. 6. <i>Enumerations and computing generics</i>. Logic Seminar, Iowa State University, September 8, 2026. 5. <i>Defining low_3 and high_2 in the Σ_2^0 e-degrees</i>. SEALS 2026, University of Florida in Gainesville, March 1, 2026. 4. <i>Enumeration degrees—local and global structure</i>. Graduate Student Seminar, University of Illinois Chicago, November 19, 2025. 3. <i>Contrasting the halves of an Ahmad pair</i>. Midwest Computability Seminar XXXV, University of Chicago, September 25, 2025. 2. <i>Separating the halves of an Ahmad pair</i>. Logic Seminar, University of Wisconsin–Madison, April 8, 2025.

				1. <i>Characterizing Ahmad pairs in the local structure</i> . Logic Seminar, University of Wisconsin–Madison, November 26, 2024.
OTHER TALKS				8. <i>Logic for the working mathematician</i> , AMS Student Seminar (Donut Seminar), University of Wisconsin–Madison, October 22, 2026.
				7. <i>Genericity and randomness</i> , Graduate Logic Seminar, University of Wisconsin–Madison, September 21, 2026.
				6. <i>Ahmad pairs and the local structure of the e-degrees</i> . ASL meeting, University of Pennsylvania, July 21, 2026.
				5. <i>Degree spectra of structures</i> , Graduate Logic Seminar, University of Wisconsin–Madison, February 2, 2026.
				4. <i>Characterizing Ahmad pairs in the Σ_2^0 e-degrees</i> , GSCL, Notre Dame, April 26, 2025.
				3. <i>Strong minimal covers and the cupping property</i> , Graduate Logic Seminar, University of Wisconsin–Madison, February 17, 2025.
				2. <i>Incompleteness for the working mathematician</i> , AMS Student Seminar, University of Wisconsin–Madison, October 3, 2024.
				1. <i>Spectra of structures</i> , IMS Graduate Summer School in Logic, National University of Singapore, July 11, 2024.
TEACHING EXPERIENCE	Fall	2026	Head TA	MATH 213 Business Calculus 2
	Summer	2026	TA	MATH 222 Calculus and Analytic Geometry 2
	Spring	2026	Instructor	MATH 112 College Algebra
	Fall	2025	Instructor	MATH 096 Preparatory Algebra
	Summer	2025	Instructor	MATH 222 Calculus and Analytic Geometry 2
	Spring	2025	TA	MATH 340 Elementary Matrix and Linear Algebra
	Fall	2024	Instructor	MATH 096 Preparatory Algebra
	Spring	2024	Head TA	MATH 234 Calculus of Several Variables
	Fall	2023	TA	MATH 221 Calculus and Analytic Geometry 1
	Spring	2023	TA	MATH 234 Calculus of Several Variables
	Fall	2022	TA	MATH 234 Calculus of Several Variables
SERVICE AND MENTORSHIP				6. Served on Committee on TA policies and procedures, Fall 2025.
				5. Co-organized the 24th Graduate Student Conference in Logic, University of Wisconsin–Madison.
				4. Co-organized the Madison Math Circle with Hongyu Zhu, 2022–2024.
				3. Mentored two groups of three students through the Directed Reading Program: Diestel’s <i>Graph Theory</i> in Fall 2022 and Aigner and Ziegler’s <i>Proofs from THE BOOK</i> in Spring 2023.
				2. Led graduate student reading groups on Lerman’s <i>Degrees of Unsolvability</i> (Spring 2024) and Downey and Hirschfeldt’s <i>Algorithmic Randomness and Complexity</i> (Summer 2024).
				1. Organized the Logic Picnic each semester, 2022–2026.

OTHER ACTIVITIES	• Served as a grader across multiple semesters for graduate courses in logic, set theory, and computability theory, and undergraduate courses in number theory, Analysis II, and combinatorics at UW–Madison. • Participant in the <i>IMS Graduate Summer School in Logic</i>, National University of Singapore, July 2024. • Participant in the <i>Algebraic Theory of Differential and Difference Equations, Model Theory, and Their Applications</i>, MSRI Summer Graduate School, 2022. • Research intern, University of Hamburg, Summer 2019. Project: <i>Tangles in Graphs and Their Applications to Clustering</i>. Advisor: Reinhard Diestel. • Visiting student, Indian Institute of Science, 2018–2019. Project: <i>Distinguishing Number of Graphs</i>. Advisor: Sunil Chandran Leela.
HONORS AND AWARDS	• Exceptional Service Award, University of Wisconsin–Madison, 2024. • Certificate of Appreciation for Research in Computer Science and Engineering, IIT Hyderabad, 2019. • Certificate of Academic Excellence for ranking first in the department, IIT Hyderabad, 2016–2017.
LANGUAGES	English and Telugu (native proficiency); Kannada (proficient); Hindi (intermediate).