Raghavendra Bhat

Curriculum Vitae

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Research Interests: Analytic Number Theory, Computational Number Theory, Game Theory

Education

University of Illinois, Urbana-Champaign
PhD in Mathematics with Computational Science & Engineering — Aug 2022 -

University of Illinois, Urbana-Champaign
Bachelor of Science, Mathematics, minor in Computer Science. *GPA: 3.91* — Aug 2019 - Dec 2021

Relevant Coursework

Mathematics: Analytic Number Theory, Distribution of Sequences, Algebraic Number Theory, Exponential Sums, Elementary Number Theory, Real Analysis, Complex Analysis, Linear Algebra, Abstract Algebra, Discrete Mathematics, Calculus.

Computer Science: Graduate Algorithms, Algorithms and Models of Computation, Machine Learning, Artificial Intelligence, Data Structures, Numerical Methods, Programming in Python.

Work Experience

Graduate Teaching Assistant — University of Illinois
TA for Math 227 (Linear Algebra for Data Science), Math 221 (Calculus 1) — Aug 2022 - Present

- Stand alone instructor for 2 sections of Labs, held office hours.
- Explained concepts in Linear Algebra, Calculus, Numerical Methods and Regression to 100+ students.
- Created and compiled homework and test questions on various online platforms.
- Converted part of the Lin.Alg. course to a Mastery-Platform, facilitating auto graded programming.

Wolfram Research Inc. — Champaign, Illinois
Intern (Certified Wolfram Instructor for Programming Fundamentals) — Feb 2022 - Present

- Wrote a book on Number Theory as part of Wolfram's outreach for Computational Math.
- Assisted leading math researchers & developers for their projects in Mathematica.
- Explained programming concepts to solve issues encountered while coding in the Wolfram Language.
- Ran computational experiments for Number Theoretical conjectures.
- Responsible for developing exercises and modules for the Wolfram U Number Theory course.
- Verified and reported Bugs and Crashes.

Consultant — May 2022 - Aug 2022

- Worked on a Research project evaluating quality of OCR packages & color recognition from images.
- Foundational prototype project in Python and Flutter for upcoming iOS App.

NetMath Illinois
Academic Hourly — Feb 2022 - Aug 2022

- Designed online module for a fundamental course in mathematical proof writing.
- Project involved back-end and front-end coding for online platform, Prairie Learn.
- Wrote over 300 math questions intended to serve as homework and learning checks for students.

Publications and Pre-Prints (Oldest first)

Book

1. *MATH - a Subtle Language of the Universe.* https://tinyurl.com/2kmdu4vb

Published Papers

1. Raghavendra N. Bhat. "Distribution of Square-Prime Numbers" Missouri Journal of Mathematical Sciences, Missouri J. Math. Sci. 34(1), 121-126, (May 2022). (https://arxiv.org/abs/2109.10238)

2. Raghavendra N. Bhat. "An Abelian Loop for Non-Composites" Missouri Journal of Mathematical Sciences, Missouri J. Math. Sci. 34(2), 191-195, (Nov 2022).(https://arxiv.org/abs/2110.14716)

arXiv Pre-Prints

1. Raghavendra N. Bhat. "A Game of Primes". https://arxiv.org/abs/2111.01374
2. Raghavendra N. Bhat. "Sequences, Series and Uniform Distribution of Square-Prime numbers". https://arxiv.org/abs/2210.04622
3. Raghavendra N. Bhat, Sundarraman Madhusudanan. "Algebraic Results on SP Numbers along with a generalization". https://arxiv.org/abs/2211.09009
4. Raghavendra N. Bhat. "An Algebraic Structure for Square-Prime Numbers". https://arxiv.org/abs/2303.14296
5. Raghavendra N. Bhat, Cristian Cobelli, Alexandru Zaharescu. "On Quasi-Periodicity in Proth-Gilbreath Triangles". https://arxiv.org/abs/2307.11776
6. Raghavendra N. Bhat, Cristian Cobelli, Alexandru Zaharescu. "Filtered rays over iterated absolute differences on layers of integers". https://arxiv.org/abs/2309.03922

Notable Talks and Presentations

"Prime Number Conjectures" - MIGHTY Ohio Math Conference, Ohio State University. https://rb.gy/8qt0b — Oct 2019

"Square-Prime Numbers" poster presentation - Math Symposium, University of Illinois, Chicago. — Nov 2021

"Distribution of Square-Prime numbers" - West Coast Number Theory Conference. https://rb.gy/u2px7 — Dec 2021

"Mathematics and Computation" - Manipal Institute of Technology, Manipal. https://rb.gy/sm9i7 — July 2023

Additional Research Experience

Summer Graduate School at MSRI/SLMath — June 2023

- Selected by the University of Illinois to attend a 2 week Graduate program at MSRI, Berkeley.
- The workshop focused on Math for Market Mechanism and Design.
- Was involved in a group project exploring Moral bidders in auctions.

Skills

Programming Languages:	Python, Flutter, C++, Wolfram Language
Software:	Technical Support, Code Development, Data Structures & Algorithms
Other skills::	Public Speaking, Critical Thinking, Music (Tabla, Violin)