Akash Narayanan

Georgia Institute of Technology

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Education

Georgia Institute of Technology

Fall 2021 - Present

- B.S. in Mathematics. 3.96 GPA. Expected December 2024.

Experience

University of Chicago REU

June 2024 - August 2024

- Studied the Weil-Petersson metric on Teichmüller space and Wolpert's solution to the Nielsen realization problem.
- Worked with Elizaveta Shuvaeva.

Georgia Tech CUBE REU

May 2023 - July 2023

- Studied geodesic-preserving bijections of various spaces, including the Thurston geometries.
- Worked with Dr. Dan Margalit, Dr. Ryan Dickmann, and Palani Lideros.

Undergraduate Research

August 2022 - May 2023

- Computed presentations of finite-index subgroups of braid groups via the Reidemeister-Schreier method.
- Worked with Dr. Wade Bloomquist and Alice Ponte.

Talks

7. *Hamilton's Ricci Flow on Surfaces.* Georgia Tech Geometry Reading Seminar, November 2024.
6. *Indigenous Bundles and Uniformization.* Georgia Tech Geometry Topology Student Seminar, November 2024.
5. *Cohomology and Euler Characteristics of Groups.* Georgia Tech Algebra Student Seminar, September 2024.
4. *Three Perspectives on B_3.* Georgia Tech Geometry Topology Student Seminar, January 2024.
3. *An Introduction to Morse Theory.* Georgia Tech Geometry Topology Student Seminar, September 2023.
2. *Groups, Extensions, and Cohomology.* Georgia Tech Algebra Student Seminar, February 2023.
1. *Braided Monoidal Categories and Fusion Categories.* Georgia Tech Algebra Student Seminar, February 2022.

Reading Group Involvement

Seminars

- (2 talks) Co-organizer of *Moduli of Curves @ GT*, with Aidan Latona. Reading on the moduli space of curves, loosely following Harris and Morrison's *Moduli of Curves* (Fall 2024 - Current).
- (2 talks) Participant in reading group organized by Alex Nolte on some of Thurston's work (Flat Cone Metrics and Triangulations of the Sphere, Zippers and Univalent Functions, Rodin-Sullivan's Circle Packing Theorem) (Fall 2023-Spring 2024).

Directed Reading Program

- Surgery theory following Milnor's *Lectures on the h-cobordism theorem* and Kervaire-Milnor's *Groups of homotopy spheres: I*. Advised by Sean Eli. Fall 2024.
- Riemann surfaces and Teichmüller theory following Bers' *Quasiconformal Mappings and Teichmüller's Theorem*. Advised by Alex Nolte. Spring 2024.
- Characteristic classes and K-theory. Advised by Sean Eli. Fall 2023.
- Category theory following Riehl's *Category Theory in Context*. Advised by Griffin Edwards, joint with Matthew Sumanen. Spring 2023.
- Group cohomology following Brown's *Cohomology of Groups*. Advised by Dan Minahan. Fall 2022.
- Algebraic number theory following Marcus' *Number Fields*. Advised by Eric Zhu, joint with Toyesh Jayaswal. Summer 2022.
- Lie groups following Fulton and Harris' *Representation Theory: A First Course*. Advised by Dan Minahan, joint with Noah Caplinger. Spring 2022.
- Representation theory of finite groups. Advised by Dr. Wade Bloomquist. Fall 2021.

Teaching Experience

- Grader, MATH 3012 - Applied Combinatorics (Fall 2021).

Outreach

- Georgia Tech High School Math Day volunteer (March 2023).

Awards and Scholarships

- Zell Miller Scholarship.

Relevant Skills

- Programming Languages: GAP, Python, Java, LaTeX.