Dhruv Bhatia

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EDUCATION

Brown University, *B.Sc. Mathematics*, 3.86/4.0 GPA   *Providence, RI | Expected Graduation May 2022*

Relevant Courses: Honors Multivariable Calculus, Honors Linear Algebra, Analysis: Functions of 1 Variable, Analysis: Functions of Many Variables, Complex Analysis, Abstract Algebra I & II, Graduate Algebra I & II, Topology, Graph Theory, Number Theory, Algebraic Geometry I, Mathematical Logic, Formal Proof and Verification, Statistical Inference, The Theory and Teaching of Problem Solving, Communicating Science Through Visual Media, Computing Foundations: Data, Introduction to Scientific Computing, Deep Learning

SAT Overall: 1590; **English:** 800, **Math:** 790

Inventure Academy (High School), 3.78/4.00 GPA   *Bangalore, India | Class of 2018*

TEACHING, EDUCATION, AND MENTORING

Varsity Tutors, *Tutor*   *Online | September 2022 – Present*
- Tutor 15 students through an online platform on topics ranging from pre-calculus, calculus, SAT math, and python

Program in Mathematics for Young Scientists (PROMYS), *Counselor*   *Boston, Massachusetts | July 2022 – August 2022*
- Worked and lived with high school students from around the world - was personally assigned 10 for various activities
- Assisted students with daily number theory problem sets. Advised students on research projects.
- Designed and taught various mini-courses (for students) and seminars (for other counselors) on topics of my interest.

Brown University Department of Mathematics, *Teaching Assistant*   *Providence, Rhode Island | September 2019 – Present*
- Grade weekly Problem Sets of up to 35 Students In courses such as Linear Algebra, Abstract Algebra, Complex Analysis
- Hold office hours twice weekly to review the week's content with students

Trinity Academy of Performing Arts, *SAT Tutoring Volunteer*   *Providence, Rhode Island | January 2019 – May 2021*
- Lead 4 weekly SAT Math classes of 8 Students (Grades 10 and 11) each, with a focus on conceptual understanding
- Supervise 3 other Brown students who volunteer at Trinity Academy of Performing Arts
- Guide 4-5 12th grade students through the college application process

Walch Education, *Freelance Curriculum Writer*   *July 2020 – August 2020*
- Wrote portions of a high school math curriculum aligned with Texas state standards
- Developed lessons and problem sets about the intersection of math with music and art

Brown University Math Circles, *Helper/Leader*   *Providence, Rhode Island | September 2019 – May 2020*
- Facilitate weekly hour-long math lessons for high-school students at local schools with the intent of sharing fun and interesting math with young students

Global Brown Center, *International Mentoring Program Mentor*   *Providence, Rhode Island | September 2019 – May 2020*
- Co-led International Orientation week for over 300 new international students at Brown University
- Mentored 17 students to help them acclimatize to life in an American University
- Foster a sense of community and belonging within the international student body at Brown

Inventure Academy, *Summer Course Head*   *Bangalore, India | June 2019 – August 2019*
- Designed an Introductory Real Analysis course for advanced students at Inventure Academy
- Developed course materials (including typeset notes, problem sets, readings etc.)
- Instructed students on this course (3 hours a week – 15 students)

Inventure Academy, *Education Policy Volunteer*   *Bangalore, India | July 2019*
- Organized a workshop to spread awareness about India's Draft New Education Policy and its effects on various stakeholders
- Collected data from participating students/educators through surveys and interviews
- Worked on a team that drafted a referendum (based on the data) on the policy that was sent to the Government of India

RESEARCH EXPERIENCE

Contributions to the Mathlib library in Lean, *independent study*   *Providence, Rhode Island | January 2022 – May 2022*
- Worked under Professor Robert Lewis to write a 'tactic' in the theorem proving programming language Lean
- The tactic uses the theory of Groebner Bases to automatically prove polynomial equalities from a set of polynomial equality hypotheses

Rose Hulman University REU, *Researcher*   *Terre Haute, Indiana | June 2021 – August 2021*
- Was part of a team that conducted research on the CGL Hash Function and elliptic curve isogeny graphs
- Produced a research paper detailing our results

Brown Undergraduate Math Projects, *Researcher*   *Online | July 2020 – August 2020*
- Was part of a team that conducted research on path-counting within lattices shaped like Young diagrams
- Produced a research paper detailing our results

EXTRACURRICULARS AND WORK EXPERIENCE

Brown University Math Department, *Presentation Theory Organizer*   *Providence, Rhode Island | September 2021 – Present*

- Co-led Presentation Theory, a program where undergrads give talks to other undergrads about topics of their interest
- Developed and gave a talk on Path Counting within lattices shaped like Young diagrams.
- Held workshops to train students on giving talks

Brown University Department of Visual Art, *Studio Monitor*   *Providence, Rhode Island | January 2019 – May 2020*

- Oversee the day-to-day running of the Walter Feldman Book Arts Studio at Brown University
- Ensure proper usage of equipment and facilities, keep track of supplies, train people on the machinery in the studio

Orange Guava Passion, *Drummer*   *Providence, Rhode Island | September 2018 – September 2021*

- Performed with the band for audiences of over 1000 people
- Recorded and released original music that now has over 650,000 plays on Spotify alone

Brown University Dining Services, *Worker*   *Providence, Rhode Island | September 2018 – May 2019*

- Prepared salads and sandwiches in the kitchen for 10 hours each week
- Developed a strong appreciation for hard work, time management, and co-ordination in teams

SKILLS & INTERESTS

Technical Skills: Proficient in Python, Java, Scala, MATLAB, and LaTeX. Proficient in mathematical animation (Manim - Python). Proficient in the theorem proving language Lean.

Language: Proficient in English, conversationally proficient in Hindi

Interests: Music (as a musician and a listener), Book Arts, Philosophy of Mathematics, Chess, 4D Rubik's Cubes (#372 - http://superliminal.com/cube/halloffame.htm)