

Abhinandan Bhatia

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PROFILE

- Second-year mathematics undergraduate with a strong foundation in theoretical and abstract mathematics, and a growing record of research exposure.
- Committed to the pursuit of meaningful, interdisciplinary problems. rigorous inquiry, and scientific communication. Actively seeking to engage with global scientific communities and develop the skills essential for impactful research.

LINKS

- Github: <https://abhinandan-bhatia.github.io/> LinkedIn: [Abhinandan Bhatia | LinkedIn](#)

EDUCATION

Aug 2024 — Present	BS Math, Shiv Nadar Institution of Eminence	Delhi-NCR, India
	Achieved 9.25 GPA in the first semester.	
	Achieved <i>highest possible grade</i> in all core math courses in the first and second semesters.	
	<ul style="list-style-type: none">• SGPA: 9.25 (Sem I), 8.67 (Sem II)• CGPA: 8.90/10• Awarded University Dean's List Honor for <i>outstanding academic performance</i> in Monsoon Semester 2024	

RESEARCH INTERESTS

Theoretical Mathematics, Theoretical and Computational Astrophysics, Stellar Dynamics, Statistical Modeling, Scientific Inference, Mathematical Structures in Physical Systems

RESEARCH EXPERIENCE

Jun 2025 — Jul 2025	Research Intern – D.S. Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi	Delhi, India
	<i>Theoretical and Computational Astrophysics Project on Globular Clusters</i>	
	<i>9 June – 18 July 2025</i>	
	<ul style="list-style-type: none">• Conducted a comprehensive research project on the extra-tidal regions of globular cluster NGC 7078, supervised by Dr. Richa Kundu, theoretical astrophysicist at Miranda House.• Performed astrometric membership analysis using Gaia EDR3 proper motion and photometric data.• Developed a hybrid probabilistic model combining 2D Gaussian Mixture Models and Kernel Density Estimation (KDE) for precise cluster–field separation.• Applied Bayesian classification techniques to assign membership probabilities and model tidal structure.• Built and interpreted Color-Magnitude Diagrams (CMDs), applied extinction correction, and fitted PARSEC isochrones to identify cluster sequences.• Completed a literature survey on cluster dynamics and halo substructure.• Presented a formal research poster at the project culmination day, communicating methodology and results to peers and faculty.• Entrusted with writing the complete project report, synthesizing the group's findings and articulating the theoretical framework under faculty mentorship.• Collaborative paper preparation is currently in planning.	
Jun 2025 — Jun 2025	IIIT-Delhi Undergraduate Summer Program in Mathematics	Delhi, India
	<i>Advanced Courework in Theoretical Mathematics</i>	
	<i>12 June – 28 June 2025</i>	
	<ul style="list-style-type: none">• Selected for this highly competitive national-level summer school (approx. 10% acceptance rate) focused on advanced mathematical training.• Attended faculty-led modules in Abstract Algebra, Real Analysis, Geometry, and Topology.	

- Participated in intensive problem-solving sessions and attended faculty research talks on topics such as **entropy and information theory, spectral analysis, projective geometry, mathematical logic, random walks**, and **arithmetical functions**.
- Gained significant exposure to formal mathematical abstraction, proof-writing, and theoretical depth beyond the standard undergraduate curriculum.

Sep 2022 — Dec 2022

Independent Projects

Exploratory Math Research – *Decimal Digits of an Exponentiated Integer*

- Investigated the behavior and bounds of the number of decimal digits in numbers of the form a^p .
- Developed inequality conditions relating the exponent p and digit count h , with applications to bounding p th power sums over k -digit numbers.
- Explored probabilistic methods to estimate values of a such that a^p yields a desired number of digits.
- Shared findings with Dr. Thomas Britz (Math Prof, UNSW, Australia), editor of *Parabola*, and received appreciative feedback.
- Gained early experience in mathematical reasoning, proof-writing, and expository communication.

ACHEIVEMENTS AND ACTIVITIES

Aug 2024 — Dec 2024

University's Dean's List Awardee

In Feb 2025, I was honored with the Dean's List Award for *Outstanding Academic Performance* in the Monsoon Semester 2024 at Shiv Nadar Institution of Eminence.

Jun 2024 — Jun 2024

Achieved Rank 1 out of 3,461 candidates, Guru Nanak Dev University's Undergraduate Common Entrance Test

Amritsar

Aug 2024 — Aug 2024

Achieved 628/800 CUET Score

Delhi

For such highly competitive score in the All India CUET Exam, I received admission offers for B.S. (Hons.) Mathematics at both Ramjas College and Kirori Mal College, University of Delhi, as well as B.A (Hons) Mathematics at Dr. B.R. Ambedkar University Delhi.

RELEVANT INFO

Academic References

- Dr Pradip Kumar, Associate Professor, Department of Mathematics, Shiv Nadar Institution of Eminence. pradip.kumar@snu.edu.in
- Dr Amber Habib, Professor, Department of Mathematics, Shiv Nadar Institution of Eminence. amber.habib@snu.edu.in
- Dr Binson Babu, Assistant Professor, Department of Physics, Shiv Nadar Institution of Eminence. binson.babu@snu.edu.in
- Dr. Richa Kundu, Assistant Professor, Department of Physics, Miranda House, University of Delhi. richa.kundu@mirandahouse.ac.in

Personal Statement for GYSS 2026

My academic path demonstrates a focused progression toward rigorous mathematical research and its real-world applications. toward deep, rigorous research in mathematics and its applications. From participating in a highly selective summer program at IIIT-Delhi to contributing to a faculty-mentored astrophysics project on globular cluster dynamics, I've actively sought opportunities that challenge me intellectually and develop my research aptitude. These experiences—complemented by independent mathematical inquiry and scientific communication—have shaped my aspiration to do meaningful, globally relevant research.

Beyond coursework and research, I've engaged with the broader role of science in society. My published letters in *The Indian Express* and *Hindustan Times* reflect my awareness of the ethical, educational, and humanistic dimensions of scientific progress. I believe that scientific research should not only pursue truth but also serve humanity with responsibility and empathy.

The Global Young Scientists Summit represents a unique opportunity to interact with leading researchers and like-minded peers from across the world. I hope to gain exposure to cutting-edge ideas, learn from diverse intellectual traditions, and explore collaborative approaches to solving real-world challenges. With a strong foundation in the mathematical sciences, growing interdisciplinary research experience, and a commitment to global scientific dialogue, I am eager to contribute meaningfully to GYSS 2026 and beyond.

SKILLS	Fast Learner	Communication Skills
	Ability to Work Under Pressure	Collaborative Research &
	Programming (Python, C)	Teamwork
COURSES		
Aug 2024 — Jan 2025	<div>Selected Coursework</div> <ul style="list-style-type: none"><i>Mathematics</i>: Linear Algebra, Vector Calculus, Foundations of Mathematics, Multivariable Calculus, Real Analysis, Probability, Abstract Algebra, Differential Geometry of Curves and Surfaces.<i>Physics & Computing</i>: Theoretical Electrodynamics, Theoretical Mechanics and Relativity, Mathematical Modelling, Introduction to Programming (Python, C)<i>Independent Reading</i>: Chinn & Steenrod's <i>Topology</i>, Herstein's <i>Abstract Algebra</i>, Arnold's <i>Experimental Mathematics</i>	
LANGUAGES	English, Hindi, Punjabi	Highly proficient
OTHER EXTRA CURRICULARS		
Feb 2022 — Present	<div>Published, Indian Express, Hindustan Times</div> <p>Letters to the Editor: I've been published in the National Edition of the Indian Express on topics related to education and as well as in the Punjab Edition of the Hindustan Times.</p> <p>Indian Express:</p> <ul style="list-style-type: none">Empathy Needed, published on Feb 22, 2022: On Children's Mental Health in Post Pandemic SchoolingTowards Plurality, published on March 1, 2022: On the Learned Mind and Social Harmony <p>Hindustan Times (Most Recent):</p> <ul style="list-style-type: none">Anderson's Legacy, published on 18th July 2024: A tribute to the English Cricketer Sir James Anderson on his retirement.Dazzling Debut, published on 27th Dec, 2024: On the eye-catching debut of the Australian Cricketer Sam Konstas,Champions of Hearts, published on 12th March, 2025: On India's historic Champions Trophy victory.India's Opportunity, published on 4th June, 2025: On fostering global research ecosystems in India.	
Sep 2022 — Oct 2022	Conducted Interview of Inter-state Migrants	Amritsar, India
I conducted interviews with three local migrant workers, discussing their reasons for migration, the state of education in their villages, and the shared circumstances faced by their families and communities.		
Dec 2024 — Dec 2024	Attended 2024 Winter School Delhi School of Economics	Delhi, India
<p>Attended Plenary Sessions of prominent economists: Prof. Rohini Pande and Prof Samuel Kortum (Yale University), Prof. Arvind Panagariya (Columbia University), Prof. Julia Cagé and Prof. Thomas Piketty (Paris School of Economics),</p> <p>Attended Parallel Sessions on topics under Microeconomics (Merger Waves in Vertically Related Markets), International Economics (Dominance of Dollar), Mathematical Economics (Contest Design), Electoral Dynamics and Finance, Temporary vs Permanent Migration in Indian Economy.</p>		
HOBBIES	Dev Anand Songs, Classic Movies of 50s, 60s, 70s, Cricket and Computers.	