

Anurag Sahay

Curriculum Vitae

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Education

- 2018– **Doctor of Philosophy, Mathematics**,
University of Rochester.
Doctoral Adviser: Prof. Steven Gonek
PhD passes in all 6 preliminary exams
- 2018–2020 **Master of Arts, Mathematics**,
University of Rochester, *GPA* – 4.0/4.0.
- 2011–2016 **Master of Science, Mathematics and Scientific Computing**,
Indian Institute of Technology, Kanpur, *CPI* – 7.9/10.0.
- 2011–2016 **Bachelor of Science, Mathematics and Scientific Computing**,
Indian Institute of Technology, Kanpur, *CPI* – 8.6/10.0.
Graduated with Distinction;
Minors in: (1) Theory of Computing; and (2) Literature

Research Interests

Analytic Number Theory, Additive Combinatorics, Discrete Geometry, and Applications to Theoretical Computer Science.

Preprints

- 18 Sep 2020 **Distinct Distances Between a Circle and a Generic Set**, (*with Alex McDonald, Brian McDonald and Jonathan Passant*), [arXiv:2005.02951v3](https://arxiv.org/abs/2005.02951).

Teaching Experience

- Fall '20 **Teaching Assistant**, (*Workshops*), MTH141: Calculus I.
University of Rochester
- Spring '20 **Teaching Assistant**, (*Grading*), MTH437: Algebra II.
University of Rochester
- Fall '19 **Teaching Assistant**, (*Grading*), MTH436: Algebra I.
University of Rochester
- Spring '19 **Teaching Assistant**, (*Recitations*), MTH162: Calculus IIA.
University of Rochester
- Fall '18 **Teaching Assistant**, (*Webwork & Grading*), MTH201: Introduction to Probability.
University of Rochester

- Fall '13 & **Senior Academic Mentor, Counselling Service.**
 Spring '14 Indian Institute of Technology, Kanpur
 Taught remedial classes for all institute-core mathematics courses to academically struggling students, and mentored some students one-on-one
- Fall '12 & **Academic Mentor, Counselling Service.**
 Spring '13 Indian Institute of Technology, Kanpur
 Taught remedial classes for first year institute-core mathematics courses to academically struggling students

Expository Talks

- 27 Feb 2020 **The Zig-Zag Product and Reingold's Theorem.**
 Combinatorics Seminar, University of Rochester
- 25 Feb 2020 **A Crash Course in Complexity Theory with a view towards $\text{ustcon} \in L$.**
 Combinatorics Seminar, University of Rochester

Undergraduate/Masters Reading Projects

- Jan–Apr '16 **The Hidden Subgroup Problem, IITK.**
 Supervised by: Prof. Rajat Mittal, Dept. of Computer Science and Engineering
 Course Project for CS 682 at IIT Kanpur
- Jan–Apr '16 **MS Thesis, Part II: Prime Numbers and Arithmetic Progressions, IITK.**
 Supervised by: Prof. Somnath Jha, Dept. of Mathematics and Statistics
 To fulfill the requirements of MS degree
- Jul–Nov '15 **MS Thesis, Part I: The Vinogradov Theorem, IITK.**
 Supervised by: Prof. Somnath Jha, Dept. of Mathematics and Statistics
 To fulfill the requirements of MS degree
- Jan–Apr '15 **Additive Combinatorics and Szémeredi's Regularity Lemma, IITK.**
 Supervised by: Prof. Rajat Mittal, Dept. of Computer Science and Engineering
 Undergraduate project (UGP) to fulfill the requirements of BS degree
- Jul–Nov '14 **Additive Combinatorics and Incidence Geometry: Kakeya's Problem, IITK.**
 Supervised by: Prof. Nitin Saxena, Dept. of Computer Science and Engineering
 UGP to fulfill the requirements of BS degree
- Jan–Apr '14 **Arithmetic Progressions in Sets of Integers, IITK.**
 Supervised by: Prof. Shobha Madan, Dept. of Mathematics and Statistics
 UGP to fulfill the requirements of BS degree
- Jul–Nov '13 **Fourier Analysis on Finite Abelian Groups, IITK.**
 Supervised by: Prof. Shobha Madan, Dept. of Mathematics and Statistics
 UGP to fulfill the requirements of BS degree
- May–Jul '13 **The Bombieri-Vinogradov Theorem, IMSc, Chennai.**
 Supervised by: Prof. R. Balasubramanian, Director and Prof. Sanoli Gun, Reader
 Project for the Summer Research Fellowship awarded by the Indian Science Academies
- Jun–Jul '12 **Partitions and Rademacher's Exact Formula, IIT Delhi.**
 Supervised by: Prof. Amitabha Tripathi, Dept. of Mathematics
 Summer project to satisfy the requirements for the continuation of the KVPY fellowship

Awards and Achievements

- 2016 **Ratan Swarup Memorial Prize, IITK.**
Best all round undergraduate student graduating at the Convocation of IIT Kanpur
- 2016 **IIT Kanpur Excellence Award for Leadership in Students' Affairs.**
- 2014 **Prof. J.N. Kanpur Prize, Department of Mathematics and Statistics, IITK.**
Best 3rd year undergraduate or 1st year Masters student in the department
- 2013–14 **Academic Excellence Award, Senate Scholarships and Prizes Committee, IITK.**
Top 10% among students of the Institute in an Academic Year
- 2013 **Summer Research Fellowship, Indian Science Academies.**
Awarded by IASc, Bangalore; INSA, Delhi; and NASI, Allahabad to do a project under the guidance of Prof. R. Balasubramanian and Prof. Sanoli Gun at the IMSc, Chennai
- 2011 **Kishore Vaigyanik Protsahan Yojana (KVPY) SX Fellowship, IISc Bangalore.**
Awarded to 78 (out of about 100,000 applicants) undergraduate students excelling in the fields of science to encourage them to take up research careers as scientists.
- 2008 **NTSE Scholarship, National Council of Educational Research and Training.**
Awarded to the top 1000 high school students in India on the basis of a National Talent Search Examination (NTSE).

Conferences, Research Schools and Workshops

- Fall '20 AMS Fall Eastern Sectional Meeting
- Summer '14 Summer School in Analytic Number Theory, IHÉS, France
- Summer '13 Science Academies' Lecture Workshop, IMSc, Chennai
- Winter '11 Vijyoshi Camp, IISc Bangalore
- Summer '11 Canada/USA Mathcamp

Work Experience

- Sep '16– Sep '17 **Boston Consulting Group, Gurgaon, Haryana, India.**
Associate
- May '15– Jul '15 **Deutsche Bank (DB Centre), Mumbai, Maharashtra, India.**
Summer Analyst

Service

- 2020-2021 **Grad Student Member, Academic Honesty Education Committee.**
College of Arts, Sciences & Engineering; University of Rochester
- 2019-2021 **Grad Student Member, Board on Academic Honesty.**
College of Arts, Sciences & Engineering; University of Rochester
- 2019-2020 **Organizer, Problem Solving Seminar, AMS Grad Student Chapter.**
Department of Mathematics, University of Rochester
- 2019-2020 **Math Department Representative, Graduate Students' Association.**
College of Arts, Sciences & Engineering; University of Rochester
- 2018-2019 **Travel Grant Reviewer, Graduate Students' Association.**
College of Arts, Sciences & Engineering; University of Rochester

- 2014-2015 **Chairperson, Students' Senate.**
Indian Institute of Technology, Kanpur
- 2012-2015 **Students' Senate Nominee, Senate Undergraduate Committee.**
Indian Institute of Technology, Kanpur
- 2010-2011 **Vice President, *Mathematical Society*.**
Delhi Public School, R.K. Puram

Skills

Languages: English (Native) | Hindi (Native) | French (Elementary)
Programming: C | C++ | Python
Tools: Django | MS-Word | MS-Excel | \LaTeX