

Academic Job Profile:

- Jan 2021 – **Ph.D. Mathematics**, [University of South Carolina \(USC\)](#), Columbia, South Carolina.
Dec. 2025 **Advisor:** Dr. Matthew Boylan
Current GPA: 4.0 / 4.0
Passed Qualifying exams (Analysis - August 2021, Algebra - January 2022)
Passed Comprehensive Exams (February 2023)
- Jan – April, **Arizona Winter Semester**, [AWS Number Theory](#), 2021, Virtual.
2021 **Session 1:** Modular Groups and Modular Forms
Session 2: p -adic numbers and quadratic forms
AWS 2021 was held in two, 6-week, online sessions. All the selected participants were required to attend two lecture series for each session, comprising of 6 lectures each (one per week), as well as accompanying problem sessions and moderated discussions.
- Sep. 2020 – **Budapest Semesters in Mathematics (BSM)**, [Fall 2020 \(Online\)](#), non-credit, Advanced
Dec. 2020 Math Program.
Courses:
→ Real Functions and Measures (Measure Theory, Topology and Hilbert Spaces)
Prof. Maga (Course Grade - **A**)
→ Complex Functions - Prof. Szilard (Course Grade - **A+**)
It's a semester-long, highly acclaimed study abroad program program that allows qualified math students to take advanced courses taught by BSM Professors in Hungary. Due to COVID-19, it turned online for the Fall as well as Spring semester.
- 01 May 2020 **Project JRF**, [Department of Mathematics, Indian Institute of Science Education and Research \(IISER\), Bhopal, India](#), Supervisor: Dr. Karam Deo Shankhadhar, Assistant Professor
– 30 Jun 2020 (Cancelled due to COVID).
- 10 Nov 2018 – **Visiting Researcher**, [Department of Mathematics, The Institute of Mathematical Sciences \(IMSc\), Chennai, India](#), Supervisor: Dr. Srinivas Kotyada, Professor H.
31 Mar 2019
- 20 Feb 2018 – **Research Assistant-I**, [Department of Mathematics, The University of Hong Kong \(HKU\), Pokfulam, Hong Kong](#), Supervisor: Dr. Ben Kane, Associate Professor.
31 July 2018
- 25 Feb 2017 – **Project Assistant, Development of Modules and Tools for Integer Factorization using Number Field Sieve (NFS)**, [Department of Mathematics, Harish-Chandra Research Institute \(HRI\), Prayagraj \(Allahabad\), India](#), Funded by Defence Research and Development Organisation (DRDO), Supervisors: Dr. Kalyan Chakraborty (Professor H), Dr. R. Thangadurai (Professor H).
25 Jan 2018

Research Interests

Analytic Number Theory, Modular forms, L -functions, Partition Theory, Elliptic Curves.

Academic Details

- 2014 – 2016 **M.Sc. (Mathematics and Computing)**, [Thapar Institute of Engineering and Technology \(TIET\), Formerly Thapar University](#), Punjab, India.
CGPA - 8.78 (on a 10.0 point scale), **Rank - 3rd/20**
U.S. Equivalent: 3.647 (on a 4.0 point scale)

2010 – 2013 **B.Sc. (Mathematics, Statistics and Computer Science)**, *Punjabi University*, Punjab, India.
Percentage - 83.5

Master's Thesis

Jan - Aug 2016 **Class preserving automorphisms of finite p - groups**, Supervision of Dr. Deepak Kumar Gumber, Professor, School of Mathematics, TIET, Punjab (India).

→ The central focus of the thesis involves an in-depth study of the problem of finding a neat upper bound for the order of group of class preserving automorphisms of finite p -groups.

Talks/Seminars

- 19th April., 2023 **Talk: "Theory of half-integer weight modular forms and Shimura Lifts"**, GRADUATE COLLOQUIUM, Department of Mathematics, USC.
- 15th Feb., 2023 **Talk: "Some topics on the structure and application of modular forms"**, ORAL COMPREHENSIVE EXAMS, USC.
- 29th Nov., 2022 **Talk: "Homology of Noetherian and local rings (John Tate, 1957)"**, DEPARTMENT OF MATHEMATICS, USC.
- 21st March, 2018 **Talk: "Sieving Techniques in Number Field Sieve"**, POSTGRADUATE NUMBER THEORY SEMINAR, University of Hong Kong (HKU).
- 5 - 8th July, 2017 **Two lectures: "Lattice Sieving in Number Field Sieve (Rational and Algebraic Sieving)"**, DRDO WORKSHOP, HRI.
- July-Dec, 2015 **Two seminars: "Burnside Lemma and its Applications" and "Orthogonal Transformations in 2-D"**, TIET, FALL SEMESTER'15.

University Teaching Experience

- MATH 115 Instructor of Record (Spring 2023) - Precalculus Mathematics
- MATH 170 Instructor of Record (Fall 2022) - Finite Mathematics
- MATH 111 Instructor of Record (Fall 2021/Spring 2022) - College Algebra
- MATH 142 Instructor of Record (Summer 2021/Summer 2022) - Calculus II
- MATH 141 Teaching Assistant (Spring 2021) - Calculus I

Summer Schools/Conferences/Workshops

- 11 Mar - 12 Mar, 2023 Southern Regional Number Theory Conference, LOUISIANA STATE UNIVERSITY(LSU), Baton Rouge, LA.
- 10 Dec - 11 Dec, 2022 Palmetto Number Theory Series (PANTS XXXV), UNIVERSITY OF SOUTH CAROLINA (USC), Columbia, SC.
- 15 Nov, 2022 Bayou Arithmetic Research Days, BARD 1, LOUISIANA STATE UNIVERSITY (LSU) (Virtual)
- 24 Sep - 25 Sep, 2022 Palmetto Number Theory Series (PANTS XXXIV), UNIVERSITY OF NORTH CAROLINA (UNC), Charlotte, NC.
- 27 June - 01 July, 2022 Discussion Meeting on L-functions, Circle Method and Applications, INTERNATIONAL CENTRE FOR THEORETICAL SCIENCES (ICTS), Bengaluru, India. (Virtual)
- 06 June - 12 June, 2022 Connecticut School in Number Theory (CTNT 2022), UNIVERSITY OF CONNECTICUT (UCONN), Storrs, Connecticut.
- (Topics: Algebraic Number Theory, Galois Representations, Local Fields, Chebotarev Density Theorem).**
- 16 May - 20 May, 2022 NSF/CBMS Research Conference : Ramanujan's ranks, Mock Theta Functions, and Beyond, THE UNIVERSITY OF TEXAS RIO GRANDE VALLEY (UTRGV), Edinburg, TX.

- 01 April - First International Workshop in Analytic Number Theory, UNIST (Virtual)
02 April, 2022
- 05 Mar - Arizona Winter School (AWS) - Automorphic Forms Beyond GL_2 , UNIVERSITY OF ARIZONA,
09 Mar, 2022 Tucson AZ.
(During AWS, I was also a part of the study group for Aaron Pollack on Modular Forms on Exceptional Groups.)
- 02 Mar - National Workshop on "Analytic Number Theory," KERALA SCHOOL OF MATHEMATICS
07 Mar, 2020 (KSOM), Kozhikode, Kerala.
- 13 May - Advanced Instructional School (AIS) - Modular Forms, INDIAN INSTITUTE OF TECHNOLOGY
1 Jun, 2019 (IIT), Guwahati, Assam.
- 17 Dec - Intercity Number Theory Seminar, INDIAN INSTITUTE OF SCIENCE EDUCATION AND
18 Dec, 2018 RESEARCH (IISER), Tirupati, AP.
- 16 Jul - HKU Number Theory Days, Institute of Mathematical Research, THE UNIVERSITY OF
23 Jul, 2018 HONG KONG (HKU), Pokfulam, Hong Kong.
- 07 Dec - India - Russia 70th Anniversary Celebration Workshop on "Groups and Related Structures,"
08 Dec, 2017 Department of Mathematical Sciences, IISER, Mohali, Punjab.
- 11 Sep - Workshop on "Operator Algebra" by National Centre of Mathematics - ATM, IMSc, Taramani,
16 Sep, 2017 Chennai.
- 04 Sep - International Conference on "Class Groups of Number Fields and Related Topics," HRI,
07 Sep, 2017 Prayagraj (Allahabad), India.
- 16 May - PG Training Program, "NPDE - TCA", IIT, Ropar, Punjab, India.
04 Jun, 2016
- 28 Mar - National Workshop on "Group Theory", ST. STEPHENS COLLEGE, DELHI UNIVERSITY,
29 Mar, 2016 Delhi, India.
- 16 Oct - 3rd International Conference on "Special Functions and Applications", TIET, Punjab, India
18 Oct, 2014

Upcoming Conferences

- 02 Jul - Inclusive Paths in Explicit Number Theory, BANFF INTERNATIONAL RESEARCH STA-
15 Jul, 2023 TION(BIRS), UNIVERSITY OF BRITISH COLUMBIA (UBC) OKANAGAN, KELOWNA, BC,
Canada.

Professional Services

- Fall 2023 - President of the Association for Women in Mathematics (AWM) Chapter at USC.
Spring 2024
- April 21, 2023 Reviewer for undergraduate (UG) poster presentations at Discover USC, Columbia Metropol-
itan Convention Center, Columbia, SC.
- Fall 2022 Panelist, Graduate Teaching Assistant Orientation, University of South Carolina.

Scholastic Achievements

- 2021 Recipient of **Arizona Winter School Stipend**
- 2018 - 2019 Selected for **Stipendium Hungaricum** Scholarship (from India) to pursue Master's in Mathe-
matics at Eotvos Lorand University (ELTE), Budapest by Tempus Public Foundation, Hungary
- Not Availed
- March 2016 Qualified **GATE (Graduate Aptitude Test in Engineering)**, ALL INDIA RANK AIR -
474, Mathematics - 92.48 Percentile score
- 2015 - 2016 Recipient of **Late Dr. H.S. Kasana Scholarship**
- 2014 - 2015 Recipient of **Thapar University Merit Scholarship**
- June 2014 Qualified **ACET** - Actuarial Entrance Examination

Relevant Coursework

- Algebra - I (Group and Ring Theory), Algebra - II (Field Theory, Galois Theory, Modules, Algebraic Coding Theory), Commutative algebra, Representation Theory, Introduction to Modular forms, Analytic Number Theory, Elliptic curves and Arithmetic Geometry, Linear Algebra, Real Analysis - I (Metric Spaces, Riemann-Stieltje's Integral, Function of Several Variables), Real Analysis - II (Measure Theory and Integration, L^p -Spaces), Discrete Mathematical Structure, Complex Analysis, Functional Analysis, Topology, Elementary Number Theory, Fourier Analysis.
- Differential Equations (ODE, PDE), Numerical Analysis, Operations Research, Mathematical Methods, Mechanics.
- Probability and Statistics, Sample Surveys, Statistical Inference - I (Point and Interval Estimation, Testing of Hypothesis), Statistical Inference - II (Sampling distributions, Large sample tests), Design and Analysis of Experiments.
- Fundamentals of Computer Science and C Programming, Data Structures and Algorithms, Database Management Systems, Computer Organisation and Operating Systems, Computer Networks, Visual Programming, Object Oriented Programming, Oracle, Formalization of Mathematics (Lean Prover).
- Mathematics Pedagogy - I, Mathematics Pedagogy - II

Teaching Experience

Spring 2021 - Tutor, Math Tutoring Center, University of South Carolina
Fall 2022

- 1 Jul, 2019 - Private classes in Mathematics and Statistics for undergraduate level students in science, arts
Present and engineering streams (B.Sc., B.Tech, BCA)
- 1 Jul, 2013 - Worked as a part-time faculty in a coaching institute namely, "New Delhi Academy for
31 Dec, 2013 Competitive exams". Responsibilities include teaching Mathematics to students of grades 11-12 and for entrance exams such as CA CPT, LEET etc.
- 1 Nov, 2013 - Worked as an online tutor in Mathematics with "Futor". Responsibilities include teaching both
30 Apr, 2014 Indian as well as International students for 9 - 12 grades.

Technical Skills

Programming Languages: C/C++

Markup Language: \LaTeX

References

Available on request