Aryaman Maithani | Curriculum Vitae

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Education

University of Utah — **Salt Lake City, UT**
Ph.D. student in Mathematics — *2022–present*
Advisor: Anurag K. Singh

Indian Institute of Technology Bombay — **Mumbai, India**
B.S. in Mathematics with Honors — *2018–2022*

Awards/Fellowships

Simons Dissertation Fellows in Mathematics — **Simons Foundation**, *2025–2027*

Pure Mathematics Fellowship — **University of Utah**, *Fall 2024, Fall 2025*

Institute Gold Medal — **IIT Bombay**, *2022*

Institute Academic Prize — **IIT Bombay**, *2020, 2021*

Research Interests

Commutative algebra: invariant theory, local cohomology, rings of differential operators.

Publications

7. *Homological properties of invariant rings of permutation groups* arXiv
   Proceedings of the American Mathematical Society (To appear)

6. *Splitting the difference: Computations of the Reynolds operator in classical invariant theory* arXiv
   Bulletin of the London Mathematical Society **58**:1, article no. e70175 (2026)

5. *Minimal cellular resolutions of powers of graphs*, arXiv
   with Trung Chau and Tài Huy Hà
   Electronic Journal of Combinatorics (To appear)

4. *Edge ideals with linear quotients and without homological linear quotients*, arXiv
   with Trung Chau and Kanoy Kumar Das
   Mediterranean Journal of Mathematics **23**, article no. 31 (2026)

3. *Monomial ideals with minimal generalized Barile–Macchia resolutions*, arXiv
   with Trung Chau and Tài Huy Hà
   Vietnam Journal of Mathematics

2. *The Scarf complex of squarefree powers, symbolic powers of edge ideals, and cover ideals of graphs*, arXiv
   with Trung Chau and Nursel Erey
   Communications in Algebra **54**:3, 982–1001 (2026)

1. *Linear quotients of connected ideals of graphs*, with H. Ananthnarayan and Omkar Javadekar arXiv
   Journal of Algebraic Combinatorics **61**, article no. 34 (2025)

Preprints

2. *Abelian extensions of equicharacteristic regular rings need not be Cohen-Macaulay*,
   with Anurag K. Singh and Prashanth Sridhar arXiv:2511.19800 (2025)

1. *Polynomial invariants of classical subgroups of* GL_2*: Conjugation over finite fields* arXiv:2501.15080 (2025)

Talks

Seminars

Commutative Algebra Seminar — **Purdue University**
Polynomial invariants of GL_2: Conjugation over finite fields — *September 2025*

Commutative Algebra Seminar — **UC San Diego**
Polynomial invariants of GL_2: Conjugation over finite fields — *February 2025*

Commutative Algebra Seminar — **University of Utah**
Polynomial invariants of GL_2: Conjugation over finite fields — *February 2025*

Commutative Algebra Seminar — **IIT Bombay**
Invariant theory of commutative rings — *August 2024*

Commutative Algebra Seminar — **University of Utah**
Linear quotients of connected ideals of graphs — *March 2024*

Dualities in Topology and Algebra — **ICTS, India**
Gorenstein rings — *May 2023*

Graduate Student Seminars

BIKES, Commutative Algebra Graduate Student Seminar — **University of Utah**
On invariant rings of permutation groups — *January 2026*

Ideal Conversations, Commutative Algebra Graduate Student Seminar — **Purdue University**
Invariant theory of commutative rings — *September 2025*

BIKES, Commutative Algebra Graduate Student Seminar — **University of Utah**
Splittings in Classical Invariant Theory — *August 2025*

BIKES, Commutative Algebra Graduate Student Seminar — **University of Utah**
Examples of badly-behaved rings — *August 2024*

BIKES, Commutative Algebra Graduate Student Seminar — **University of Utah**
Linear quotients of connected ideals of graphs — *February 2024*

Commutative Algebra Graduate Student Seminar — **University of Michigan**
Invariant theory of commutative rings — *October 2023*

BIKES, Commutative Algebra Graduate Student Seminar — **University of Utah**
Invariant theory of commutative rings — *September 2023*

General Math Talks

Graduate Student Colloquium — **University of Utah**
Shut your π hole! — *March 2024*

Math Circle — **University of Utah**
Fun with graphs — *March 2023*

Graduate Student Colloquium — **University of Utah**
Chaos theory — *February 2023*

Teaching Experience

Instructor of Record

MATH 1220: Calculus II
University of Utah — *Spring 2025, Summer 2024*

MATH 1090: Business Algebra
University of Utah — *Spring 2024*

MATH 1060: Trigonometry
University of Utah — *Fall 2023*

MATH 1010: Intermediate Algebra
University of Utah — *Summer 2023*

Graduate Teaching Assistant

MATH 2250: Differential Equations and Linear Algebra
University of Utah *Spring 2023, Fall 2022*

Teaching Assistant for Workshops

Recent Developments in Commutative Algebra
IIT Dharwad *24–29 June 2025*

Pre-REU 2025: Introducing undergraduates to research
University of Utah *6–30 May 2025*

Grader for Graduate Courses

MATH 6520: Algebraic Topology
University of Utah *Spring 2024*

MATH 6310: Modern Algebra 1
University of Utah *Fall 2023*

MATH 6320: Modern Algebra 2
University of Utah *Spring 2023*

Service/Outreach

- **University of Utah** **Salt Lake City, Utah, USA**
  Graduate Student Advisory Committee
  - 2024–2025: **GSAC Co-chair.**
    Liaison between graduate students and department.
  - 2023–2025: **Recruitment committee.**
    Welcome prospective graduate students and organize meetings with faculty for them.

Professional Memberships

- American Mathematical Society

Technical skills

Python, SageMath, Macaulay2, Magma, LaTeX