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

Early Career Professional Development Program Award   **University of Utah**
2023

Institute Gold Medal   **IIT Bombay**
2022

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

Research Interests

Commutative Algebra.

Publications

4. *Monomial ideals with minimal generalized Barile–Macchia resolutions*,   arXiv
   with Trung Chau and Tài Huy Hà   Vietnam Journal of Mathematics (2025)

3. *Splitting the difference: Computations of the Reynolds operator in classical invariant theory*   arXiv
   Bulletin of the London Mathematical Society (2025)

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 (2025)

1. *Linear quotients of connected ideals of graphs*, with H. Ananthnarayan and Omkar Javadekar   arXiv
   Journal of Algebraic Combinatorics, Volume **61**, Article 34 (2025)

Preprints

3. *Edge ideals with linear quotients and without homological linear quotients*,
   with Trung Chau and Kanoy Kumar Das   arXiv:2503.11424 (2025)

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

1. *Minimal cellular resolutions of powers of graphs*,
   with Trung Chau and Tài Huy Hà   arXiv:2404.04380 (2024)

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

| **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*

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