

Trung Chau | Curriculum Vitae

✉ trung.chau@utah.edu • 🌐 math.utah.edu/chau

Education

Chennai Institute of Mathematics

Postdoc

Mentor: Manoj Kummini

Chennai

October 2024–present

University of Utah

Ph.D. student in Mathematics

Advisors: Anurag K. Singh and Srikanth B. Iyengar

Thesis: Barile-Macchia resolutions of monomial ideals and F -singularities of rings defined by commutator matrices and permanents

Salt Lake City, UT

2019–August 2024

University of Science - Vietnam National University

B.S. in Mathematics

Ho Chi Minh City, Vietnam

2014–2018

Research

Research Interests

Commutative Algebra, Algebraic Geometry, and Combinatorics.

Publications

2. Trung Chau. *The F -regularity of algebraic sets related to commutator matrices*, Journal of Algebra (2024).
[journal version](#)
1. Trung Chau and Selvi Kara. *Barile-Macchia resolutions*, Journal of Algebraic Combinatorics (2024).
[journal version](#)

Preprints

3. Trung Chau, Huy Tai Ha, and Aryaman Maithani. *Powers of Edge Ideals of Graphs with Minimal Cellular Resolutions*.
[arXiv:2404.04380](#). Submitted. (2024)
2. Trung Chau, Selvi Kara, and Kyle Wang. *Minimal Cellular Resolutions of Path Ideals*.
[arXiv:2403.16324](#). Submitted. (2024)
1. Trung Chau, Selvi Kara, and Augustine O’Keefe. *The MorseResolutions package for Macaulay2*.
[arXiv:2307.03633](#). Submitted. (2023)

Conference Presentations

Talks

AMS Spring Western Sectional Meeting

Powers of edge ideals with minimal cellular resolutions

Invited Speaker

San Francisco

May 2024

Canadian Mathematical Society’s 2023 Winter Meeting

Barile-Macchia resolutions

Invited Speaker

Montreal

December 2023

Algebra Day

The F -regularity of algebraic sets related to commutator matrices

Invited Speaker

Arizona State University

November 2023

AMS Spring Southeastern Sectional Meeting*The F -regularity of algebraic sets related to commutator matrices*

Invited Speaker

Georgia Institute of Technology

March 2023

AMS Fall Southeastern Sectional Meeting*Bridge resolutions*

Invited Speaker

University of Tennessee at Chattanooga

October 2022

The 11th VNU-HCMUS Scientific Conference*Counting integral points inside a polyhedron*

Invited Speaker

Ho Chi Minh City, Vietnam

November 2018

Posters.....**KUMUNU***Barile-Macchia resolutions*

Poster, Funded

University of Missouri

September 2023

AlCoVE*Barile-Macchia resolutions*

Poster

Virtual

June 2023

Combinatorial Algebra meets Algebraic Combinatorics*Barile-Macchia resolutions*

Poster, Funded

University of Waterloo, Canada

January 2023

KUMUNU*Morse resolutions*

Poster, Funded

University of Nebraska at Lincoln

October 2022

PASCA*Morse resolutions*

Poster, Funded

CIMAT, Guanajuato, Mexico

June 2022

Conferences and Workshops Attended**Interactions Between Topological Combinatorics
and Combinatorial Commutative Algebra***A one-week workshop hosted by BIRS*

Invited Participant

Banff, Canada

April 2023

KUMUNU*Funded Participant***University of Nebraska at Lincoln**

May 2021

Conferences Organized**BRIDGES***Co-chair*

Aimed towards early graduate students and advanced undergraduate students interested in geometric group theory, number theory, algebraic geometry and commutative algebra

Salt Lake City, UT

Summer 2024

BRIDGES*Co-organizer***Salt Lake City, UT**

Summer 2022

Awards, Grants, and Fellowships**Department of Mathematics, University of Utah***Departmental Summer Funding*

2023

VIASM*Students Scholarship of National Program for The Development of Mathematics*

2015–2017

Seminar Talks

Research Talks.....

Combinatorial and Commutative Algebra Seminar <i>Barile-Macchia resolutions</i>	Oklahoma State University <i>October 2023</i>
Combinatorial and Commutative Algebra Seminar <i>Barile-Macchia resolutions</i>	McMaster University <i>October 2023</i>
Commutative Algebra Seminar <i>The F-regularity of algebraic sets related to commutator matrices</i>	Purdue University <i>September 2023</i>
Algebra and Combinatorics Seminar <i>Barile-Macchia resolutions</i>	Tulane University <i>December 2022</i>
Commutative Algebra Seminar <i>Barile-Macchia resolutions</i>	University of Utah <i>November 2022</i>

Graduate Student Seminars.....

Commutative Algebra Graduate Student Seminar, Syracuse University Barile-Macchia resolutions for monomial ideals	<i>May 2024</i>
CARES, Commutative Algebra Regional Expository Seminar (virtual) Simplicial resolutions for monomial ideals	<i>December 2022</i>
<i>D</i> -modules and an application	<i>April 2022</i>
Commutative Algebra Graduate Student Seminar, University of Michigan Showing F -purity and F -regularity through examples	<i>March 2023</i>
BIKES, Commutative Algebra Graduate Student Seminar, University of Utah Discrete Morse Theory	<i>September 2023</i>
Principal radical systems	<i>April 2022</i>
Big Cohen-Macaulay modules and homological conjectures (theorems)	<i>September 2022</i>
Multiple Morse resolutions of an ideal	<i>March 2022</i>
Cellular resolutions and hull resolutions	<i>March 2022</i>
Lyubeznik resolutions and Scarf complexes	<i>December 2021</i>
A quick look at the singularity category	<i>September 2021</i>
Modules of finite projective dimension in characteristic p	<i>February 2021</i>
Holonomic modules and applications	<i>November 2020</i>
A proof of Kunz's theorem using perfect rings	<i>July 2020</i>
Cohen-Macaulay rings	<i>September 2019</i>

General Math Talks.....

Math Circle Magic and maths	University of Utah <i>2023</i>
Undergraduate Student Colloquium Evolution of logical paradoxes	University of Utah <i>2022</i>
Graduate Student Colloquium Mathematics in Arts	University of Utah <i>2020</i>

Teaching Experience

Instructor of Record.....

MATH 1090: Business Algebra

University of Utah

Fall 2023

MATH 3070: Applied Statistics I

University of Utah

Spring 2023

MATH 1070: Statistic Inference

University of Utah

Fall 2022

MATH 3150: PDEs for Engineers

University of Utah

Spring 2022

MATH 1210: Calculus 1

University of Utah

Fall 2021

MATH 2270: Linear Algebra

University of Utah

Summer 2021

MATH 1060: Trigonometry

University of Utah

Spring 2021, Fall 2020

Graduate Teaching Assistant.....

MATH 2250: Differential Equations and Linear Algebra

University of Utah

Spring 2020, Fall 2019

Grader.....

MATH 6310: Modern Algebra 1

University of Utah

Fall 2022

MATH 6040: Probability

University of Utah

Fall 2021

MATH 6210: Real Analysis

University of Utah

Fall 2021

MATH 6320: Modern Algebra 2

University of Utah

Spring 2021

Service/Outreach

○ **University of Utah**

Salt Lake City, Utah, USA

○ *Co-organizer*

Fall 2023

Co-organized the 'Graduate Teacher Training Program' in Fall 2023 at the University of Utah. This week-long program is designed to train the incoming graduate students and postdoctoral fellows to improve their teaching and lab instruction skills, learn and understand issues pertaining to equity, diversity and inclusivity in Mathematics, and get accustomed to the department culture

Salt Lake City, Utah, USA

○ **University of Utah**

Salt Lake City, Utah, USA

○ *Graduate Student Advisory Committee*

2020–present

- 2022–2023: **Cochair.**
- 2021–2022: **Recruitment committee.**
Welcoming prospective graduate students and organizing meetings with faculty for them.
- 2020–2021: **Co-chair of the peer mentoring program.**
Pairing incoming graduate students with advanced graduate students.
- 2020–2021: **Retention, Promotion, Tenure and Hiring.**
Make recommendations to the Department concerning promotion, tenure and retention of faculty members, and organize hiring teas with job candidates.

University of Utah

Salt Lake City, Utah, USA

- *Student Chapter of the Association for Women in Mathematics*

2020–present

- 2023–2024: **Conference committee cochair.**
- 2021: **Presenter.**
Giving a talk to high-school students.
- 2020–2021: **Co-chair of mentoring program.**
Pairing advanced undergraduate students with first-year graduate students.
- 2020: **Facilitator of the ‘What is math day?’**
Activity with middle school kids.
- 2020: **K-12 Outreach**
Middle school precalculus virtual homework help.

University of Utah

Salt Lake City, Utah, USA

- *Directed Reading Program in Mathematics*
Organizer

2021–2022

- **2019–2021: Graduate Student Mentor**, University of Utah Directed Reading Program in Mathematics.
Mentoring an undergraduate student for an independent reading projects.
 - Mentee: Cameron Schmitter, Project: Category Theory
 - Mentee: Kaden Richards, Project: Topology
 - Mentee: Gracie Liu, Project: Chaos Theory

Reviewer

- zbMATH
- MathSciNet/AMS

Referee/Peer-review

- Electronic Journal of Combinatorics
- Illinois Journal of Mathematics

Professional Memberships

- Association for Women in Mathematics
- American Mathematical Society