

# Vignesh Jagathese

Visiting Assistant Professor, NDSU

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I am a US Citizen.

## Academic Appointments

August 2026- **Visiting Assistant Professor, North Dakota State University (NDSU)**

## Education

May 2026 **PhD, Mathematics, University of Illinois Chicago (UIC)**  
Advisor: Kevin Tucker

April 2020 **Masters of Science, Mathematics, University of Michigan (UofM)**

April 2020 **Bachelor of Science, Honors Mathematics, University of Michigan (UofM)**

## Mathematical Interests

Commutative Algebra, Algebraic Geometry,  $F$ -Singularities, Quasi- $F$ -Splittings,  $F$ -Pure and Plus-Pure Thresholds, Singularities via Cartier Operators

## Work Experience

2020-2021 **VECO Power Trading, Quantitative Trader and Researcher**

Developed models to predict day ahead energy prices, written using R, PHP, MySQL and Python.

Summer 2019 **Chicago Trading Company, Quantitative Trading Intern**

2017-2018 **University of Michigan Solar Car Team, Operations Director**

Led world class 50+ member student team, managed \$1.5M manufacturing timeline.

## Publications and Preprints

- [3] **Bounds on the plus-pure thresholds of some hypersurfaces in (ramified) regular rings, (2026), with Marta Benozzo, Vaibhav Pandey, Pedro Ramirez Moreno, Karl Schwede, and Prashanth Sridhar, 2509.07217, (*Mathematische Zeitschrift*. to appear)**
- [2] **On quasi- $F$ -purity of excellent rings, (2026), 2503.10778, (*Communications in Algebra* 54 (4). 1760-1771 DOI: 10.1080/00927872.2025.2565687)**
- [1] **On  $F$ -pure thresholds and quasi- $F$ -purity of hypersurfaces, (2025), with Jack J Garzella, 2509.06211, Submitted**

## Awards and Grants

2025 **UIC Award for Graduate Research**, The Graduate College's longest-running support for research by graduate students at UIC. Comes with cash stipend

2023 **UIC Professor Herbert Alexander Award**, Awarded to exemplary graduate and undergraduate students within the MSCS department at UIC. Comes with cash stipend

2022-2026 **NSF RTG Fellowship**, Research and Training (pre-doctoral) Grant

Spring 2019 **NSF REU**, Research Experience for Undergraduates administered through UofM

## Teaching

Undergraduate course descriptions at UIC can be found by clicking [here](#), and for UofM [here](#).

Instructor of Record (UIC)	TA Appointments (UIC)	Grading Positions (UofM)
Math 109 (1 Cr, F-2022, S-2025) Math 090 (3 Cr, F-2023) Math 104 (1 Cr, S-2023)	Math 110 (F-2021, F-2022, S-2025) Math 105 (S-2023) Math 125 (F-2021)	Math 417 (W-2020) Math 452 (W-2019)

### Fall 2025 Teaching Assistant Coordinator

I worked with the Associate Head of Instruction to train and evaluate new TAs in the department.

## Invited Talks

- 04/2026 AMS Sectional at North Dakota State University: Topics in Commutative Algebra
- 02/2026 University of Utah Commutative Algebra Seminar
- 01/2026 JMM special session: Advances in Commutative Algebra
- 11/2025 University of Missouri Algebra Seminar
- 10/2025 University of Nebraska Commutative Algebra Seminar
- 09/2025 Purdue Commutative Algebra Seminar
- 05/2025 UC San Diego Algebraic Geometry Seminar
- 03/2024 UIC Incoming Students Colloquium (*Also 03/2025*)
- 01/2023 UIC Graduate Student Colloquium (*Also 04/2024, 01/2025*)
- 4/2022 UIC Undergraduate Math Club (*Also 08/2023*)

## Service

### Journal Referee

Refereed for *Mathematische Zeitschrift*.

### 2024-2025 UIC Directed Reading Program Advisor

- (**Spring 2025**) Advised statistics undergraduate Juan Garcia on introductory abstract algebra.
- (**Fall 2024**) Advised electrical engineering and physics undergraduate Caleb Williams on applications of category theory.
- (**Spring 2024**) Advised mathematics undergraduate Max Nguyen on sheaf cohomology, specifically on computations via the Čech complex.

### 2023-2024 UIC Commutative and Homological Algebra Graduate Seminar Organizer

Founded and organized a graduate seminar on active research topics in algebra.

### 2022-2023 UIC Mathematics Graduate Student Association Secretary

## Outreach

### 2022-2026 Math Circles of Chicago Teacher

Taught weekend sessions and was an instructor for their summer programs in 2023 and 2026.

### 11/2024 Sonia Kowalevsky Math Day Organizer

Helped organize an annual outreach program to help spark young women's interest in math.

### Summer 2024 Young Scholars Program Instructor

Taught and helped organize a free summer program for Chicago high school students at UIC.

### 2018-2020 Wolverine Pathways Instructor

### 4/2019 MMaths Math Competition Organizer