

# Milind V Gunjal

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## Employment

Administrative Teaching Assistant (Florida State University)	2023-Present
<ul style="list-style-type: none"><li>• Solo instructor</li><li>• Course development</li><li>• Coordinator of volunteers for the AMS sectional meeting</li><li>• Office assignments for teaching assistants</li><li>• Computer lab resource management</li><li>• Qualifiers proctoring</li></ul>	
Teaching Assistant (Florida State University)	2019-2023
<ul style="list-style-type: none"><li>• Solo Instructor</li><li>• Lab Instructor</li></ul>	2020-Present 2019-2020

## Education

PHD at Florida State University	2019-2025
MS at Florida State University (CGPA: 3.91/4)	2019-2021
BS-MS at IISER-Kolkata (CGPA: 8.56/10, Valedictorian)	2014-2019

## Areas of interest

Mathematics • Algebraic topology, Category theory, Homotopy theory, K-theory.

## Fellowships & awards

Dwight B. Goodner Mathematics Fellowship	2024
Distinguished Teaching Assistant	2023
Kishore Vaigyanik Protsahan Yojana (KVPY) Fellow	2014-2019
Indian Institute of Technology Joint Entrance Exam Advanced Qualified	2014

## Research projects undertaken

Cocycles with values in a Picard category from an SM 2-Cat. Joint with Dr. Ettore Aldrovandi, FSU	10/2023- 04/2025
Comparison of Segal and Waldhausen K-theory via MacLane cubes Joint with Dr. Ettore Aldrovandi, Dr. Brandon Doherty, Arash Karimi, FSU	08/2023- 08/2024
K-theory of a Waldhausen Category (PhD thesis) Advisor: Dr. Ettore Aldrovandi, FSU	10/2020- 04/2025
Vector bundles from algebraic viewpoint (MS thesis) Supervisor: Dr. Somnath Basu, IISER-K	08/2018- 05/2019
Representation theory of $GL(2, F_q)$ Supervisor: Dr. Utsav Choudhury, ISI-Kolkata	08/2018- 12/2018
Study of simplicial and singular homology Supervisor: Dr. Priyavrat Deshpande, CMI, Chennai	05/2018- 07/2018
Hilbert Nullstellensatz Supervisor: Dr. Somnath Basu, IISER-K	01/2018- 05/2018
Study of modules of ring of continuous functions Supervisor: Dr. Somnath Basu, IISER-K	08/2017- 12/2017
Study of evolutionary game theory Supervisor: Dr. Supratim Sengupta, IISER-K	05/2017- 07/2017
Study of elementary number theory and cryptography Supervisor: Dr. S A Katre, SPPU, Pune	05/2016- 07/2016

## Seminars and Conference Talks

Introduction to stable homotopy theory (Advanced Seminar in Algebra at FSU) ( <a href="#">Notes</a> )	04/2024
AMS Sectional Meeting at FSU ( <a href="#">Slides</a> )	03/2024
Lloyd Roeling Conference at UL ( <a href="#">Slides</a> )	03/2024
Cohomology with values in a Picard Category (Advanced Seminar in Algebra at FSU) ( <a href="#">Slides</a> )	12/2023
Stabilization of 2-Crossed Modules (BUGCAT'23) ( <a href="#">Slides</a> )	11/2023
K-theory of a Waldhausen category (Kan Seminar) ( <a href="#">Slides</a> )	11/2023
Homotopy theory of Model Categories (Advanced Seminar in Algebra at FSU) ( <a href="#">Notes</a> )	04/2023
Stabilization of 2-Crossed Modules (Advanced Seminar in Algebra at FSU) ( <a href="#">Slides</a> )	04/2022
2-type of the K-theory of a Waldhausen category (FSU) ( <a href="#">Slides</a> )	12/2021

## Seminars and Conferences Attended

Algebraic Structures in Topology, San Juan, PR (Upcoming)	06/2024
Graduate Student Topology and Geometry Conference 2024, MSU	04/2024
AMS Sectional Meeting, FSU	03/2024
Lloyd Roeling Conference, UL	03/2024

Binghamton University Graduate Combinatorics Algebra Topology Conference	11/2023
Online workshop on $(\infty, 2)$ -Categories	10/2023-11/2023
Kan Seminar	09/2023-12/2023
eCHT Research Seminar	09/2023-11/2023
Summer school on Scissors Congruence, Algebraic K-Theory, and Trace Methods, IU	06/2023
Mid-Atlantic Topology Conference, UPenn	04/2023
Advance Seminar in Topology and Geometry, FSU	08/2019 - Present
Advanced Seminar in Algebra, FSU	08/2019 - Present
Seminar series on Moduli spaces, IISER-K	11/2018
FACETS, ISc, Chennai	07/2018
Young Topologists' Meet, CMI, Chennai	07/2018
Madhava Mathematics Competition Nurture Camp, CMI, Chennai	06/2018
Learning seminar on Morse Theory, IISER-K	01/2018 - 04/2018

## Teaching

Calculus II (MAC2312) (Instructor at FSU)	Fall 2023
Calculus II (MAC2312) (Instructor at FSU)	Spring 2023
Discrete Mathematics I (MAD2104) (Recitation Instructor at FSU)	Fall 2022
Calculus I (MAC2311) (Instructor at FSU)	Summer 2022
Calculus I (MAC2311) (Instructor at FSU)	Spring 2022
Calculus I (MAC2311) (Recitation Instructor at FSU)	Fall 2021
Precalculus Algebra (MAC1140) (Instructor at FSU)	Spring 2021
Precalculus Algebra (MAC1140) (Instructor at FSU)	Fall 2020

## Advanced Courses Undertaken

- **Stable Homotopy Theory** ref. Cary Malkiewich - Spectra and stable homotopy theory (eCHT, WSU)
- **Symplectic Geometry** ref. Ana Cannas da Silva - Lecture Notes (FSU)
- **Differential Geometry of Bundles** ref. Sharpe - Differential Geometry (FSU)
- **Algebraic Geometry** ref. David Eisenbud and Joe Harris - 3264, and Robin Hartshorne - Algebraic Geometry (FSU)
- **Homological Algebra** ref. C. Weibel - An Introduction to Homological Algebra (FSU)
- **Algebraic Geometry by way of Scheme Theory** ref. Ravi Vakil - The Rising Sea: Foundations of Algebraic Geometry (FSU)
- **Geometric Structures on Manifolds** (FSU)

- **Logic, Type Theory, and the Mechanization of Mathematics** (FSU)
- **Differential Topology II** ref. John Lee - Introduction to Smooth Manifolds (FSU)