Deepisha Solanki - CV
Teaching Assistant, SUNY Buffalo
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EDUCATION

Ph.D. Mathematics	SUNY, Buffalo	May 2024	3.917
M.Sc. Mathematics	Indian Institute of Technology, Delhi	2017	8.440
B.Sc. Mathematics	St. Stephen's College, University of Delhi	2015	87.5 %

PUBLICATIONS

- *Deepisha Solanki; Studying Links Via Plats: The Unlink*, https://arxiv.org/abs/2308.00732
- *William Menasco, Deepisha Solanki; Studying Links Via Plats: Split and Composite Links*, https://arxiv.org/abs/2402.09669
- *Deepisha Solanki, Hugo Kyo Lee; Application of TDA to Compare AEROCOM Phase-3 Models with Satellite Datasets, in preparation*

TECHNICAL SKILLS

- Latex, Python, Regina, Excel, Word, PowerPoint, Inkscape, Matlab

PROJECTS/WORK EXPERIENCE

- **NASA - Jet Propulsion Laboratory**
  Summer intern - 05/2022-08/2022
  Applied Topological Data Analysis (TDA) methodologies to evaluate statistical models of aerosol data and compare them against real-world data collected by NASA satellites. Contributed to the advancement of climate modeling by increasing predictive accuracy through the integration of TDA insights with statistical modeling techniques. Currently leading the composition of a journal paper to encapsulate our discoveries and their implications to climate models.

- **University at Buffalo and Clemson University**
  Research associate - 02/2019-present
  Implemented advanced algorithms in Python to generate geometric objects satisfying certain topological criteria. Performed intricate geometric calculations on these objects to generate the required data. The aim of the project was to build special structures with desired physical properties, using knots as building blocks.

- **A Study of Elliptic Curves and Modular Forms, IIT Delhi**
  Master's thesis
  The objective of the project was to understand Andrew Wiles' proof of Fermat's Last Theorem.

SCHOLASTIC ACHIEVEMENTS

- Selected for **NSF's Mathematical Sciences Graduate Internship Program for Summer 2022**
- Awarded the 2021 **Harry Merrill Gehman Scholarship**
- Successfully cleared the Joint CSIR-UGC Test for JRF and Lecturership (NET), December 2016, for the award of **JUNIOR RESEARCH FELLOWSHIP** and secured All India Rank 65, Percentile 99.57
- Successfully cleared the **Graduate Aptitude Test in Engineering (Mathematics)**, February 2017, and secured All India Rank 60, Percentile 99.02

TALKS GIVEN

- Seminar Talk, **Geometry Seminar**, Virginia Commonwealth University (**invited talk**), 1st March 2024
- Seminar Talk, Indian Institute of Technology, (**invited talk**), 5th February 2024
- Seminar Talk, **Geometry and Topology Seminar**, University of Iowa (**invited talk**), 30th November 2023

- Special Session Talk, **2023 Fall Eastern Sectional Meeting, AMS**, University at Buffalo (**invited talk**)
- Parallel Session Talk, **48th Annual NYSRG Mathematics Conference 2023**, Syracuse University
- Special Session Talk, **2023 Spring Southeastern Sectional Meeting, AMS**, Georgia Institute of Technology (**invited talk**)
- Lightning Talk, **Tech Topology Conference 2022**, Geogria Institute of Technology
- Parallel Session Talk, **Binghamton University Combinatorics Analysis and Topology Conference 2022**, Binghamton University
- Parallel Session Talk, **Upper New York Topology Seminar 2022**, Syracuse University
- **Graduate Student Lecture Series**, University at Buffalo, on 28th September, 2022
- Seminar Talk, **NASA's Jet Propulsion Laboratory** on 10th June, 2022

WORKSHOPS AND CONFERENCES ATTENDED

- **2023 Fall Eastern Sectional Meeting, AMS**, University at Buffalo
- **Mid Atlantic Topology Conference 2023**, University of Pennsylvania
- **48th Annual NYSRG Mathematics Conference 2023**, Syracuse University
- **2023 Spring Southeastern Sectional Meeting, AMS**, Georgia Institute of Technology
- **Tech Topology Conference 2022**, Georgia Institute of Technology
- **Binghamton University Combinatorics Analysis and Topology Conference 2022**, Binghamton University
- **Upper New York Topology Seminar 2022**, Syracuse University
- **Tech Topology Conference 2021**, Georgia Institute of Technology, held virtually
- **Topology Student Workshop 2020**, Georgia Institute of Technology, held virtually

SERVICE

- Co-organizing **University at Buffalo Discourse of Graduates** for Spring '23, Fall '23 and Spring '24
- **Vice President** of American Mathematical Society Graduate Student Chapter at University at Buffalo

COURSES TAUGHT (As teaching assistant)

- Taught courses ranging from Calculus I, II and III to advanced courses such as Topology, Probability Theory and Abstract Algebra as a teaching assistant. I have also been a floater for the math department at UB for several semesters where my duties entailed teaching recitations and lectures for absentee instructors and professors.

AWARDS AND ACHIEVEMENTS

- Badminton: *Secured podium finishes in about 15 tournaments at the National, State, District and Institute level*
    - Called for the National Badminton Camp in the year 2010 and Secured second position in the 37th National Sports Festival for Women-2011-12
    - Reached the quarterfinal of the 23rd Sub Junior National Badminton Championship, Jaipur 8-14 October 2009
    - Represented Delhi State in the 54th and 56th National School Games Federation Shuttle Badminton Tournament
    - Secured the third position in the Central Board of Secondary Education, Inter School Sports and Games Competition, 2008-09 and 2010-11

- Captained the St. Stephens College Women's badminton team for the year 2014-15, was secretary of the St. Stephen's College Women's badminton team for the year 2013-14 and was given the Ground colors of St. Stephen's College in the academic year 2013-14
- Awarded Outstanding Sportswoman of the Year at IIT, Delhi for the year 2015-16
- Adjudged the Best All Rounder of Bal Bharati Public School, Rohini, Delhi for the academic year 2012-13 and served as the Sports Captain of Bal Bharati Public School, Rohini, Delhi for the academic year 2011-12