Gokul Bhusal

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EDUCATION

Michigan State University *East Lansing, MI*
Doctoral candidate in Applied Mathematics *August 2020 - May 2025 (Expected)*
Thesis Advisor: Dr. Ekaterina Rapinchuk

The University of Southern Mississippi *Hattiesburg, MS*
B.S. Mathematics & Minor in Computer Science, Magna cum laude *May 2016 - August 2018*
Advisor: Dr. Zhifu Xie

RESEARCH EXPERIENCE

Michigan State University *August 2021 - Present*
Graduate Research Assistant *East Lansing, MI*

- Currently developing graph-based semi-supervised algorithm by integrating deep learning techniques on graphs.
- Developed a graph-based semi-supervised algorithm by integrating persistent Laplacian and classical MBO schemes.

The University of Southern Mississippi *January 2017 - May 2020*
Undergraduate Research Assistent *Hattiesburg, MS*

- Studied Newton N-Body problem. Worked on a project on the planer 6-body problem and Twisted central configuration of the Eight-body problem.

RESEARCH INTERESTS

Graph-based methods, Graph Machine learning, Network Science.

PUBLICATIONS

- **Gokul Bhusal**, Ekaterina Merkurjev, Guo-Wei Wei, Persistent Laplacian-enhanced Algorithm for Scarcely Labeled Data Classification. (Submitted)
- Zhifu Xie, **Gokul Bhusal**, Hamas Tahir, Central Configurations in the Planar 6-body Problem Forming Two Equilateral Triangles, *Journal of Geometry and Physics.*

SCHOLARSHIPS AND AWARDS

2023	Outstanding Scholar Fellowship - College of Natural Science, MSU ($7,500)
2020	Early Start Fellowship - College of Natural Science, MSU. ($6,000)
2018	Placed 2nd in Louisiana/Mississippi region's Mathematical Association of American Competition for research paper competition.
2018	Received travel grant to present poster presentation in JMM 2018 ($500)
2018	Nominated for the College of Science and Technology's Outstanding Sophomore Award, USM

WORKSHOPS AND SUMMER SCHOOL

- Research Experience for Undergraduate (REU) 2019 June 03 - July 19
  School of Mathematics and Natural Sciences, The University of Southern Mississippi, Hattiesburg, MS
  Topic: Allee Effects in a Predator-prey Model with Holling type-IV functional Response.
  - Collaborated with other Undergraduate students to study predator-prey Model with Holling type-IV functional response.
  - Used MATLAB to model classical Lotka–Volterra model to analyze Hunting cooperation and Allee Effects.
  - Communicated results at the end with an oral presentation.
- Research Experience for Undergraduate (REU) 2017 June 19 - August 4
  School of Mathematics and Natural Sciences, The University of Southern Mississippi, Hattiesburg, MS
  Topic: Stacked Central Configuration for 6-body Problem.
  - Collaborated with other undergraduate students to study six-body problems.
  - Used Maple for numerical computation and analysis of the problem.
  - Communicated result in an undergraduate poster presentation at Joint Mathematics Meeting (JMM 2018)San Diego, CA.

RELEVENT SKILLS

Proficiency	MATLAB, HPCC Environments, Python, LaTeX.
Familiarity	Maple, C++. .

CONFERENCES

- USA/USM/SELU Math and Physics Research Mini Conference, April 2019
- Joint Mathematics Meeting San Diego, CA, January 2018
- Undergraduate Symposium on Research and Creative Activity, Hattiesburg, MS, March 2018

TEACHING EXPERIENCE

- Teaching assistant

Spring 2023	Matrix Algebra with Computational Applications (TA)
Fall 2022	Calculus II (Recitation Instructor)
Summer 2022	Calculus I (Instructor of record)
Spring 2022	Calculus II (Recitation Instructor)
Fall 2021	Calculus II (Recitation Instructor)
Summer 2021	Calculus II (Recitation Instructor)
When teaching	Math learning center tutor

SERVICES AND PROFESSIONAL ORGANIZATION

- **Treasurer**, Nepali student Association, Summer 2021–Fall 2022
- **Member**, AMS, Fall 2020 – Present.
- **Member**, SIAM, Fall 2016 – Present.
- **Treasurer** Kappa Mu Epsilon, Fall 2018– Spring 2020

SELECTED GRADUATE COURSEWORK

- Measure theory
- Complex analysis
- Numerical linear algebra
- Numerical ODE
- Introduction to PDE (two semesters)
- Mathematics of Data Science
- Topological Data Analysis
- Machine Learning
- Graph Theory
- Deep Learning
- High Dimensional Probability
- Computational Optimization