Subhankar Ghosh

Contact Information

Computer Science Department
200 Union St SE
Minneapolis, MN 55455

Phone: 6123251188
Website: subhankarghosh.github.io
Email: ghosh117@umn.edu

Research Focus Generative AI, Spatial Statistics, Machine Learning, Data Mining, Anomaly Detection

Education

University of Minnesota, Twin Cities — 2019 - 2025
Ph.D. Candidate in Computer Science
Advisor: Prof. Shashi Shekhar

University of Minnesota, Twin Cities
MS in Computer Science

Appointments

University of Minnesota Twin Cities, MN — 2018 - Present
Graduate Research & Teaching Assistant

Oracle Bengaluru, India — 2015 - 2017
Software Test Engineer

Relevant Projects

Project: Statistically Significant Regional/Taxonomy-aware Co-location Pattern Detection
- Analyzed *location patterns* of retail establishments in MN using *Safegraph POI dataset*
- Proposed an approach for mining statistically significant regional co-location patterns that reduce spurious pattern detection
- Proposed an approach to address multiple comparisons problem & reduce *Type-I errors.*

Project: Reducing Uncertainty in Sea-level prediction using *Spatial-variability* aware models
- Analyzed historical sea-level data from CMIP-6 simulation models.
- Proposed a *spatial-variability* aware model to improve regional sea-level prediction
- Proposed a new framework to combine a generative model with geostatistical techniques for improved climate downscaling.

Select Publications

[1] Towards Kriging-informed Conditional Diffusion for Regional Sea-Level Data Downscaling. ***Subhankar Ghosh et al.*** *In 32nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2024)*

[2] Towards Statistically Significant Taxonomy Aware Co-location Pattern Detection. ***Subhankar Ghosh et al.*** *In 16th Conference on Spatial Information Theory (COSIT), 2024.*

[3] Reducing False Discoveries in Statistically-Significant Regional-Colocation Mining: A Summary of Results. ***Subhankar Ghosh et al.*** *In 12th International Conference on Geographic Information Science (GIScience 2023)*

[4] Reducing Uncertainty in Sea-level Rise Prediction: A Spatial-variability-aware Approach. ***Subhankar Ghosh et al.*** *In I-GUIDE Forum, 2023*

[5] Physics-based Abnormal Trajectory Gap Detection. Arun Sharma, ***Subhankar Ghosh,*** Shashi Shekhar. *In Transactions on Intelligent Systems and Technology (TIST), 2024*

Teaching Experience

CSCI 5715 Spatial Data Science
CSCI 5511 – Artificial Intelligence I
CSCI 1933 Introduction to Data Structures and Algorithms
Graduate Teaching Assistant

Service

Reviewer
SIGSPATIAL, SSTD, AGILE, Geoinformatica