GeoAnomalies 2024

Call for Papers

@ACM SIGSPATIAL 2024

1st ACM SIGSPATIAL International Workshop on GeoSpatial Anomaly Detection

October 29, 2024 **Atlanta, GA, USA**

The task of anomaly detection in geospatial data is to find data points in space and time that deviate so much from other observations as to arouse suspicion that it was generated by a different mechanism. Most of the existing work in geospatial data analysis relies on supervised machine learning, which involves training models on labeled datasets, allowing them to learn and make accurate predictions. Anomalies, by definition, are rare events that occur infrequently and unpredictably. As a result, labeled datasets for these events are either non-existent or extremely limited. Consequently, anomaly detection research calls for new strategies that can identify rare and unexpected events based on patterns and distributions within the data itself in an unsupervised fashion. These anomalies may manifest as unexpected changes in environmental conditions, natural disasters, unusual human activities, or irregular patterns in spatiotemporal distributions.

The workshop seeks high-quality full (8-10 pages) and short (4 pages) papers that have not been published in other academic outlets to be peer reviewed. Once accepted, at least one author is required to register for the workshop and the ACM SIGSPATIAL conference, as well as attend the workshop to present the accepted work which will then appear in the ACM Digital Library. Example topics include, but not limited to:

- Theoretical Foundations of Geospatial Anomaly Detection
  - Mathematical Models for Anomaly Detection
  - Information Theory for Anomaly Detection
  - Uncertainty Modeling
- Machine Learning for Geospatial Anomaly Detection
  - Supervised, Unsupervised, and Semi-supervised Techniques
  - Discriminative Models
  - Generative Models
- Statistical Models for Geospatial Anomaly Detection
  - Parametric and Non-Parametric Methods
  - Hypothesis testing for Anomaly Detection

- Spatio-Temporal Modeling
  - Temporal Dynamics and Time Series Analysis
  - Spatio-Temporal Statistical Models
  - Modeling Spatio-Temporal Data Streams
- Case-Studies and Real-World Applications
  - Urban Planning and Traffic Anomaly Detection
  - Disaster Response and Public Safety
  - Human Behavior Anomaly Detection
- Benchmarking and Evaluation
  - Datasets/Metrics for Geospatial Anomaly Detection
  - Comparative Studies

Organization committee

General Chairs	**Program Chairs**
Yu-Ke Li	Yao-Yi Chiang
Carola Wenk	Enrico Mattei
Andreas Züfle	Khurram Shafique

Program committee

Leman Akoglu	Andreas Lohrer
Qunying Huang	Erich Schubert
Joon-Seok Kim	Cyrus Shahabi
Peer Kröger	Rose Yu

Workshop information

Submission deadline
August 16, 2024

Author Notification
September 14, 2024

Workshop date
October 29, 2024

Workshop website
https://onspatial.github.io/GeoAnomalies24/

Submission site
https://easychair.org/my/conference?conf=geoanomalies24

The GeoAnomalies 2024 Workshop will be held in conjunction with the ACM SIGSPATIAL 2024 conference. Visit
https://sigspatial2024.sigspatial.org/
to get more information about the conference.

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