

Call for Papers

The 2nd ACM SIGSPATIAL International Workshop on Searching and Mining Large Collections of Geospatial Data (GeoSearch)

Mission

The collection of geospatial data has exploded due to the rapid change of Web 2.0, the Internet of Things (IoT), open science movement, rise of Earth Observation (EO) technologies and many more. Consequently, geospatial data is composed of complex and diverse format, modality, resolution, and size that continue to be harnessed with unprecedented velocity. All these facts pose a pressing need and challenge on how to effectively and efficiently search and mine large collection of geospatial data for interesting patterns.

In this context, not only does one need to know where to look to find objects of interest but also what model to use for different searching tasks? What if prior efforts had already created models on an exact or very similar task? How should users search for such models? When models are available how should they be stored? Many applications become possible if we manage to make large data collections and models searchable by content, metadata, and analytic tasks. Application users would like to solve such challenges knowing which model to use, which task is the model relevant for, and how to simultaneously search across all geospatial data representations (vector, raster, text, fields, point clouds, etc.), and finding all objects of a certain type in a huge data cube (e.g., a large point cloud or a time-series EO data).

In a longer term, users will want to be able to search broadly, interactively, fast and using different or even mixed modalities. For example, you want to search for a specific geospatial objects (e.g., critical infrastructure) and retrieve images from a satellite data collection, retrieve models from a database of existing models for such a task. Similarly, you want to search with an image for locations on Earth that have a certain similarity. You want to monitor and map broad areas to rapidly identify changes, for instance earthquakes and floods, to alert the people and guide rescue teams. Our workshop brings together the art of search engine construction with both geospatial data modeling, data processing, and management to provide a forum for researchers and practitioners interested in the general topic of GeoSearch.

Topics and Formats

We invite full research paper (6-8 pages) and short research paper or demo paper (4 pages). Full research papers should present mature research on a specific problem or topic in the context of geospatial search. We also welcome short research articles or industry demonstrations of existing or developing methods, toolkits, and best practices for AI applications in the geospatial domain.

Example topics include but are not limited to:

- Multimedia Information Retrieval
- Search in Large Spatio-temporal Data Cubes
- Search in Multi-modality Data
- Searching Geospatial Objects

- Searching Vector Geometry
- Searching Graphs and Networks
- Searching 3D Point Clouds
- Searching Spatial Trajectories
- Search for Positioning, Localization and Navigation
- Model Generalizability for Search
- Raw Data Search in Remote Sensing (i.e. with clouds, top-of-atmosphere)
- Spatial Representation Learning for Search
- Metadata design and cataloguing of Machine Learning Models
- Design of Data and Model Relational Structures
- Keyword-Search in Spatial Data
- Spatial Index Structures for Search
- Spatio-temporal Search Interfaces
- Scalable Search Frameworks and Implementations
- Scalable Search Algorithms for different computing technologies (HPC, cloud computing, edge computing, quantum computing)
- Data Representations and Containers facilitating content-based retrieval
- Ontological Methods and Learning

Workshop Chairs

- Hao Li, Technical University of Munich, Germany
- Gabriele Cavallaro, Forschungszentrum Jülich and University of Iceland, Germany and Iceland
- Dora B. Heras, University of Santiago de Compostela, Spain
- Dalton Lunga, Oak Ridge National Laboratory, USA
- Martin Werner, Technical University of Munich, Germany
- Andreas Züfle, Emory University, USA

Important Dates

- Paper submission: August 25, 2023
- Acceptance decision: September 22, 2023
- Camera ready version: October 15, 2023