### Motivation

- Geo-Spatial data is being collected on a massive scale.
- Approximate analysis is fast and often effective for this data.

### Architecture of STORM

The architecture of STORM includes the following components:

- **Data Connector**
- **Query Interface**
- **Schema Discovery**
- **Data Parser**
- **Update Manager**
- **User Data** (may have different formats, schemas, and storage engines)

#### Data Connector

- Query Parser
- Visualizer

#### Query Interface

- Query Optimizer
- Sampler

#### Schema Discovery

- Query and Analytics Evaluator

#### Data Parser

- Feature Module
- ST-Indexing

#### Update Manager

- Live Data Module
- Feature Module

### STORM Interface

- **Spatio-Temporal Query Interface**
- **STORM Analytical Engine**
- **STORM Library and API**
- **STORM Engine**

### Importing Data into STORM

A user can import their own spatio-temporal data set into STORM, allowing custom analytics of user data.

### Sampler and ST-Indexing

- The sampler is a spatio-temporal database which return samples of the data within a query region.

### Twitter User Trajectory Analysis

STORM can analyze the approximate trajectory of data. From the trajectory we can infer where to user lives, works, and attends school.

### Spatio-Temporal Wordcloud

Short-text understanding estimator after a highly anomalous heavy snow storm in Atlanta.

### Performance Considerations

- Figure: Query efficiency: vary k
- Figure: Query accuracy calculating avg altitude of a dataset.

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STORM: Spatio-Temporal Online Reasoning and Management of Large Spatio-Temporal Data

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