CloudTP: A Cloud-based Flexible Trajectory Preprocessing Framework

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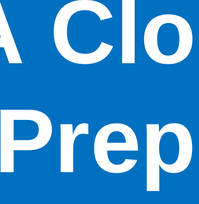
Demonstration

Motivations

➢Wide Applications of Trajectory Data

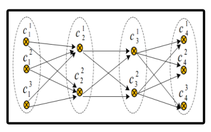
Travel Time Estimation



Air Quality Prediction

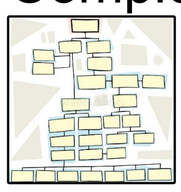
➢Massive Data and Complicated Algo.

Taxi Traj. in BJ



Map Matching

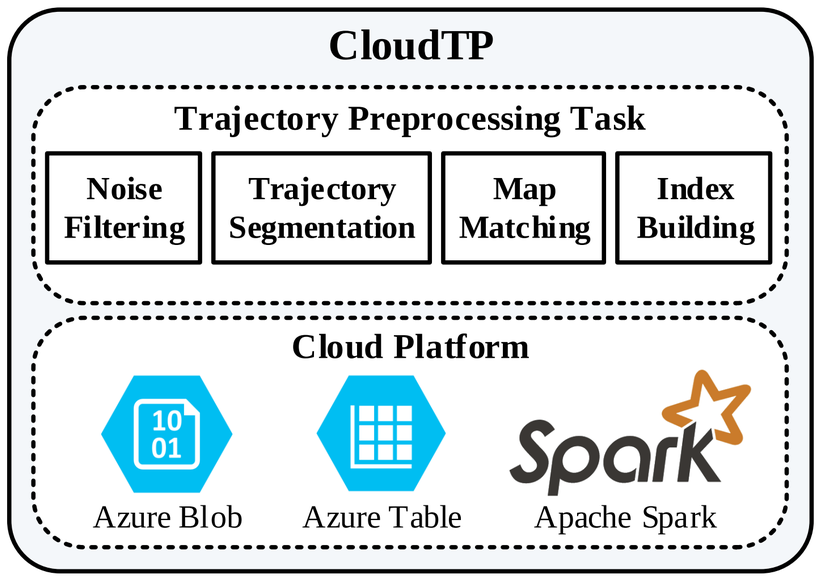
➢Complex Steps and Different Modes



Noise Filtering, Segmentation, ...

Walk, Bike, Car, ...

Overview



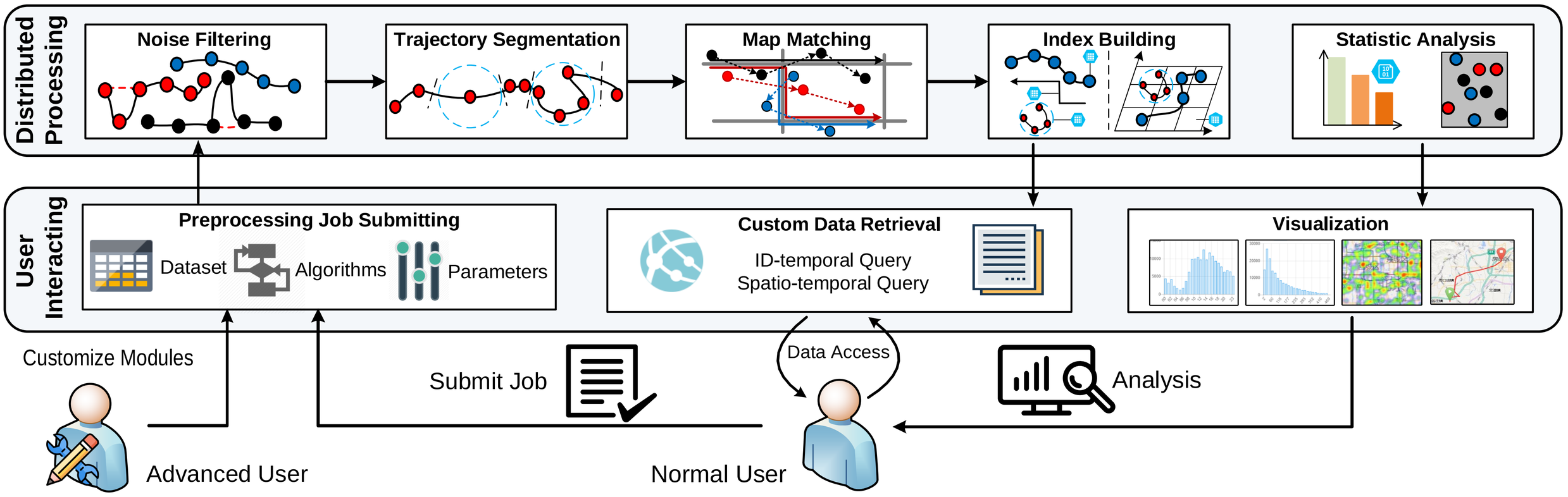
➢Processing Pipeline

➢Distributed Computing

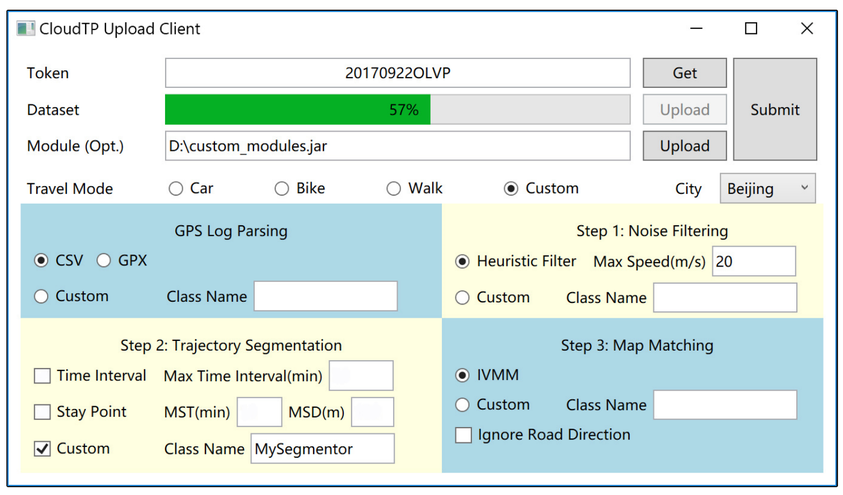
➢Customizable

➢Support Multi. Modes

System Framework

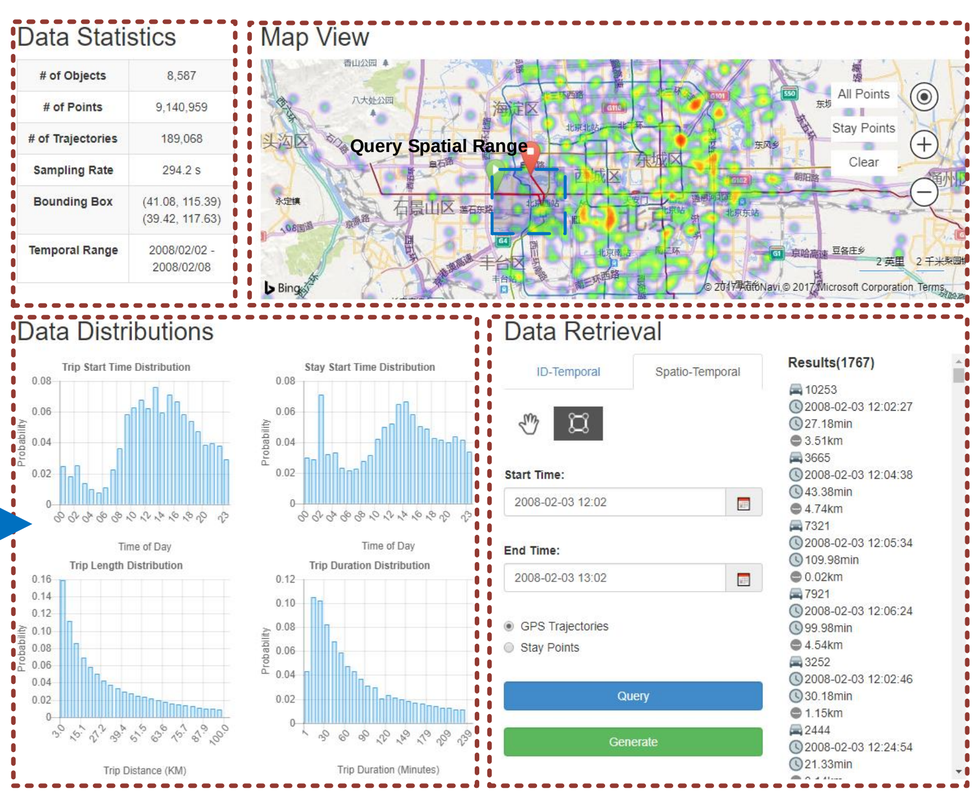


Cloud + Client Deployment



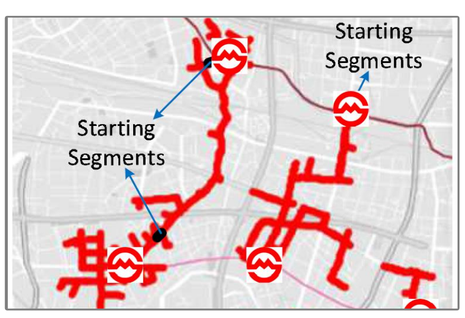
Job Submit Client + Custom Module (Opt.)

```java
public class MySegmenter implements Segmenter {
    @Override
    public List<GPSTraj> segment(GPSTraj gpsTraj) {
        int ptsNum = 10;
        List<GPSTraj> trajList = new ArrayList<>();
        List<GPSPoint> pts = gpsTraj.getPtList();
        for (int i=0; (i+1)*ptsNum <= pts.size(); i++) {
            List<GPSPoint> subPts = pts.subList(i*ptsNum, (i+1)*ptsNum);
            trajList.add(new GPSTraj(gpsTraj.getoID(), subPts));
        }
        return trajList;
    }
}
```

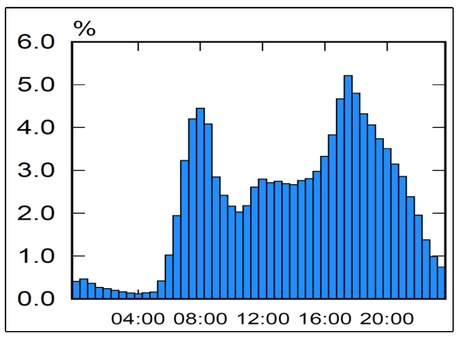


Visualization & Statistics & Result Retrieving

Examples



Bike Lane Planning



Trip Temporal Distribution