

CloudTP: A Cloud-based Flexible Trajectory Preprocessing Framework

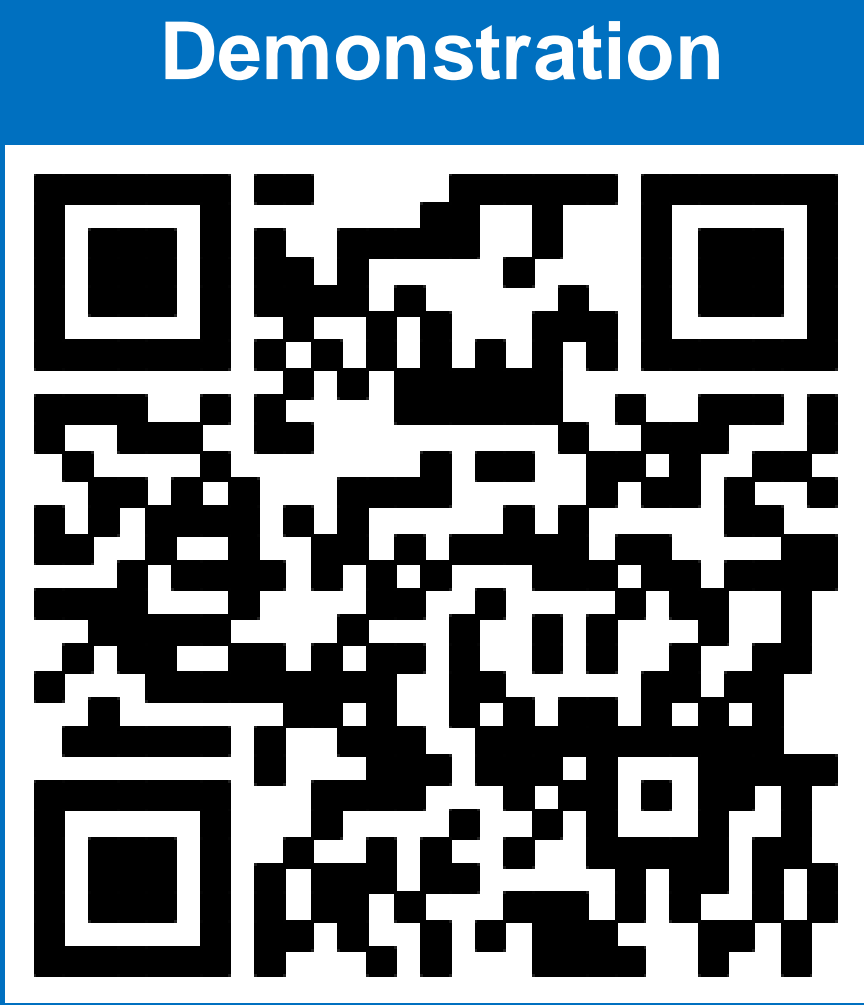
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Demonstration

Motivations

➤ Wide Applications of Trajectory Data

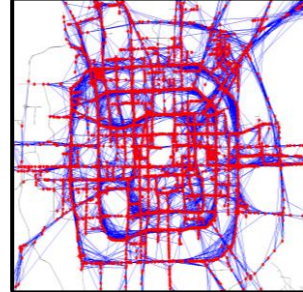


Travel Time Estimation

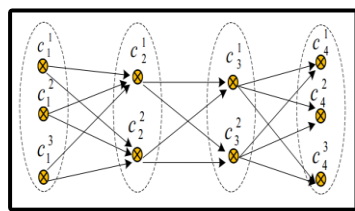


Air Quality Prediction

➤ Massive Data and Complicated Algo.

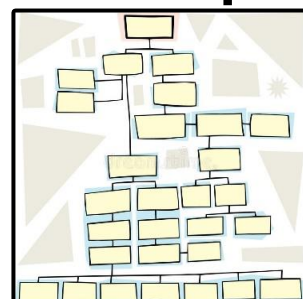


Taxi Traj. in BJ



Map Matching

➤ Complex Steps and Different Modes

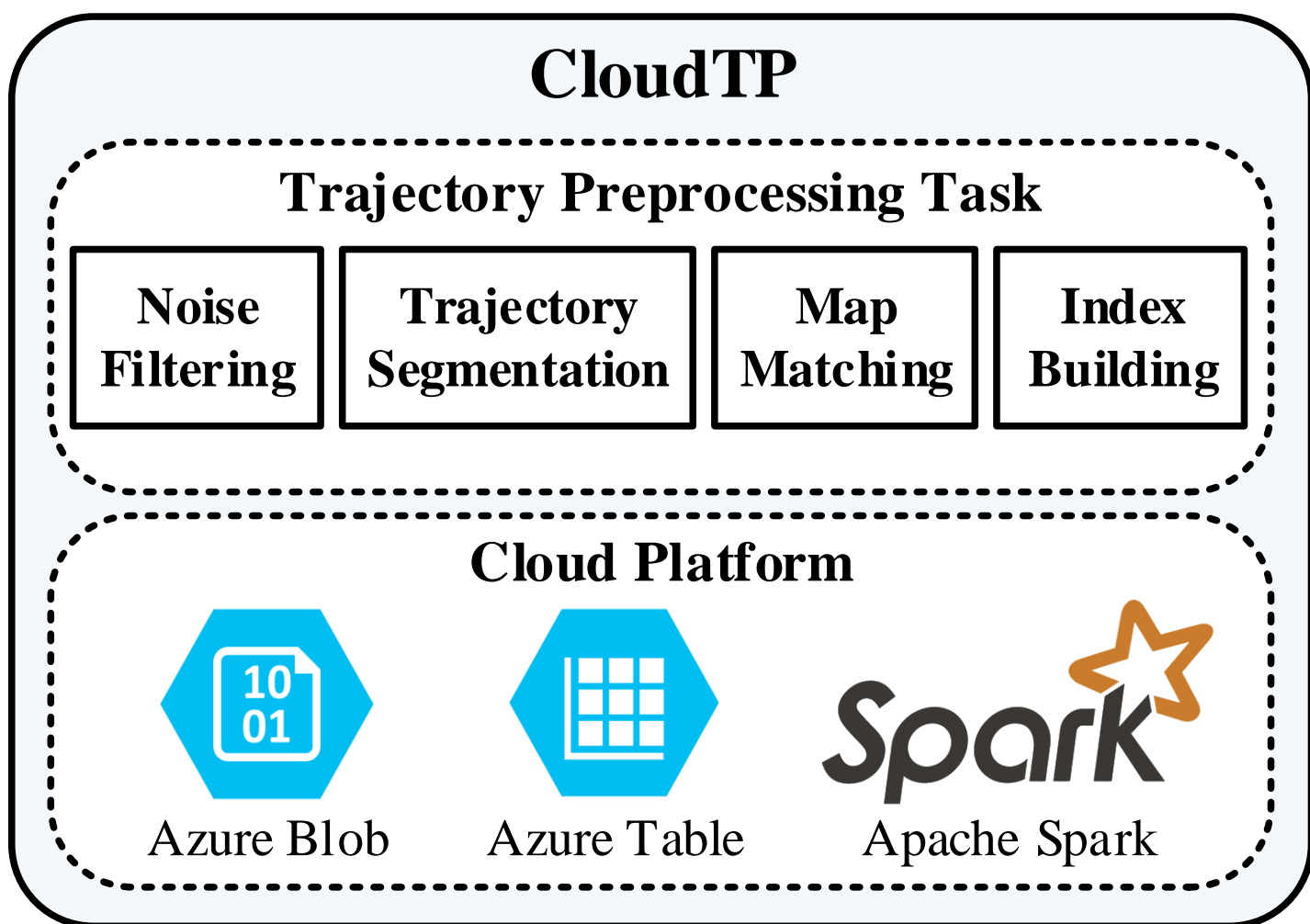


Noise Filtering, Segmentation, ...



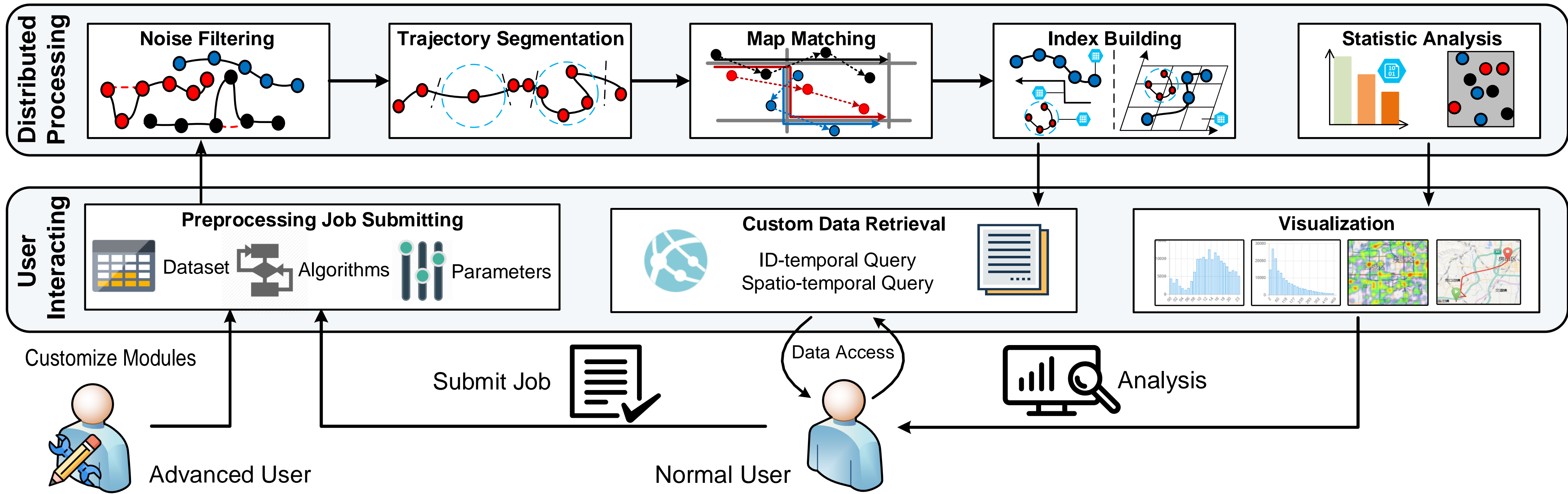
Walk, Bike, Car, ...

Overview



- Processing Pipeline
- Distributed Computing
- Customizable
- Support Multi. Modes

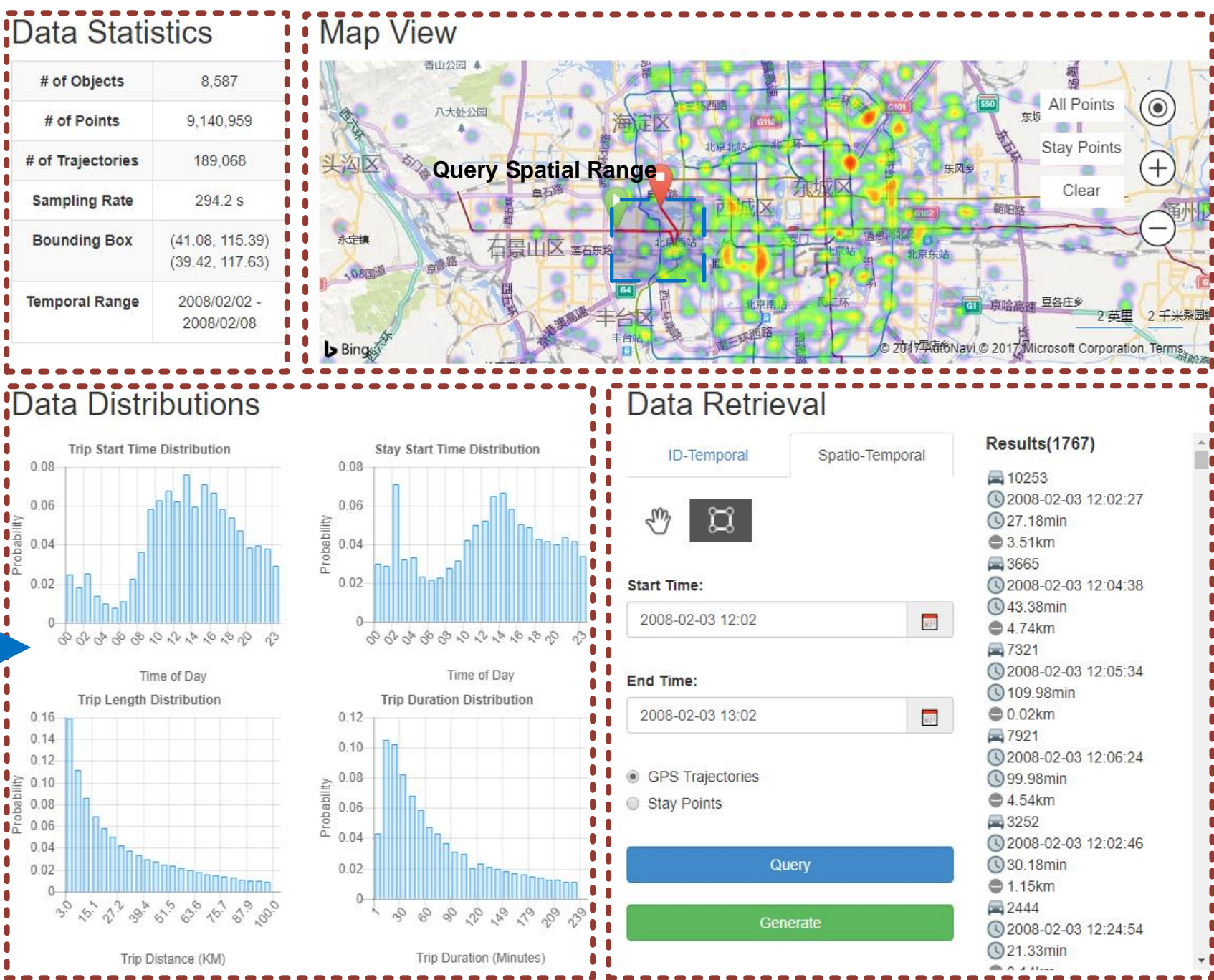
System Framework



Cloud + Client Deployment

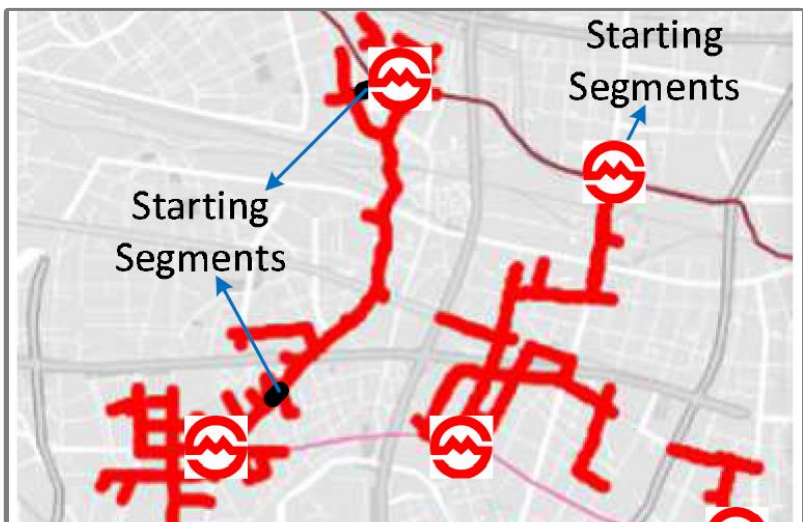
Job Submit Client + Custom Module (Opt.)

```
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.getID(), subPts));
        }
        return trajList;
    }
}
```

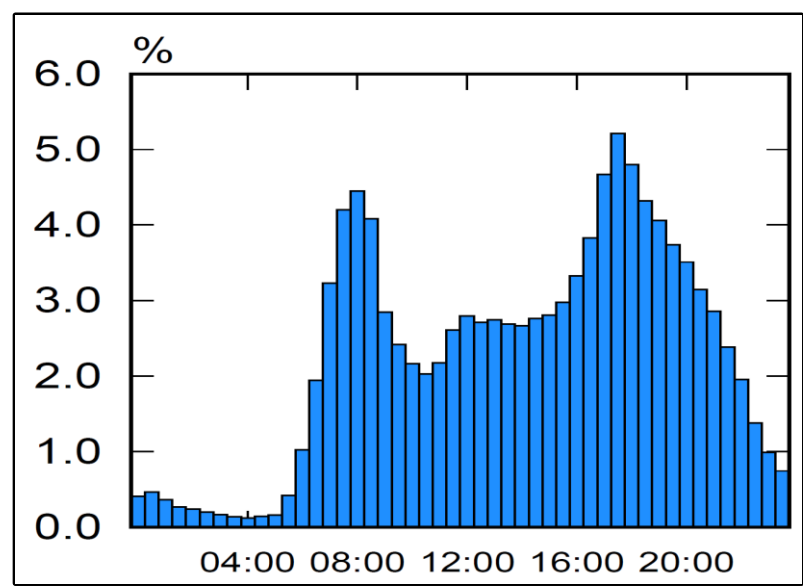


Visualization & Statistics & Result Retrieving

Examples



Bike Lane Planning



Trip Temporal Distribution