

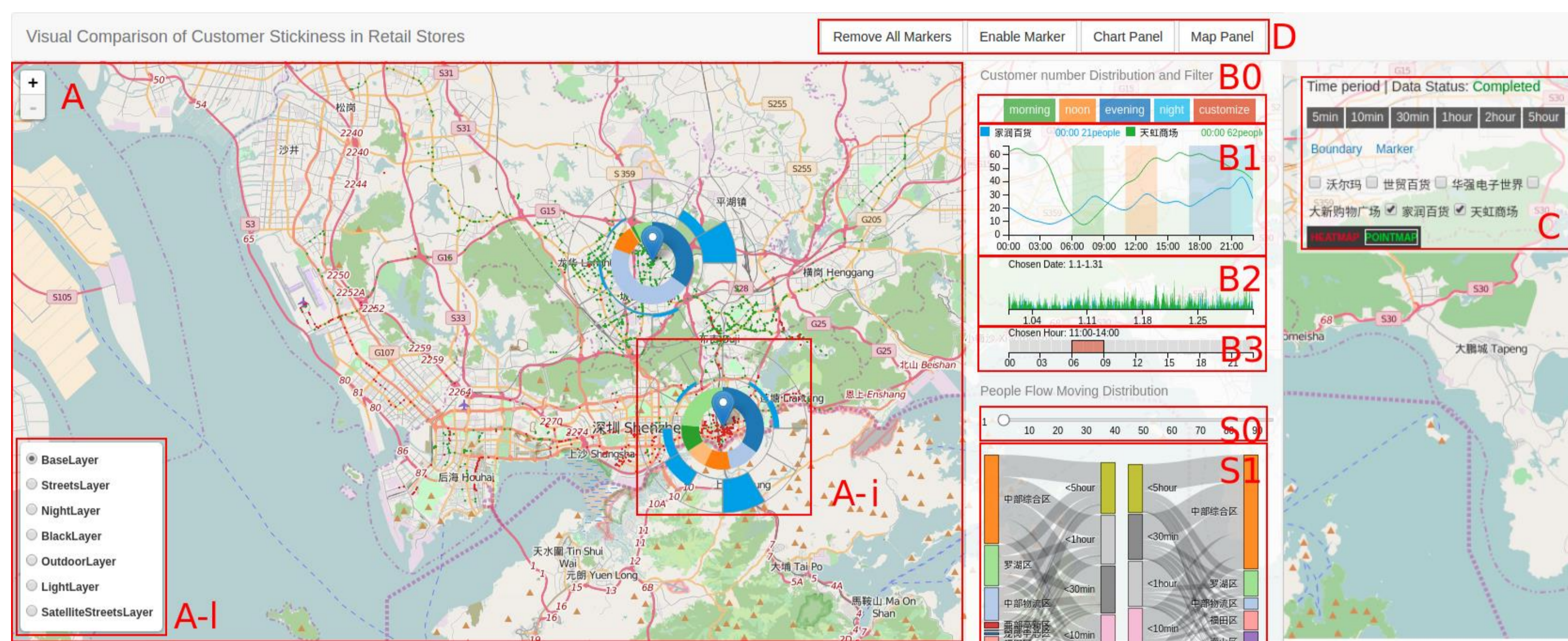
基于海量移动数据的商场用户粘性可视比较

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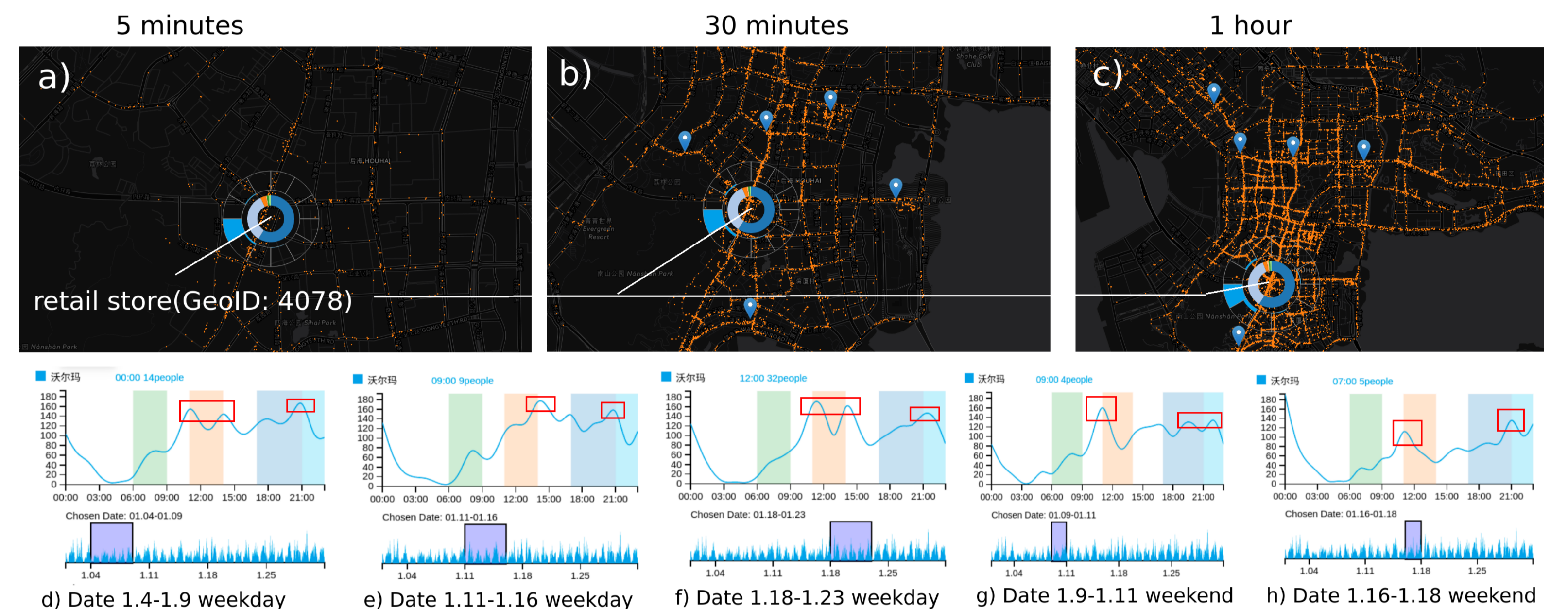
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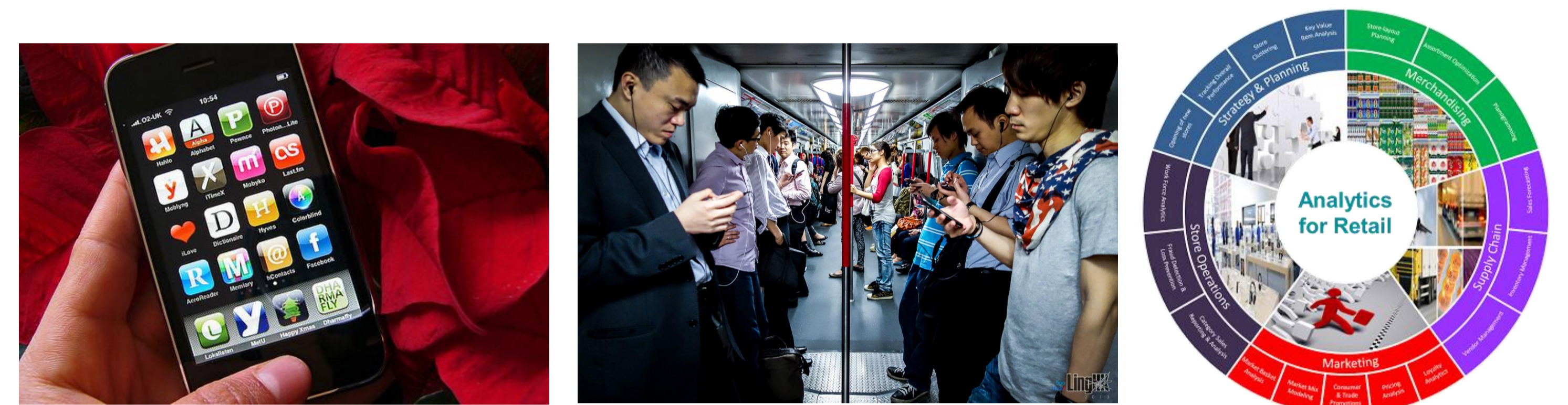
System Interface



Case Study - Visual comparison of billboards placement

Background - Huge mobile location data

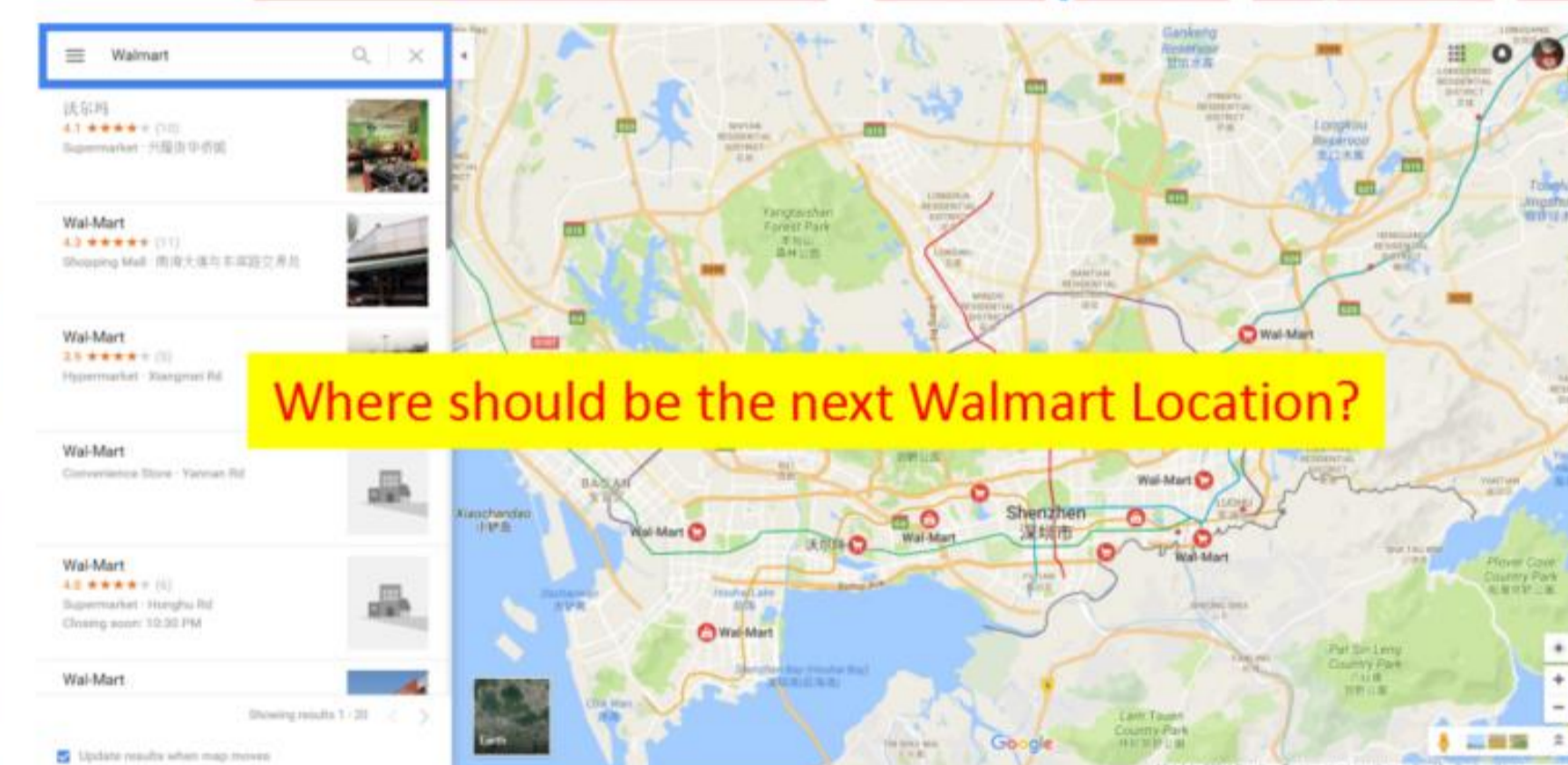
- Smart devices and mobile applications are growing quickly
- Access and utilize users' status, behavior and mobility
- Retail stores are facing fierce competition, from both offline competitors and online shopping website



Growing penetration of smart devices

Task Characteristic

- Advertising strategy decision
- Shuttle route plan
- Suggesting retail store location

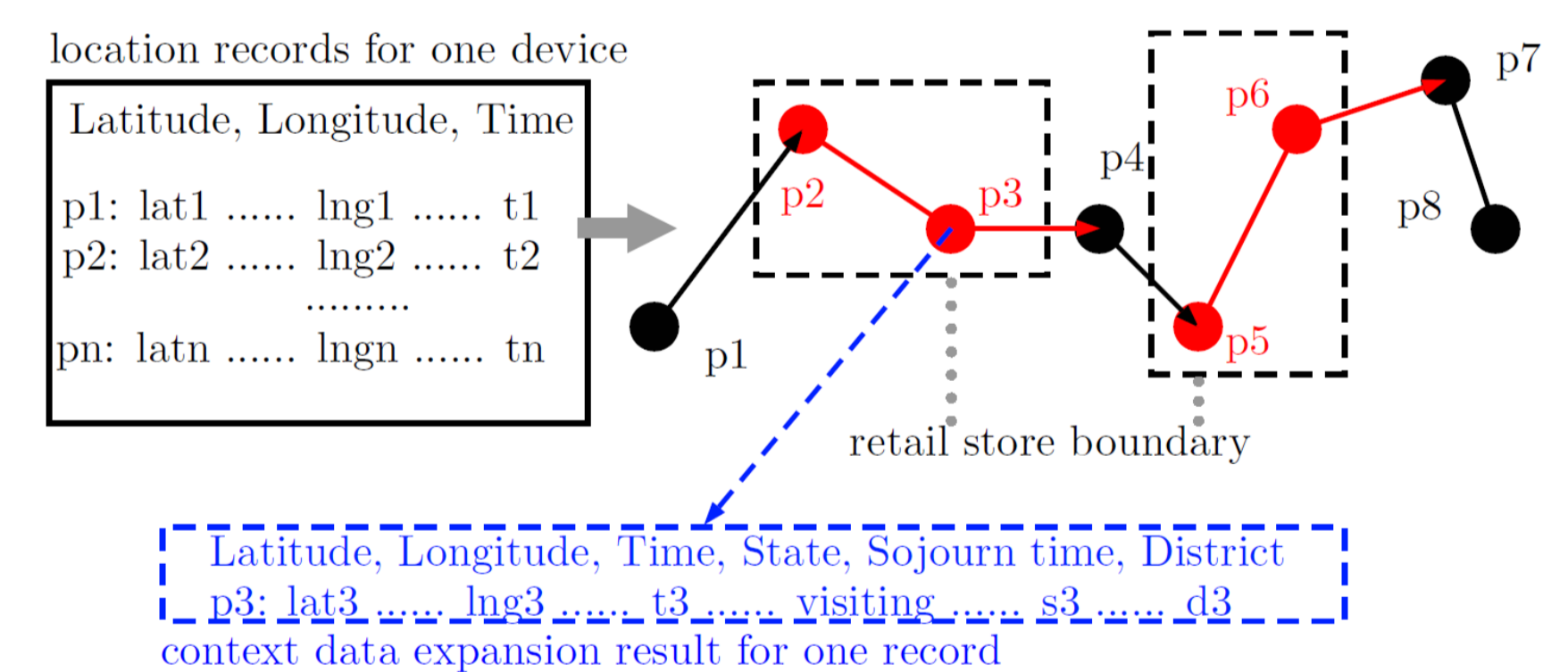


Data and Analysis

- Time and place: 1st - 31st Jan, 2015 in Shenzhen, China
- Data attributes: Device ID, location timestamp, latitude and longitude
- Data statistics: 4242579 devices, 212185208 records

Enriching data's attributes with their context

GeoID	Store Name	District
3392	海岸城购物中心	南山区
4078	沃尔玛	工业大道和东滨路交汇处
3726	世贸百货	龙岗区
171	华强电子世界	福田区
11249	大兴购物广场	龙岗区吉华路999号
11236	家润百货	坂田坂雪岗大道163号
5173	金光华广场	罗湖区
5182	天虹商场	罗湖区



Visual Design and Interactions

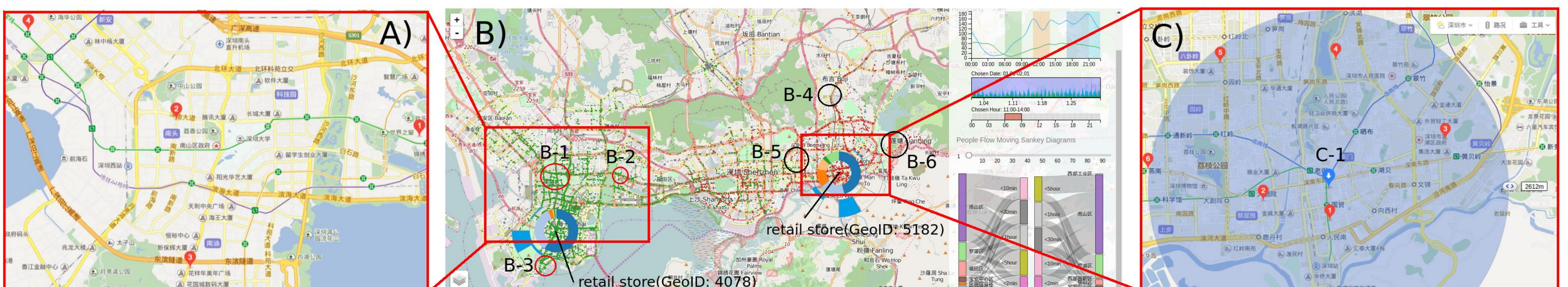
- User Interface: Spatio view + Temporal view + Interactions
- Selection of analyzed objects
- Two retail stores' comparison
- Overview of customer number distribution
- Interactions

Contributions

- Visual analytics framework for the mobile location data
- Task characterization
- Novel visualization design

Future works

- Integrate more data sources
- More interactive designs can be incorporated
- System's expandability



Case Study - Suggesting retail store location