

## Master/Semester Thesis

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# Designing a map-based dashboard for transport data

### Keywords

Dashboard, data visualization, cartography, user interface

### Background

Transport data is usually points data that record the spatiotemporal information of many individual trips. In addition to locations, the mobility data contains rich semantics information, such as information about travelers and vehicles. Map-based dashboards contain maps and charts to guide viewers to understand complex spatial information intuitively. Designing a map-based dashboard requires combining knowledge from data science and information visualization.

In this project, we want to design and develop a map-based dashboard that can help viewers to learn the spatial distribution and temporal trend of multiple population groups.

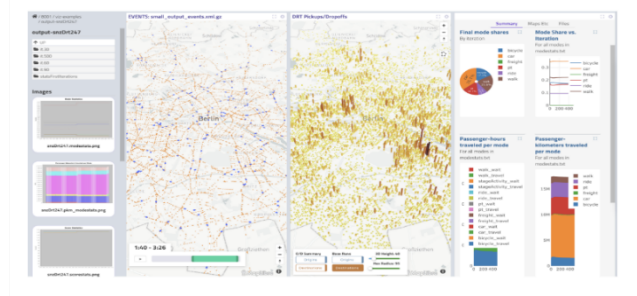


Figure 1. A map-based dashboard for showing spatial patterns in trip data [1].

### Tasks

You will take the lead in selecting visualization methods and designing a user-friendly interface. Your project will be comprised of the following work packages:

1. Literature research
2. Data cleaning and analysis: including data cleaning, aggregation, attribute filtering
3. Graphic user interface design and development: including dashboard layout, color scheme, and user operation
4. Interface evaluation (optional): conduct user studies to assess the usability

### Pre-Requisites (or strong interests in)

- Data mining, information visualization, dashboard
- Programming in Python and JavaScript

### References

[1] Charlton, William, and Bhargava Sana. "SimWrapper, an open-source web-based platform for interactive visualization of microsimulation outputs and transport data." *Procedia Computer Science* 220 (2023): 724-729.

### Supervisor

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To apply for this project, please send your CV and your transcript of records to the supervisor.