Consultancy request

from: Smart Transport Association

Objectives

The mission of our nonprofit organisation is to promote the use of public and shared transportation systems. Our request to you is to analyse the publicly available data of Washington DC's bike share system, ***Capital Bikeshare*** (http://capitalbikeshare.com), and provide us with a clear picture of the spatiotemporal dynamics of the bike sharing process. The goal is to understand **when and where** users rent bikes, the **regularity** of their usage, and the **asymmetries** in the bikes usage patterns. We would like to understand which aspects might be relevant to the **success** of bike sharing in particular locations and times.

In particular we expect you to consider the following issues:

- Which stations are increasing/decreasing their usage?
- Which flows (i.e. number of trips between stations) are increasing/decreasing?
- Are the distributions of distances, start times and duration of trips constant in time? (consider possible seasonal effects)
- Study the regularity of the number of bikes in each station: which are the most and least predictable stations?

References

Austwick, Martin Zaltz, et al. "The structure of spatial networks and communities in bicycle sharing systems." PloS one 8.9 (2013): e74685.

https://en.wikipedia.org/wiki/Statistical_hypothesis_testing