
Usage Patterns of Bicycle Counting Stations in Heidelberg and the Influence of External Factors

Julian Jurcevic^{*1} Martin Eichler^{*2} Simon Rappenecker^{*3} Tarik Eker^{*4}

Abstract

- Describe topic
- Data source (just heidelberg) and external Factors
- sentence in one method
- Results briefly

1. Introduction

- Short introduction, but more motivational, bicycle traffic more important over the years...
- Name what is interesting and why it matters
- Shortly introduce the data, and the main method

2. Data

Begin describing each dataset, DO NOT REPEAT WHAT THIS SECTION IS about.

- Cyclist data
- Describe shortly what it is and how it is physically collected, what information does it contain?
- Describe the fetching process and SOURCE AS HYPERLINK OR FOOTNOTE?
- Link to figure showing the placement in Heidelberg, evaluate the placement, describe geography, flat, etc.
- Data Sanity, show a plot for a few (or only one) station, maybe also show failures and give more information about it? PLOT: SRTATION

^{*}Equal contribution ¹Matrikelnummer 12345678, MSc Computer Science ²Matrikelnummer 6009076, MSc Computer Science ³Matrikelnummer 6324777, MSc Machine Learning ⁴Matrikelnummer 5668988, MSc Computer Science. Correspondence to: JJ <7167089julian-steffan.jurcevic@student.uni-tuebingen.de>, ME <martin.eichler@student.uni-tuebingen.de>, SR <simon.rappenecker@student.uni-tuebingen.de>, TE <tarik.eker@student.uni-tuebingen.de>.

- Weather data,
- Why we need this, Station data is bad, describing fetching, here we name the source
- OPTIONAL: Give comparison plot between temperatures and bad metrics as rain PLOT: WEATHERDATA
- Accident data? Not used, but need to include it
- Holiday data,
- We we need it, describe source, also name that there were some errors in the dataset, we have to be careful, ...

3. Method

- Describe how we identify usage patterns!
- k-means with custom features,
- and in what we classify, name each category, also explain why this makes sense, maybe link to related work ([Miranda-Moreno et al., 2013](#))
- describe each feature include math (with eq. number), link plot, show typical usage pattern PLOT: usage pattern, now cite related work ([Miranda-Moreno et al., 2013](#)), and name why we are different
- they are rule based, we are more implicit!

4. Results

- describe temporal shift, describe why this is expected and why, PLOT: city,
- describe holidays impact, describe behaviour (similar as weekend) PLOT: show shift
- include also plot of different public holidays (my own one), this is just to have a funny fact (Vater Tag) PLOT: funny plot, na werden zu viele plots
- describe weather impact, obvious PLOT: weather

5. Conclusion

- summarize
- limitations
- problems
- statements that can be made

Contribution Statement

Add this, see original template

References

Miranda-Moreno, L. F., Nosal, T., Schneider, R. J., and Proulx, F. Classification of bicycle traffic patterns in five north american cities. *Transportation Research Record*, 2339(1):68–79, 2013. doi: 10.3141/2339-08. URL <https://doi.org/10.3141/2339-08>.