Draft for UT presentation with questions for Prof. Bießmann for review

Caroline Graebel

BHT
Berliner Hochschule für Technik

Nachricht an Prof. Bießmann

Hallo Dr. Bießmann!

Ich habe bisher erste Ergebnisse hier eingefügt und einen (sehr) groben Draft für zu erwähnende Stichpunkte in der Präsentation.

Mein Wunsch um Feedback: Im Moment habe ich eine Karte, die die Fahrradstraßen in Berlin hervorhebt (siehe Results). Aber punktgenaue Adressen (Fahrradparking oder Kreuzungen zwischen zwei Straßen) sind noch nicht vorhanden. Ich würde noch Geo-Locations für valide Straßenadressen von Fahrradparking hinzufügen und diese auf der Karte mitvisualisieren. Würde das Ihren Erwartungen entsprechen oder reicht der aktuelle Stand (evtl. auch einfach mit ner hübscheren Karte)?

VG

Caroline Graebel

Problem Setting

- Riding bikes on streets can be quite dangerous
- To prevent accidents, a proper biking infrastructure is needed
- In Germany, this is mainly done through adding green sidelines for bikes
- Children can be more independent, traffic is quieter and bikes are more environmentally-friendly, so we should motivate to use the bike more! (Source: every single video from https://www.youtube.com/@NotJustBikes), I will look up scientific papers later
- My goal: doing the groundwork for a bike routing planner for Berlin
- Premise: Using streets with biking infrastructure is safer for bikers and therefore to be preferred
- A bike routing planner has already been done by bbbike.de
- Goal is to do a data pipeline that updates on bike infrastructure data regularly and therefore keeps the routing planner up-to-date

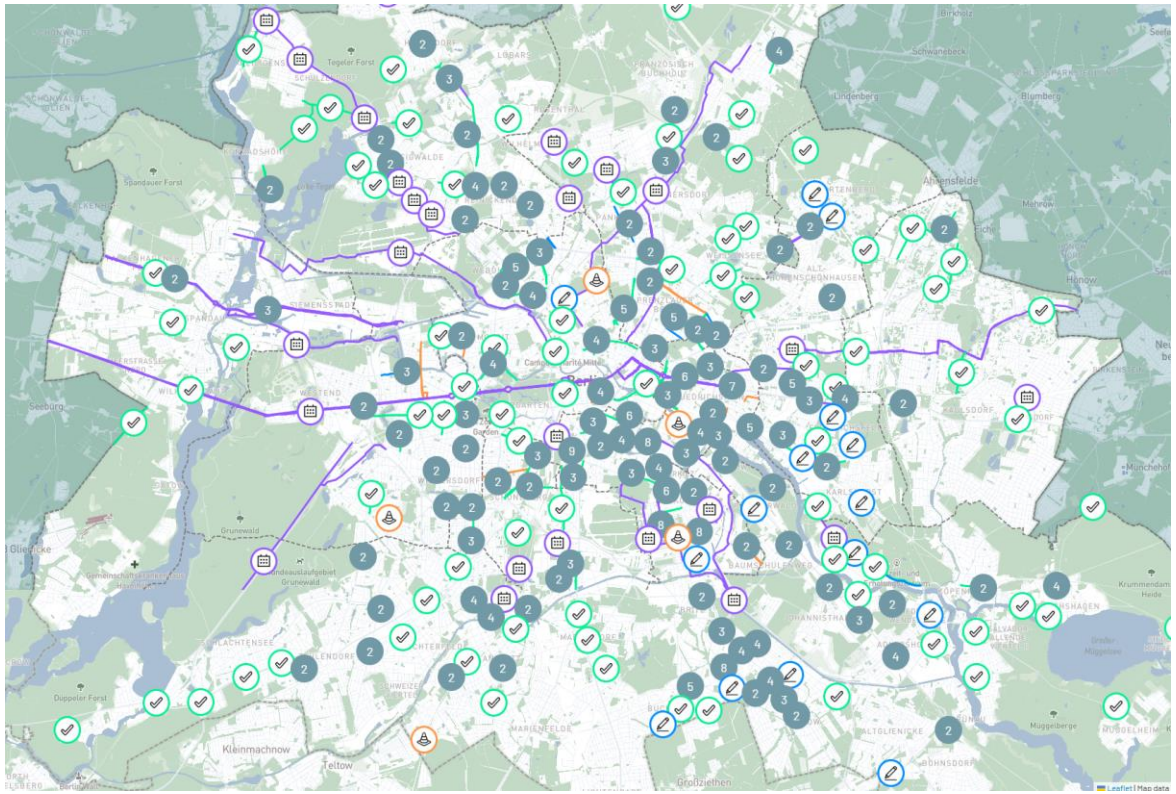
Data Set

Some questions you might ask / answer:

- Infravelo project is building biking infrastructure in Berlin https://www.infravelo.de/karte/
- They have an API where you can get the project data (but it‘s a lot of handwritten data, so very unclean)
- The map data can for Berlin (approximated as a big square) can be loaded from openstreetmap API -> I first got all primary and secondary streets and all tertiary and residential streets in another round of data pulling
- Map data is great quality but geo data is pretty new to me
- What‘s missing is info in infravelo project data -> there are no geographical locations, only addresses. Getting geo locations from adresses is not trivial.
- With a lot of effort and more knowledge about geo data for example street crossings could maybe be inferred by matching closest segments of two streets

Infravelo Project Map for comparison

- A lot of projects are planned! (purple)
- Only finished projects (green) are considererd here
- https://www.infravelo.de/karte/ Have a look, it‘s interactive

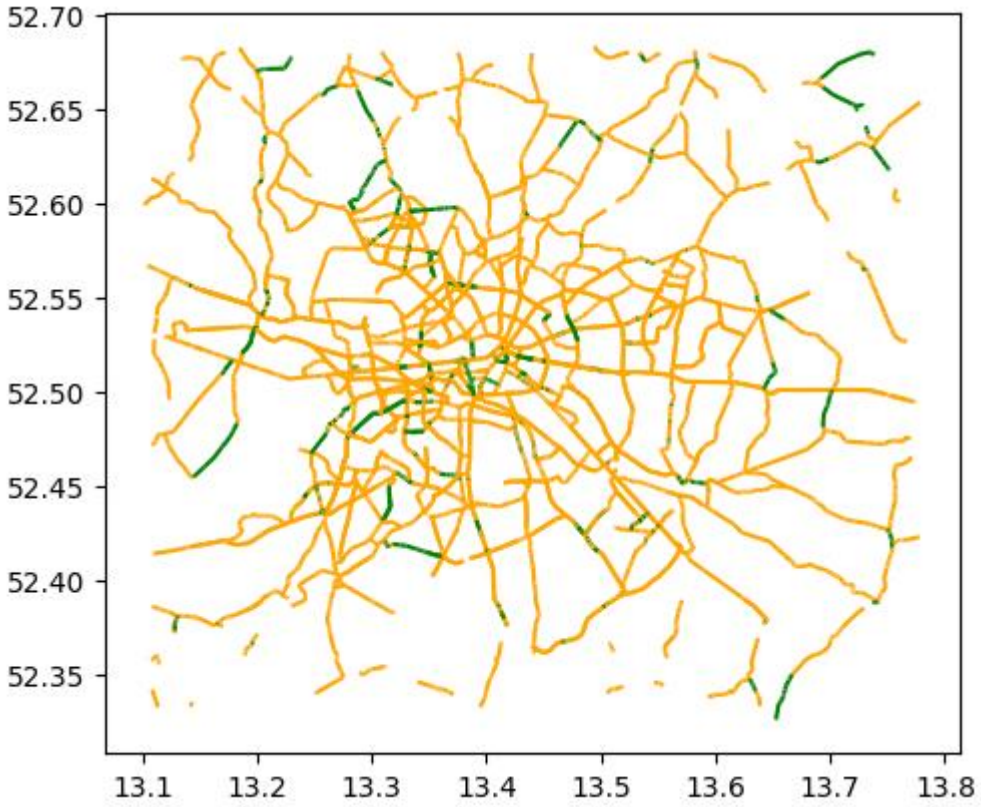


Methods

1. Pulling the infravelo project and map data
2. Cleaning the infravelo project data
3. do feature engineering to have clear information that is relevant for a map (for example type of project – road or bike parking)
4. Getting geolocations for (valid) street addresses
5. Matching the streetnames given for bikeroads with actual roads on a map
6. Adding Bike Parking addresses with geolocations to the map (not done yet)
7. Visualize it!

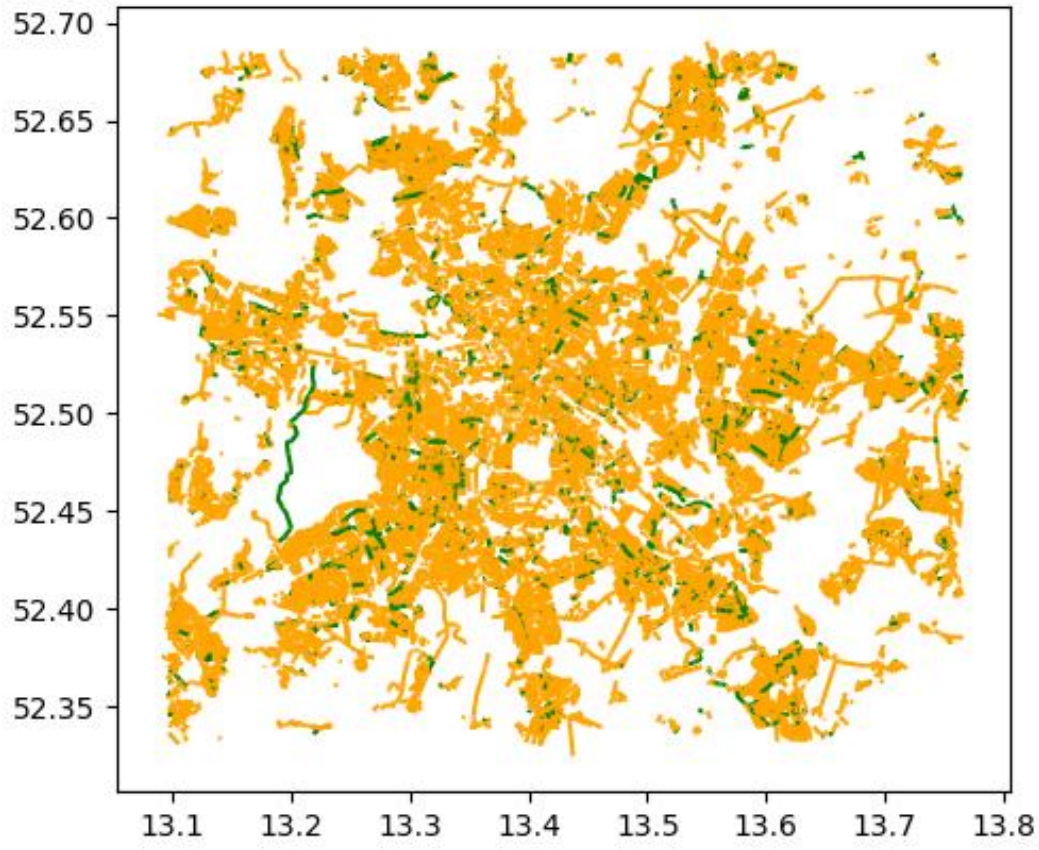
Results 1: Bike roads for primary and secondary streets

- Green = biking infra
- Orange = no biking infra



Results 2: tertiary and residential streets

- Green = biking infra
- Orange = no biking infra



Discussion

- Results show, that at least for roads there is a lot of orange
- For certain routes it is probably necessary to take an unsafe road here and then
- However, there is a nice effort to do add more biking infrastructure also to smaller streets
- Compared to the netherlands, it would be nice to have some political effort to make traffic more bike-friendly instead of adding more lines for cars
- The Netherlands are a great rolemodel!