

Semester-/Master-Thesis

Do People Move Differently When the Street Changes? Evaluating Munich's Street Redesigns with GPS Tracking Data

In MCube MOSAIQ (Mobility and Urban Climate in Future Neighbourhoods), TUM, the City of Munich and partners have temporarily redesigned five street sections in Moosach and Schwabing-West since summer 2026: meeting places, safer school routes, bike parklets, widened sidewalks and safer crossings (until autumn 2027).

Smartphone tracking in both districts has recorded **more than 80,000 trips and about 93,000 km** since May 2026. A first pipeline already maps flows at every site and detects parking search from car trips.

This thesis turns this data into the **evaluation of the living lab**: a thorough before-during analysis of modal split, parked traffic and use of the redesigned spaces, compared against control streets. The second contribution is methodological: **which effects can a GPS panel detect at all**, and how large would it need to be? Results feed into the project's final evaluation.

Work Packages

- Literature review on evaluating street experiments and on GPS-based travel-behaviour analysis
- Familiarisation with the tracking database and the existing pipeline; data-quality assessment
- Mobility atlas for all intervention sites: flow maps, before/during difference maps, time-of-day profiles, stay patterns
- Modal split and route choice near the sites: difference-in-differences / event-study design against control streets
- Parked traffic: parking search, parking location and duration, displacement into neighbouring streets
- Detectability: minimum detectable effects and recommendations for panel size and duration of future living labs
- Engagement with the project partners and organisers to identify which evaluation questions matter most to them

Prerequisites

- Programming skills in Python (pandas, GeoPandas), basic SQL; PostGIS/QGIS is a plus
- Interest in mobility behaviour, geodata and statistics
- Enjoy turning data into clear, good-looking figures
- Independent and structured working style

Variations of the topic and additional research questions proposed on your own initiative are always welcome. If interested, please send your CV, transcript, and a short motivation.

The write-up should document the work steps clearly. The candidate commits to working independently and citing all resources used properly.

Prof. Dr.-Ing. M. Lienkamp

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Issued: _____

Due: _____