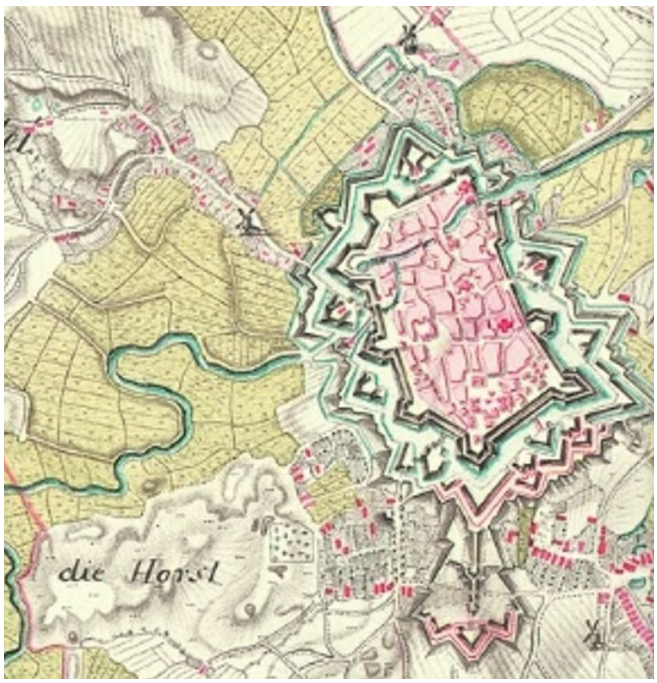
Automatic annotation of historical map content

Master Thesis at ikg

Motivation and overview of the work



Search enginges enable quick and targeted access to stored content on the Internet. However, the prerequisite for this is that this content is described using keywords or metadata.

When searching for maps, the names or map types are typically used as keywords. However, if you want to access map content, for example maps containing deciduous forests, it is necessary that this map content is also described using metadata. Similarly, such descriptions are also necessary to provide access for blind people or people with visual impairments

This is where the master thesis comes in: **deep learning** methods are to be used to perform a so-called semantic segmentation of the map content into several land use classes. This information is then to be described in a suitable form as metadata and added to the data.

Tasks and schedule:

- Literature research
- Modeling of metadata, i.e. of the classes to be described and their attributes, including their possible uncertainties
- Selection and adaptation of a learning method for semantic segmentation and interpretation (Deep Learning, LLMs)
- Automatic extraction of metadata from given maps using the developed method
- Determination of the quality of the extracted data

Requirements

- Programming skills
- Knowledge of or interest in deep learning methods

Resources

- Historical Maps (e.g. Preußische Landesaufnahme)
- Literature

References

Robinson, A. C. and Griffin, A. L.: Using AI to Generate Accessibility Descriptions for Maps, Abstr. Int. Cartogr. Assoc., 7, 139, https://doi.org/10.5194/ica-abs-7-139-2024, 2024.

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