Interactive Exploration of Geographic Regions with Web-based Keyword Distributions

Chandan Kumar¹, Dirk Ahlers², Wilko Heuten³, Susanne Boll¹
¹University of Oldenburg, Oldenburg, Germany
²NTNU -- Norwegian University of Science and Technology, Trondheim, Norway
³OFFIS -- Institute for Information Technology, Oldenburg, Germany

Problem
- Conventional local search serves simple sequential requests
- Abstract overview and analysis of geographic regions are not supported
- In touristic and relocation scenarios users look for the makeup of regions

Approach
- Cluster of geospatial Web pages to characterize geographic regions
- Use of keyword distributions for comparison of regions
- Interactive interfaces for the visual exploration of relevant regions

Characterizing regions
- Region of interest: drawing on map (query-by-spatial-example)
- Target regions: placing markers or a generic grid overview

Relevance visualization
- Ranking of regions with KL divergence similarity
- Heatmap visualization of relevance

Exploration & interaction
- Word clouds representing the most prominent keywords
- Move, edit, and delete operations, revisualization