Enhancing Location Recommendation through Proximity Indicators, Areal Descriptors, and Similarity Clusters

16.11.16 / Sebastian Meier - IDL - FH Potsdam

LBS 2016, Vienna, Austria



LBS / LR



Outline

- Locations and the Urban Fabric
- Quantifying the Urban Fabric
- Including the Urban Fabric in Search Queries



Location & Place: Physical location in the real world e.g. a Restaurant, a Park etc.

Position: geographic - coordinate





Multi-dimensional Data Space

Multi-dimensional Data Space

Neighborhood Characteristics

Rösler & Liebig (2013) Using Data from Location Based Social Networks for Urban Activity Clustering

Liu et al (2014) Exploiting Geographical Neighborhood Characteristics for Location Recommendation

Alexander et al. (1977) A Pattern Language

What is the Urban Fabric?

- Physical Features
- Social Features

How to quantify the Urban Fabric?

Munich

Cologne

Hamburg

Berlin

How to quantify the Urban Fabric?

How to quantify the Urban Fabric?

OpenStreetMap

Nature, Road Network, Public Transport, Land use, Building height

Foursquare

Types of location in area

Quantifying the Fabric

Aggregating neighborhoods

Composition of Area Composition of Area Closest Distance

Aggregating neighborhoods

Combined Index: 0.1+0.35+0.8+0.45 = **1.7**

Tobler's first law of geography

Aggregating neighborhoods

Berlin

Searching the Fabric

>0.0 3.7 7.3 11.0 14.6 18.3 21.9 25.6 29.2 32.9 36.5 >0.0 3.7 7.3 11.0 14.6 18.3 21.9 25.6 29.2 32.9 36.5 >0.0 3.7 7.3 11.0 14.6 18.3 21.9 25.6 29.2 32.9 36.5

Beyond Searching

MDS & Urban Planning

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