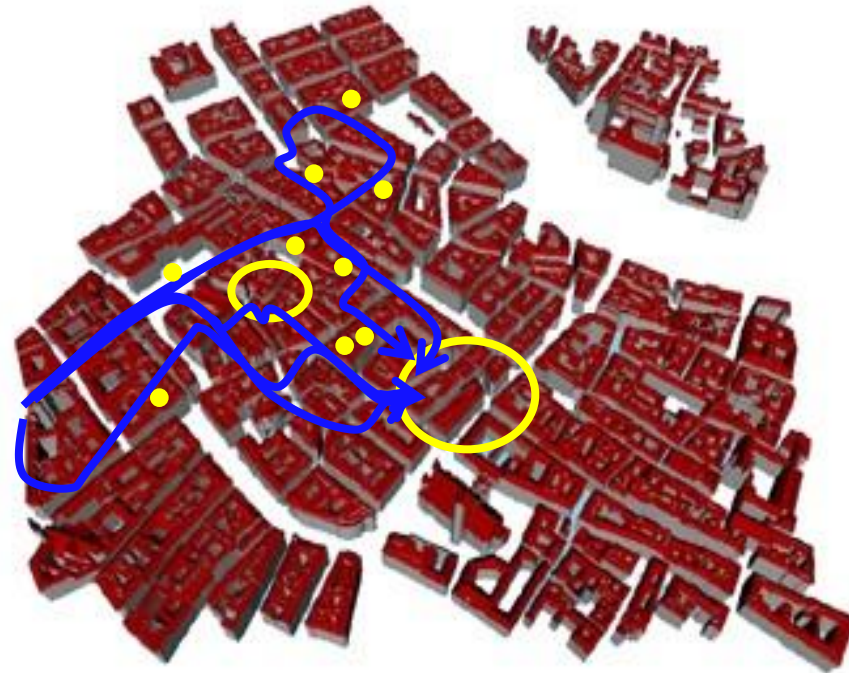


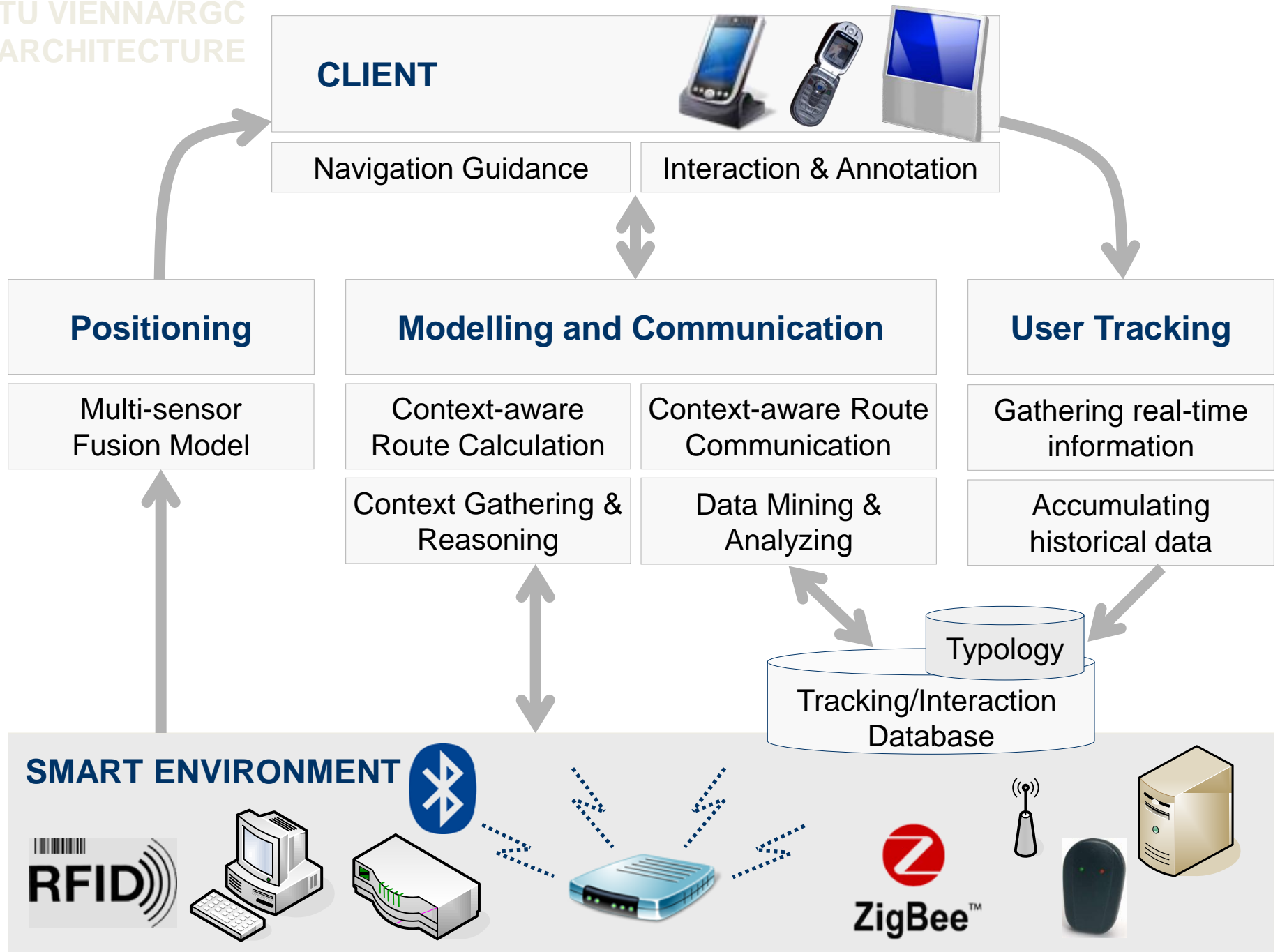
# Navigation and Wayfinding





# Research at TU Vienna

- 1 Sensor Fusion
- 2 Ubiquitous Infrastructure
- 3 Behaviour Modelling
- 4 Semantic Wayfinding
- 5 Landmark Taxonomies
- 6 Context-Awareness
- 7 Keyhole Effects
- 8 Communication and Interfaces
- 9 Pragmatic Wayfinding

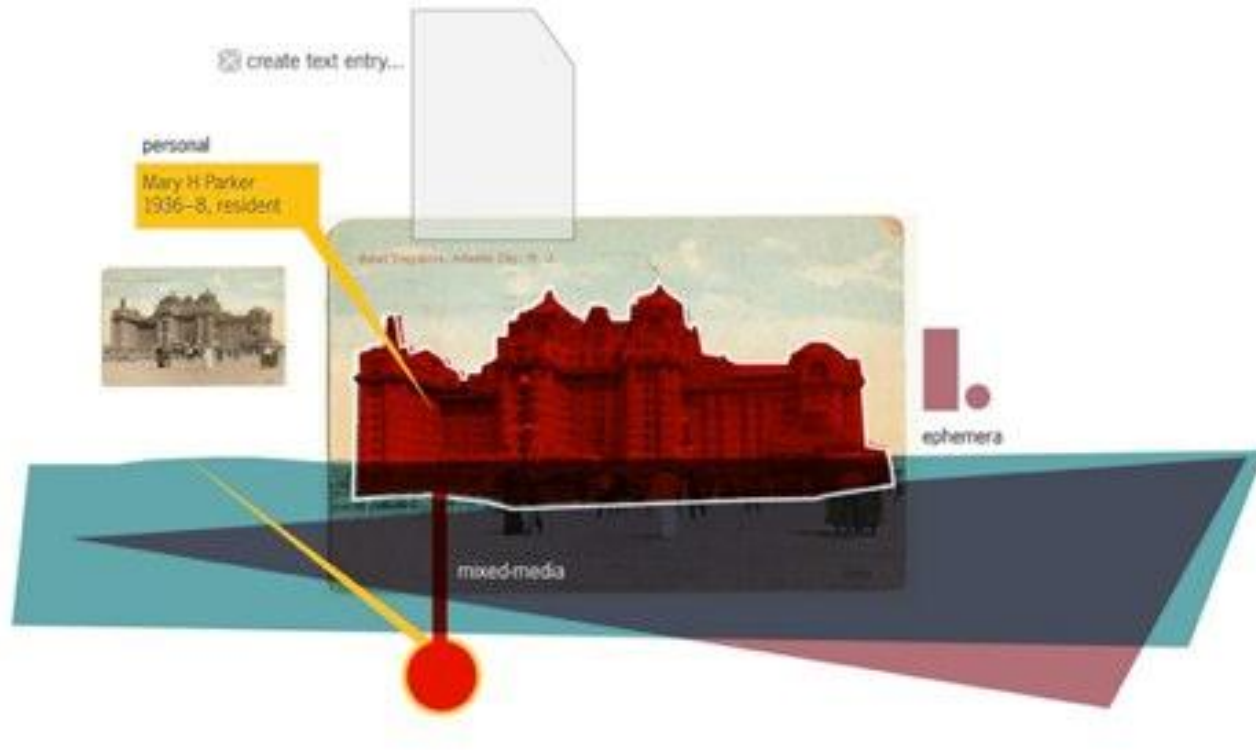


# Data acquisition and Modeling

## Collaborative Filtering



# Augmented Reality and Social Media



# Behaviour modelling

	Cluster 1	Cluster 2	Cluster 3
Gender	f: 40% m: 60%	f: 36% m: 64%	f: 67% m: 33%
Age	~ 30	~ 35-40	~ 30-35
Duration of observation	~ 5 min	~ 10 min	~ 23 min
Speed	~ 1.2 m/s	~ 0.6 m/s	~ 0.2 m/s
Number of stops	almost none	1.4	3.6
Duration of stops	7 sec (max. 1 min)	2.5 min (max. 8 min)	4.7 min (max. 17 min)



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**Formal description of basic concepts**

taxonomies of landmarks

**Context Modelling**

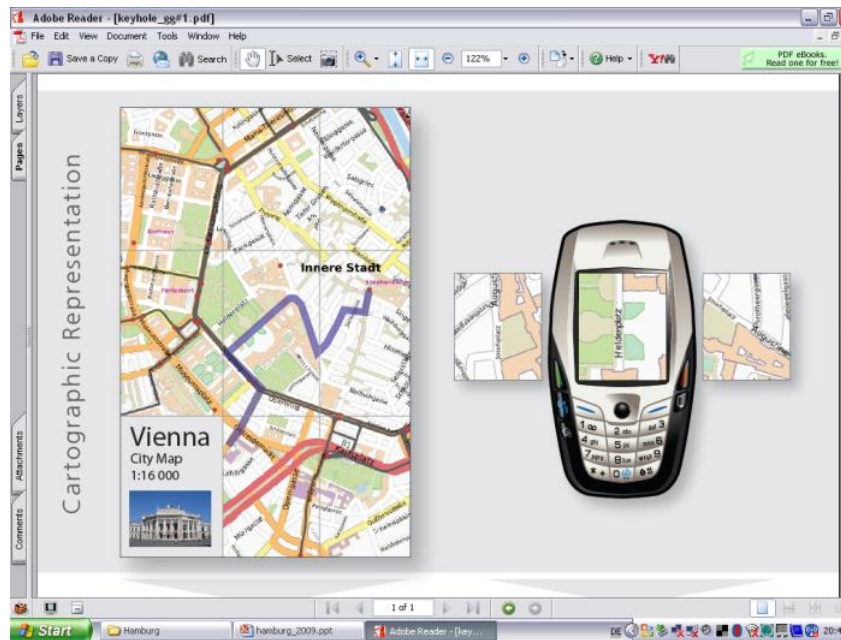
activity theory

# Ways2navigate

- Aims: Investigating how mobile map, language (verbal), and augmented reality can be used to convey navigation and route information to pedestrians
  - how these technologies can help to reduce cognitive load during wayfinding (i.e., efficiently guiding users from A to B)
  - how these technologies influence the acquisition of spatial knowledge
- Three iterative field tests



# Keyhole Problem



## FemRoute, Fem2Map

- Commercial products targeting at women often just concentrate on the design and colors of the device
- **FEMroute concentrates on identifying and analyzing gender-specific needs in route planning**
  - How do the psychological route qualities attractiveness, convenience and safety depend on the context of use?

# EmoMap

Considering the emotional perception of space in navigation systems for pedestrians

## Project goals

1. Gathering relevant parameters from pedestrians for creating an *emotional layer* of Vienna
2. Contributions via VGI to an open online database - **OpenEmotionMap.org**
3. Using collected data for improving/personalizing pedestrian navigation

## Hypothesis

- The strength of emotional attachment for a particular landmark, place or space embedded in memory, by an individual, influences our structuring of space, thus our “identity building” and “well being”



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# International Cartographic Association Conferences





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# State of the Map Europe

15-17.July 2011 TU Vienna

<http://sotm-eu.org/>





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# 8th Symposium on Location-based Services

21-23.November 2011 TU Vienna

<http://lbs2011.org/>





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# Strategies Education

International **Master „Cartography“**  
TU Munich, TU Vienna, TU Dresden  
Start: WS 2011