Recommendations in ubiquitous environments
Mobile applications

- Mobile applications have been a domain for recommendation
  - small display sizes and space limitations
  - naturally require personalized information

- Since the end of the 1990s, research into mobile applications has focused heavily on adaptivity

- Nowadays, limitative circumstances are now starting to disappear
  - more powerful CPUs
  - better displays
  - modern wireless broadband
RS research questions in ubiquitous domains

▪ What are the specific goals of recommender systems in a mobile context?
  – do users expect serendipitous recommendations, or is it more important to be pointed to things that are close to one's current position?

▪ What are the implications of contextual parameters such as localization for the design of recommendation algorithms?
  – is location just another preference, a requirement that is always strictly enforced, or something in between?

▪ What role does the modality of interaction play when addressing users "on the go"?
  – pushing information can be useful to draw recipients' attention, but the users' permission is surely needed. how should permission protocols for "push" recommendations function?
Context-aware recommendation

- Ranganathan and Campbell (2003) see context as
  - "any information about the circumstances, objects or conditions surrounding a user that is considered relevant to the interaction between the user and the ubiquitous computing environment"

- Shilit et al. (1994) name the most important aspects of context as
  - where you are
  - who you are with
  - what resources are nearby

- Context awareness is a requirement for recommender systems
  - particularly relevant in ubiquitous domains
  - context as situation parameters that can be known by the system and may have an impact on the selection and ranking of recommendation results.
Application domains

- **M-Commerce**
  - m-commerce refers to monetary transactions that are conducted via wireless networks.

- **Tourism and visitor guides**
  - travelers have specific information needs, makes this domain a natural choice for mobile information systems.

- **Cultural heritage and museum guides**
  - mobile guides for archeological sites or museums providing multimedia services.

- **Home computing and entertainment**
  - users are able to personally configure and adapt smart devices in their environment based on their preferences and on specific situations.
Summary

- Rapid technical advancements toward ever more powerful mobile devices

- Ubiquitous applications constitute a promising domain for different types of personalization and recommendation

- Tourism application domain is by far the most active field

- Bottleneck: technical interoperability between ubiquitous devices themselves and the privacy concerns of users
Literature
