

Challenges In Context

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The Intelligence, Agents, Multimedia Group has a long history of research in the hypermedia field.

Many current interests fall under two major IRC projects –



AKT is concerned with all aspects of the knowledge lifecycle, from capture to reuse, with emphasis on semantic technologies and knowledge services



Equator focuses on the augmentation of physical and digital environments, through a range of novel devices and interactions

- On the boundary between pervasive computing and knowledge technologies
- or “what can the semantic web do for you?”

- Mobile devices are used to access personal and public information, to store personal information and to communicate with others
- One example of an increasing number and variety of pervasive or ubiquitous computing devices
 - Not just phones!
- Many of today's users associate a particular network and device with a service
 - As services increase, so does complexity

- An adaptive information system delivers:
 - the right information services
 - to the right user(s)
 - at the right time
 - on the right device
 - in the right format
 - with the right level of intrusiveness
- This requires explicit and machine-processable knowledge about the users, the device context and capabilities, the location in which these users and devices are situated, the content, and the dynamic social context
- i.e. context

Aim to create an environment which can pro-actively assist users going about their everyday tasks

This will require some understanding of the people occupying the space, and the activities undertaken within it

In the first instance, we are considering the presentation of **relevant** information to users at the **right time** and in the **right place**.

This implies we need a level of contextual awareness – an understanding of **where** users are, and **what** they are doing

- The adaptive information system needs to collect and represent a wealth of information about the user:
 - current activities, skills, interests, personal preferences, privacy requirements and the relationships between people
- Representing a generic notion of context is hugely complex and difficult
 - Insufficient detail for specific applications
- An activity or task based modeling within a given domain would be more appropriate in many situations
 - apply of domain specific ontologies and inference rules to common infrastructure components

- Communications systems will support the dynamics associated with user roaming coupled with the drive to provide seamless, simple services that require little or no user management
- The Personalised Communication Environment (PCE) is a logical image of a user's communications capabilities that is dynamically updated as the user roams
 - devices becoming available or unavailable, newly discovered services, changes in connectivity options and changes to the surrounding environment
 - current context management focused on devices and information presentation

- These are classic semantic web and pervasive computing problems
 - such techniques and technologies are highly applicable to the mobile web – perhaps their use in this domain is even more compelling than on the desktop?
- Distributed “repositories” of assertions
 - RDF / OWL (CC/PP is a start)
- Inferences from these assertions
- Extensible ontologies

Starting points for more information:

- Intelligence, Agents, Multimedia Group
<http://www.iam.ecs.soton.ac.uk/>
 - Pervasive Computing and Networks
<http://www.iam.ecs.soton.ac.uk/themes/pcan/>
- Grid and Pervasive Computing
<http://www.gpc.ecs.soton.ac.uk/>
- Advanced Knowledge Technologies IRC
<http://www.aktors.org/>
- Equator IRC
<http://www.equator.ac.uk/>

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