Context-aware Computing: Possible Course Projects

Hong-Linh Truong and Schahram Dustdar

Distributed Systems Group
Vienna University of Technology
https://www.infosys.tuwien.ac.at/teaching/courses/caws/
Topic 1: Runtime Context Coupling

- **Objective:**
  Develop a model/technique for coupling existing context information described in different specifications and provided by different sources during runtime.

- **Problem description:**
  Consider the case in which each service has its own context model. Then, a newly-built context-aware Web service retrieves context information from existing services would need to solve many interoperability issues among context specifications. A runtime model and technique would be useful.

- **Possible approaches:**
  - Linked context information model and context matching
Objective:
Develop a protocol for context information access in large scale, multi-organizational environments

Problem description:
Consider the scenario of multiple context sources. A user/service can share his/her/its context as a Web resource. Other users/services can access the context information but have to pass authorization. A new protocol could be developed for this way of context access.

Possible approaches:
- Utilizing WS-Context, OAuth and OpenID protocols to develop a new protocol
Topic 3: QoC-enhanced context reasoning techniques

- **Objective:** Study and develop QoC-enhanced context models and reasoning techniques

- **Problem description:** Current context reasoning techniques utilize the description and instance of context information but not QoC associated with context information and sources. It is expected that by also utilizing QoC, reasoning techniques could improve the result.

- **Possible approaches:**
  - Utilizing ontology-based context models and QoC information
Topic 4

- **Objective:**
  Develop linked context model for business process management

- **Problem description:**
  In our view, several types of data are associated with business process. The use of these data is based on certain contexts. Such contexts can be obtained by carefully studying each type of business-related data and can be unified/linked together to support context-aware business process management.

- **Possible approaches:**
  - Analyze context associated with each type of data and build the model from the bottom-up and top-down analyses
Thanks for your attention!

For further information, pls. check the course link: https://www.infosys.tuwien.ac.at/teaching/courses/caws/