Modeling Social Interactions in Pervasive Environments
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Objectives
- Enabling device mediated social interactions among entities (e.g., human, agent, services) in the smart spaces (e.g., smart home, smart office,…)
- Reduce cost and time to develop socially-aware personal assistant
- Facilitating adaptive personalized distraction-free interactions

Background
- Context awareness: Social interactions as a Social context – constructed relationships and constraints between the entities that influence an individual’s action.
- Personalization: Personal preferences, needs, requirements, desires and so on
- Adaptation: Actively and autonomously adapts and provides the most appropriate services

Research Challenges
- So far very limited work has been focused on social awareness, in particular, socially-aware interactions between actors
- How to model the relationships between entities that will be usable and understandable by software system?
- How to resolve inconsistency or conflict in interaction and aggregation?
- How to cope with the dynamic changes of context information?

Approach
- Role based interaction modeling from both domain and player (actor) perspectives
- At run-time, each context (interaction) model exposed as a set of services or service composites

Domain- and Player-centric Modeling

Fuzzy Logic based Conflict Resolution
- E.g. John receives two requests simultaneously – his mother asks to come home and his boss calls an urgent meeting
- Inferring the importance of each task based on its priority, preference and consequence

Design and Implementation

Forward Plan
- Context management or life-cycle to enable run-time adaptation
- Incorporating user preference to facilitate personalization
- Empirical evaluation through user study
- Make it fully functional model driven approach
- Enhance the prototype

System Architecture