

Casi di studio -> Tesi

1. **PORTIA**: PORTIA is a user-adapted persuasion system capable of simulating the persuasion process used by humans to convince someone to perform a given action. It mainly focuses on two typical aspects of the human persuasion in order to produce effective persuasion attempt in different contexts: on one hand, the capability of reasoning and evaluating the persuasive power of alternative strategies to a given user and of selecting the most appropriate one; on the other hand, the capability of combine rational and emotional modes of persuasion. The system is based on the theory of *a-rational* persuasion, and the strategies represented in the model are the result of a combination of theoretical and empirical background. The key points of the system are the separation between *reasoning* and *argumentation* phases in the persuasion process, and the use of *Belief Networks* to represent the uncertainty inherent in this form of practical reasoning. The system includes a *user model* to reason on the presumed characteristics of the Recipient, a *reasoning module* to select and justify the appropriate persuasion strategy to a given Recipient and to repair it in case of failure, and a *planning module* to translate the selected strategy into a coherent language plan.

<http://www.di.uniba.it/intint/people/papers/IEEE-Argumentation2007.pdf>

<http://www.di.uniba.it/intint/people/papers/AISB-Persuasion-08.pdf>

2. **SNIFFER**: The main goal of this agent is to constantly monitor the social network through overhearing, in order to understand the social dynamics going on among the peer agents. Hence, the sniffer has to be equipped to understand the shallow dialogue dynamics of the networks (who is telling what to whom). This monitoring activity should be conducted continuously, so that the sniffer could have, at every time of the interaction, the exact and updated image of what is going on in the social network. This is consistent with the SF needs of information according to the SF goal of both (i) preventing (or even solving) conflicts and (ii) favouring (or even promoting) fruitful exchange among peers with similar features and goals.

In this perspective, it is also important to understand what is the task of each interaction among couple or group of peers (eg. Information Seeking, Negotiation ecc.) and what is the attitude the interlocutors are showing towards each other (eg., cooperative vs. individualistic in a negotiation scenario or warm vs. cold in a general topic/small talk discussion). To this aim, the sniffer will be equipped so as to collect data about interaction in the network and to identify what kind of dialogue are going on in the network, by exploiting conversational analysis techniques to produce a shallow annotation of the dialogue exchange among the peer agents. The history of the interaction will be updated by creating a log, which will serve as a basis for conversational analysis aimed at inferring the dialogue task and the interlocutors' attitude. In particular, our sniffer agent will employ Hidden Markov Models (HMM) for dialogue pattern analysis. In our previous research, we have already tested the potential of the HMM formalism in exploiting dialogue pattern differences in user attitude recognition. In particular we tested the possibility of recognizing the differences in the user social attitude or the main goal pursued by the user in a given domain (eg. Information Seeking task vs. Advice Giving attitude). We plan to employ the same approach in the conversational analysis engine that will be embedded in the behavior of our sniffer agent. Once the peers' attitude is recognized by the sniffer, as well as the main goal of every dialogue going on, this information will be provided to the social facilitator which will use it to plan its behaviour accordingly.

<http://www.di.uniba.it/intint/people/papers/AISB-AffectiveNL-08.pdf>

3. **PLAY**: tool di annotazione semiautomatica del parlato emotivo da integrare con ASR Loquendo in Italiano.

4. Avatar su Wonderland project da associare a Jason o Jade.

4.1. modellizzazione tratti di personalita'

4.2. modellizzazione stato emotivo dell'agente

4.3. riconoscimento attitudine sociale di un altro avatar (2 punti: modello social attitude di nicole e integrazione con reasoning dell'avatar)

4.4. gestione del dialogo

4.5. creazione di un 3d space condiviso (gioco?) con lo scopo di raccogliere un corpus di dialoghi in un dominio particolare.

5. Agenti di Help: adattamento del livello di aiuto e autonomia alla delega riconosciuta dell'utente (da fare)

6. NICA: The development of Ambient Intelligence (AmI) solutions that provide assistance to elderly people in order to improve their quality of life at home is a very fervid research field. In this vision, assistance and care are delegated to the intelligence embedded in the environment. Obviously, technology should not represent a further obstacle in achieving the user goals and therefore, besides providing efficient infrastructures for managing domestic automated services, it is necessary to put the emphasis on human-technology interaction. The environment should provide an easy and natural interface in order to make service fruition effective and adapted to the user needs. In our system we use a robot named NICA (Natural Interaction with a Caring Agent) that aims at increasing the quality of life by acting as a social interface between the user and the home services. NICA, combining the interpretation of the user moves (sentences, actions, etc.) and sensors data, provides proactively and reactively the needed assistance. The level of assistance, however, has to take into account not only service provision but also the establishment of social relations. Social and affective factors become even more relevant when the system has to be used by elderly people since they need not only service-oriented assistance but also a friendly companion. In our opinion these aspects become even more relevant when media are not boxed in a desktop computer but are integrated pervasively in everyday life environments.

In developing the architecture of NICA, besides developing a way to control smart services, we had to consider **social factors**, that are normally an issue when referring to people everyday situations, and **affective factors**, which are proved to enhance the effectiveness and believability of the interaction especially when it happens through a natural dialog with an artificial entity.

As far as social and emotional intelligence is concerned, this is related to the capabilities of the robot of: i) interacting with humans in a natural way through, for instance, the comprehension of multimodal communication typical of humans, ii) recognizing their social and affective attitude towards the artificial entity, towards the environment and people in the environment, iii) recognizing the affective state of the user in order to answer in the appropriate way, iv) communicating and conveying social and affective signals that are typically recognized by humans according to the current situation.

NICA, acting as a mediator between the user and the environment, provides a natural interface to C@sa services. However NICA is not acting merely as a microphone and a set of speakers shaped as a robot but it tries to establish a social relation with the user by achieving its persistent long term goals (i.e. keeping the wellness state of the user) and, at the same time, by handling the reaction to changes in the current context in order to infer contingent user goals and needs. We focus on the integration of a social and affective reactive layer in the robot deliberative architecture. To test our approach we decided to use LegoMindStorm for embodying NICA and at present we simulate the interaction with the user and the environment using a simulation tool and the robot is acting in a “toy” house. However, in our approach we separate the mind from the body using the same approach we adopted in and therefore we can easily change the body of our robot with another one.

<http://cmt.math.unipr.it/woa09/papers/DeCarolis.pdf>