Séminaire ISIR

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Stacy Marsella

Campus Jussieu, 4 place Jussieu, Paris
Salle 105 (1er étage tour 25-26)

PsychSim - a retrospective and prospective on modeling social behavior as simulation

Abstract : People are embedded within a rich social environment that both influences their interactions as well as grows out of those interactions. Research has increasingly relied on computational modeling and simulation to study the complex interplay between the individual and the social environment. Computational models have also helped to realize a range of applications such as virtual humans for social skills training where the learner explores high-stress social interactions in the safety of a virtual social environment.

In seeking to model social behavior within a computational architecture, one faces a wide range of factors that influence social interaction. If these factors are treated as distinct components in a model, this can lead to a complexity that make models less revealing as research tools and less manageable in application use. This lead David Pynadath and myself to a minimalist, perhaps radical view, of social interaction that explores whether the wide array of factors identified in the literature as influencing social interaction derive from a simple common mechanism. We have argued that (a) predictive simulations are the basic mechanism that guides a person's interaction with, and beliefs about, others and (b) the factors or biases that influence a person's social interaction, and beliefs about the social environment, are a product of those simulations.

The basis of the simulations are through a person's beliefs about self and others, a Theory of Mind. Theses beliefs about others are realized as distinct encapsulated simulation objects, agent-based models of others, that can be composed into multi-agent simulations that serve to guide not only the person's behavior but are also used to maintain the beliefs about others, the simulation objects themselves. The core of the minimalist agenda is that the various factors that influence the agent's social interaction and decision-making generally, such as trust, liking, framing effects, motivated inference and emotions, are byproducts of using and maintaining these simulation objects, as opposed to being distinct modeling components.

In this talk, I begin by contrasting this prediction view with the approach we have typically used to model virtual humans. I will then briefly touch on some of our prior work within this framework on realizing the range of factors that influence social interaction. Finally i will discuss some recent efforts on modeling emotion perception as a form of prediction.

Short bio : Stacy Marsella is a professor in Computer Science and Psychology at Northeastern University. His research interests include the computational modeling of human cognitive, emotional and social behavior as well as the application of these models to a range of applications including virtual humans and social simulations.

Institut des Systèmes Intelligents et de Robotique
UPMC – CNRS / UMR 7222
Pyramide Tour 55 - Boîte courrier 173
4 Place Jussieu – 75252 PARIS cedex 05 – France
Tél. : +33 (0)1 44 27 51 31 / 51 41
Fax : +33 (0)1 44 27 51 45