

# Greta, an Interactive Expressive Embodied Conversational Agent

Catherine Pelachaud  
Director of Research CNRS  
LTCI, TELECOM ParisTech  
catherine.pelachaud@telecom-paristech.fr

## Abstract

Greta is an interactive Embodied Conversational Agent platform. It is endowed with socio-emotional and communicative behaviors. Through its behaviors, the agent can sustain a conversation as well as show various attitudes and levels of engagement.

Through the years, we have integrated all our research in the Greta platform. By applying different methodologies, based on corpus analysis, user-centered, or motion capture, we have enriched the agent's palette of multimodal behaviors. We have conducted various studies to simulate communicative behaviors, emotional behaviors, social attitudes and behavior expressivity. In particular we have proposed models to go beyond the prototypical expressions of emotions. Through its behaviors patterns, the agent can display complex emotions such as masking one expression of emotions by another ones, its relationship towards its interlocutors, specific social signals such as smile and laughter. In an interaction, the agent can be a speaker or a listener. It can exhibit backchannels, mimic on the fly its interlocutor's behaviors. To develop our models, we rely on theoretical models from social psychology literature and on data analysis.

After describing our platform, we will first review our rationale; then we will introduce our model of socio-emotional behaviors. Finally we will present experiments where we measure the impact of the agent's copying behaviors on the user's level of engagement.

## ACM Classification

H.5.1 Information Systems Applications [Multimedia Information Systems]: Artificial, augmented, and virtual realities; I.2.11 Artificial Intelligence [Distributed Artificial Intelligence]: Intelligent Agents;

## Keywords

Embodied Conversational Agent; Multimodal behaviors; Socio-emotional agent



## Short Bio

Catherine Pelachaud is a Director of Research at CNRS in the laboratory LTCI, TELECOM ParisTech. She participated to the elaboration of the first embodied conversation agent system, GestureJack, with Justine Cassell, Norman Badler and Mark Steedman when being a post-doctorate at the University of Pennsylvania. She went to Università di Roma "La Sapienza" with a Marie-Curie CEE scholarship. Her research interest includes embodied conversational agent, nonverbal communication (face, gaze, and gesture), expressive behaviors and socio-emotional agents. With her research team, she has been developing an interactive virtual agent platform GRETA that can display socio-emotional and communicative behaviors. She has been involved and is still involved in several European projects related to believable embodied conversational agents, emotion and social behaviors. She is associate editors of several journals among which IEEE Transactions on Affective Computing, ACM Transactions on Interactive Intelligent Systems and Journal on Multimodal User Interfaces. She has co-edited several books on virtual agents and emotion-oriented systems. She participated to the organization of international conferences such as IVA, ACII and AAMAS, virtual agent track.