

PhD Thesis **Thomas JANSSOONE**

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Title: Multimodal analysis and recognition of social signals: application to social stance generation in virtual agents (ISIR-LTCl)

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Abstract:The Image and Signal processing department of Telecom-ParisTech (<http://www.tsi.telecom-paristech.fr/en/>) and the ISIR Institute (Institute for Intelligent Systems and Robotics<http://www.isir.upmc.fr/?lang=en>) from UPMC (Université Pierre et Marie Curie) are looking for a PhD candidate to carry out research on the analysis of visual features (facial expression and head movements, see Nicolle & Bailly, 2012) and audio features (linguistic and prosodic, see Clavel & Richard, 2011) characterizing social stances, such as dominance (Burgoon, 1999) (Ravenet, Ochs & Pelachaud, 2013) . In particular, the PhD will study the various timing and sequencing of the features coming from the different modalities. The long run goal is to integrate these features in a model for the production of social stances in an Embodied Conversational Agents (ECA).

The work will be carried out within the context of the Sense project (<http://www.smart-labex.fr/index.php?perma=SeNSE>). The project focuses on socio-emotional signals in interactions and deals with research issues covering the signal capture (audio, video, neurophysiologic), the socio-emotional signal interpretation and modelisation and its exploitation (virtual agents, musical interaction, group of persons). The model developed through the project will be evaluated through realistic scenarios.

Some references:

Judee K Burgoon and Beth A Le Poire. Nonverbal cues and interpersonal judgments: Participant and observer perceptions of intimacy, dominance, composure, and formality. *Communication Monographs*, 66(2):105–124, 1999.

Clavel, C., & Richard, G. (2011). Recognition of acoustic emotion. *Emotion-Oriented Systems*, 139-167.

Nicolle, J., Rapp, V., Bailly, K., Prevost, L., & Chetouani, M. (2012, October). Robust continuous prediction of human emotions using multiscale dynamic cues. In *Proceedings of the 14th ACM international conference on Multimodal interaction* (pp. 501-508). ACM.

B Ravenet, M Ochs, and C Pelachaud. From a User-Created Corpus of Virtual Agent's Non-Verbal Behavior to a Computational Model of Interpersonal Attitudes. In *To appear in the proceedings of the Intelligent Virtual Agents (IVA) conference*, 2013.

R. Niewiadomski, E. Bevacqua, M. Mancini, and C. Pelachaud. Greta: an interactive expressive ECA system. In *Proceedings of the 8th International Conference on Autonomous Agents and Multiagent Systems - Volume 2, AAMAS '09*, 2009