Keynote: Modeling Human Communication Dynamics

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Abstract:

Human face-to-face communication is a little like a dance, in that participants continuously adjust their behaviors based on verbal and nonverbal cues from the social context. Today's computers and interactive devices are still lacking many of these human-like abilities to hold fluid and natural interactions. Leveraging recent advances in machine learning, audio-visual signal processing and computational linguistic, my research focuses on creating computational technologies able to analyze, recognize and predict human subtle communicative behaviors in social context. I formalize this new research endeavor with a Human Communication Dynamics framework, addressing four key computational challenges: behavioral dynamic, multimodal dynamic, interpersonal dynamic and societal dynamic. Central to this research effort is the introduction of new probabilistic models able to learn the temporal and fine-grained latent dependencies across behaviors, modalities and interlocutors. In this talk, I will present some of our recent achievements modeling multiple aspects of human communication dynamics, motivated by applications in healthcare (depression, PTSD, suicide, autism), education (learning analytics), business (negotiation, interpersonal skills) and social multimedia (opinion mining, social influence).

Speaker's Bio:

Louis-Philippe Morency is Assistant Professor in the Language Technology Institute at Carnegie Mellon University where he leads the Multimodal Communication and Machine Learning Laboratory (MultiComp Lab). He was formely research assistant professor in the Computer Sciences Department at University of Southern California and research scientist at USC Institute for Creative Technologies. Prof. Morency received his Ph.D. and Master degrees from MIT Computer Science and Artificial Intelligence Laboratory. His research focuses on building the computational foundations to enable computers with the abilities to analyze, recognize and predict subtle human communicative behaviors during social interactions. In particular, Prof. Morency was lead co-investigator for the multi-institution effort that created SimSensei and MultiSense, two technologies to automatically assess nonverbal behavior indicators of psychological distress. He is currently chair of the advisory committee for ACM International Conference on Multimodal Interaction and associate editor at IEEE Transactions on Affective Computing.

Proceedings of the SIGDIAL 2016 Conference, page 263,
Los Angeles, USA, 13-15 September 2016.