Empowering Human-Robot Dialogue by Affective Computing Research

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Societal challenges, such as an ageing population, have created the need for a new generation of robots hat are able to smoothly interact with people in their daily environment. Such robots require a significant amount of social intelligence including the capability to be attentive to the user's emotional state and respond to it appropriately. In the past ten years, a significant amount of effort has been dedicated to explore the potential of affective computing in human interaction with humanoid robots. On the one hand, robust techniques are researched that recognize emotional states from multi-sensory input, such as facial expressions, gestures and speech. On the other hand, mechanisms are under development that generate and display emotional states of robots, for example, by deformations of synthetic skin. In my talk, I will describe various computational approaches to implement empathic behaviors in a robot. Besides analytic approaches that are informed by theories from the cognitive and social sciences, I will discuss empirical approaches that enable a robot to learn empathic behaviors from recordings of human-human interactions or from life interactions with human interlocutors.