Robots: Perceiving, Interacting, Collaborating

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The integral ability of any robot is to act in the environment, interact and collaborate with people and other robots. Interaction between two agents builds on the ability to engage in mutual prediction and signaling. Thus, human-robot interaction requires a system that can interpret and make use of human signaling strategies in a social context. In such scenarios, there is a need for an interplay between processes such as attention, segmentation, object detection, recognition and categorization in order to interact with the environment. In addition, the parameterization of these is inevitably guided by the task or the goal a robot is supposed to achieve. In this talk, I will present the current state of the art in the area of robot perception and interaction and discuss open problems in the area. I will also show how visual input can be integrated with proprioception, tactile and force-torque feedback in order to plan, guide and assess robot’s action and interaction with the environment.

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