Karlsruhe Institute of Technology

Contribution ID: **3** Type: **not specified**

Robots: Perceiving, Interacting, Collaborating

Wednesday, October 6, 2021 12:00 PM (1 hour)

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.

<h1>Bio</h1>

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Danica Kragic is a Professor at the School of Computer Science and Communication at the Royal Institute of Technology (KTH). She received M.Sc. in Mechanical Engineering from the Technical University of Rijeka, Croatia in 1995 and PhD in Computer Science from KTH in 2001. She has been a visiting researcher at Columbia University, Johns Hopkins University and INRIA Rennes. She is the Director of the Centre for Autonomous Systems. Danica received the 2007 IEEE Robotics and Automation Society Early Academic Career Award. She is a member of the Royal Swedish Academy of Sciences, Royal Swedish Academy of Engineering Sciences and Founding member of Young Academy of Sweden. She holds a Honorary Doctorate from the Lappeenranta University of Technology. She chaired IEEE RAS Technical Committee on Computer and Robot Vision and served as an IEEE RAS AdCom member. Her research is in the area of robotics, computer vision and machine learning. In 2012, she received an ERC Starting Grant, in 2019 Distinguished Professor Grant from the Swedish research Council and ERC Advanced Grant. Her research is supported by the Knut and Alice Wallenberg Foundation, Swedish Foundation for Strategic Research, EU and Swedish Research Council.

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Session Classification: Keynotes