April 5th, 2024

To: CoR staff  
 RO/VE/BR/HI students

Subject: **Student Colloquia Cognitive Robotics**

We are pleased to invite you to attend the literature and introductory colloquia:

**Monday April 15th, 13.45-15.45**  
 TU Delft ME hall E

1. **13.45–14.15 hrs Leonoor Verbaan**
2. **14.15–14.45 hrs Alon Dawe**
3. **14.45–15.15 hrs Jingwen Tang**
4. **15.15–15.45 hrs Fernando Corte Vargas**

**(15.15)** **Fernando Corte Vargas**

**Title: Designing Emotionally Expressive Behaviors for an Appearance-Constrained Robot**

**Abstract:**

How can robots without expressive faces or bodies convey emotions? Why would it be useful if robots could express emotion? In the context of human-robot interaction, could emotional expression lead to a greater comprehension of robotic behaviors and intents? These are questions addressed by the field of affective robotics, which seeks to develop and establish naturalistic social interaction between robots and humans. Emotions can provide a natural communication modality to augment the multi-modal capabilities of social robots in a variety of domains. Historically, the emphasis in the field has been on facial and bodily expressions, relying heavily on anthropomorphic or zoomorphic robot appearances. This presents a challenge, as most robots are designed with functionality in mind, often lacking expressive faces and bodies, which limits their ability to effectively convey emotions. This study focuses on reviewing the existing literature on the design of emotionally expressive behaviors for appearance-constrained robots. The underlying analysis reveals that this type of robots can effectively convey emotions through abstract affective expressions. Concretely, specific features of modalities such as motion, light, and sound possess unique affective qualities, which, when integrated in multimodal configurations, lead to affect attribution. By filtering the affective characteristics of each feature using a bottom-up approach, the design process for emotionally expressive behaviors used in appearance-constrained robots can be improved.

*Supervisors: Jens Kober, Joost Broekens, Bernhard Hilpert*