

## MeTA: Mediated Touch and Affect

Gijs Huisman  
*Human Media Interaction Group*  
*University of Twente*  
gijs.huisman@utwente.nl

Nadia Bianchi-Berthouze  
*UCL Interaction Centre*  
*University College London*  
n.berthouze@ucl.ac.uk

Dirk Heylen  
*Human Media Interaction Group*  
*University of Twente*  
d.k.j.heylen@utwente.nl

**Keywords-mediated touch; haptics; affect.**

### I. ABSTRACT

The sense of touch is the first sense to develop in the human fetus, and plays a central role in the earliest interactions of infants with their surroundings. In later life, the tactile sense allows us to feel shapes, textures, temperatures, and pain, and we use these sensations to haptically explore the world around us, manipulate objects, and operate tools. However, touch can also be hedonically pleasant, such as the smooth feel of a finely crafted piece of wooden furniture, or the subtleness of a silk dress. Moreover, touch is a central modality in human-to-human communication. Social touch, as it occurs between humans, can serve as an intensifier of emotional displays from other modalities, and can be used to communicate discrete positive or negative emotions. Moreover, social touch can have effects on compliance to requests, and can have stress reducing effects.

Recent advances in haptic technology have spurred the development of interfaces and prototypes that aim to mediate touch in a broad sense. For example, advanced, six degrees-of-freedom force feedback joysticks for remote surgery, game controllers that give vibrotactile feedback about occurrences in a game, vibrotactile pens that can generate different texture sensations, and hugging vests that can deliver a hug at a distance. Haptic feedback offers a viable approach for adding a rich affective channel to interaction with digital systems, and for remote communication. Furthermore, haptic feedback may offer new opportunities for affective communication with robots and virtual agents. While haptics research has known a strong tradition of studying the use of haptic interfaces for tele-operation uses, the study of affective consequences of haptic feedback is relatively novel. Some studies have already demonstrated that affective states and discrete emotions can be communicated through haptic feedback, that haptic feedback can enhance feelings of social presence in collaborative settings, and that haptic sensations can change product perceptions. However, considerable work still remains in the empirical study of affective consequences of mediated touch, as well as the exploration of new interaction possibilities with haptic feedback, and the exploration of novel application areas.

The main aim of this first workshop on Mediated Touch and Affect (MeTA) is to bring together researchers from diverse communities, such as affective computing, haptics, augmented reality, communication, design, psychology, human-robot interaction, and telepresence. The goal is to discuss the current state of research on mediated touch and affect and to formulate a research agenda for future directions in research on aspects of the touch-technology-affect triangle (as it is exemplified in mediated social touch). The central question here is how touch can best be mediated in order to elicit particular affective responses in the recipient of the touch, considering different contextual factors. During the workshop we will consider questions related to human tactile perception (e.g. how do people perceive different tactile stimulations?), haptic technology (e.g. how can actuators be used to simulate touch?), and affective responses (e.g. how do people respond affectively to tactile sensations?). The workshop will focus on oral presentations of submitted work and will use these presentations as input for the discussion of different topics related to mediated touch and affect. Furthermore, we will highlight good case studies, reflect on the methodological issues, and brainstorm about applications.

### ACKNOWLEDGMENT

We would like to thank the members of the program committee for their reviews of the submissions: Jeremy Bailenson, Frédéric Bevilacqua, Adrian Cheok, Jan van Erp, Alberto Gallace, Daniel Gooch, Antal Haans, Wijnand Ijsselstein, Karon MacLean, Hendrik Richter, Thomas van Rompay, Rick Schifferstein, Ana Tajadura-Jiménez, Dzmitry Tsetsrukou.