

Touching Virtual Agents - Embodiment and Mind

-Kick-off presentation summary-

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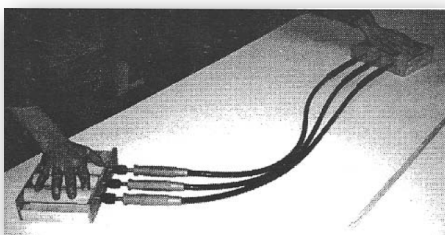
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When asked to describe the feeling of hold hands with a stranger in public, such as during a presentation, people will mostly respond by saying that it feels “warm”, “sweaty”, and “awkward”. The first two sensations are examples of discriminative touch: the way we use our tactile sense to discriminate between different tactile sensations. We can feel the shape, texture, and temperature of objects, and, using these sensations, we can manipulate tools. The “awkwardness” of holding hands with someone in public is not due to these discriminative sensations per se. It is awkward to hold hands with a stranger in public because you are holding the hand of a person. Clearly, touch has strong social connotations. This is what is referred to as social, or interpersonal touch. Research in psychology has demonstrated that social touch can affect compliance to requests, can have stress reducing effects, and can be used as a way to communicate affect (Gallace & Spence, 2010).



Brave & Dahley (1997)



Teh et al. (2012)



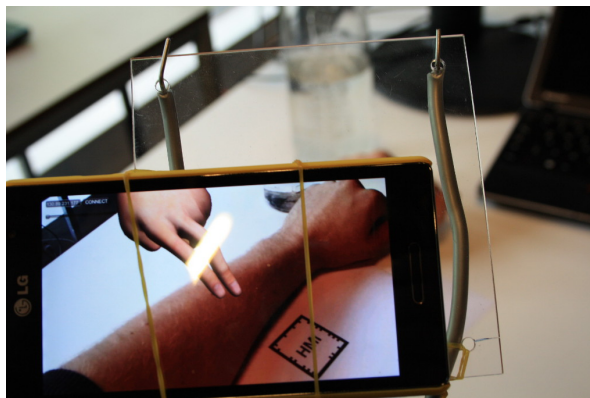
Huisman et al. (2013)

Social touch does not only occur in co-located space, but can also be mediated through technology (Haans & Ijsselsteijn, 2006). For example through manipulation of a shared object, hugging vests, or vibrotactile sleeves. There is some evidence to support the notion that mediated social touch can have effects similar to co-located social touch (Haans & Ijsselsteijn, 2006).



Bickmore et al. (2010)

In the current project we are interested in finding out what happens if there is no human in the loop at all. Do people still experience social touch if they are touched by a virtual character that is controlled by a computer? We use the term “simulated social touch” to denote those interactions where the human is touched by a virtual character through haptic feedback technology, and/or can touch a virtual character by using touch sensors. We propose a setup that combines a virtual agent displayed on a computer monitor, with an augmented reality virtual hand application running on a tablet, and a vibrotactile sleeve worn by the user. In order to touch the user, the virtual agent will be able to move towards the user, at which point the virtual hand will be visible on the tablet, and a touch will be felt through the vibrotactile sleeve.



Jan Kolkmeier

The main challenges that we see for this project revolve around the question of how we can create believable agent touch behaviors. This involves creating appropriate agent body movements, that are in sync with the movements of the virtual hand and tactile sensation. Furthermore the type of haptic feedback might be of influence on the perception of the touch. Finally, the agent’s affective stance (e.g. a happy versus an angry agent) could influence to perception of the touch. All of this needs to be considered when creating the proposed setup, as well as during user studies to be carried out during the project.

References

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