

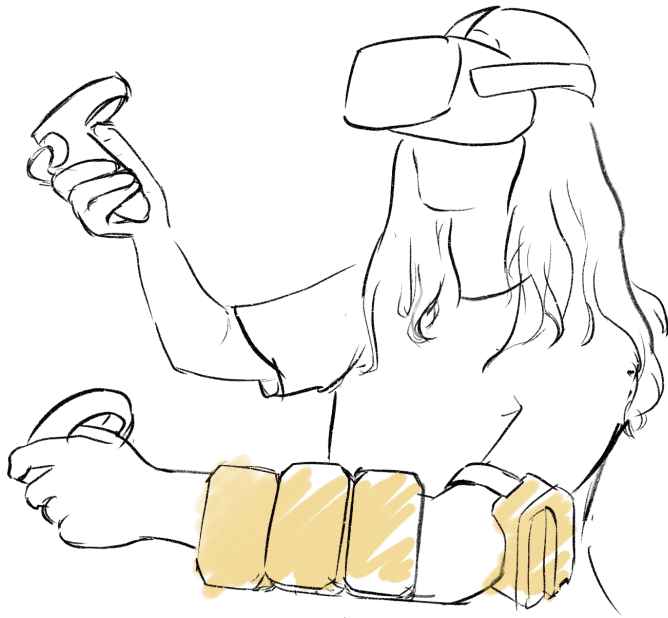
TactorBots Booklet

About You

Name _____

Area of Research or Design Practice

Applications for TactorBots



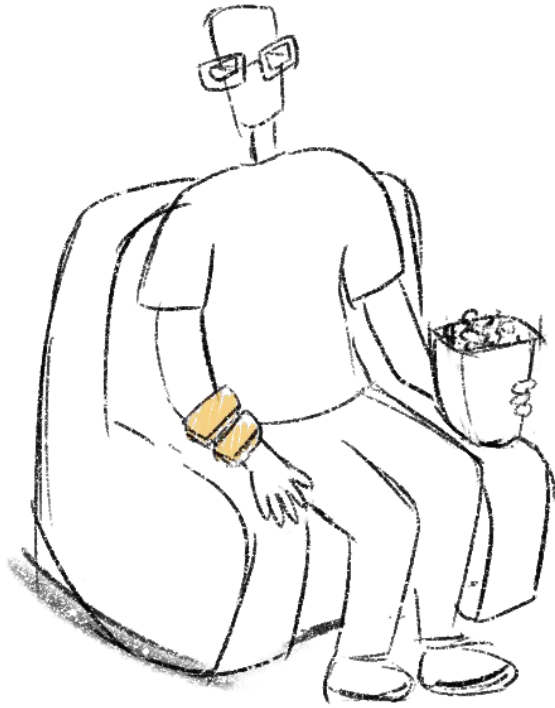
Expressive Virtual Agent

Casey designed a game with a companion agent in virtual reality, which shows an awareness of the virtual environment and expresses its emotion through visual, auditory channels in the virtual world as well haptic cues in the physical world. In delightful situations, there may be cheery visual feedback from the agent, while the physical feedback emulates corresponding happiness. In scary scenes, it communicates fear to the player by squeezing their arm, trembling. The agent can perform patting gestures with tactile stimulations for encouragement on completing large missions or when saying goodbye.

Related demo for our previous work: <https://vimeo.com/466910443>

- Are there other VR scenarios that you envision for similar emotional robotic touch?
- In the demo video, the virtual agent is mounted on the forearm to match the robot's behavior, which may restrict the design and interaction of the agent. Do you have any suggestions for other form factors?

Leave your comment

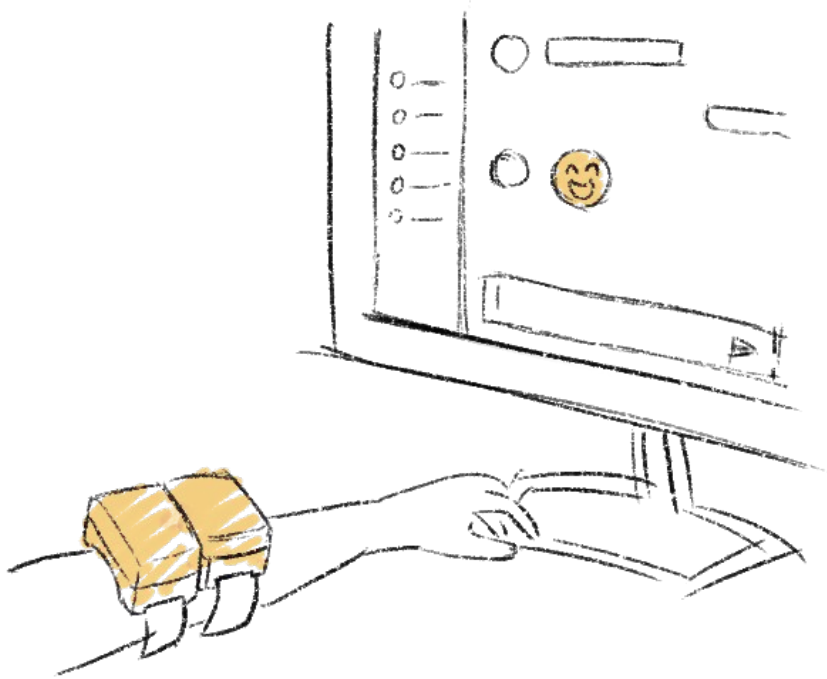


Affective Haptics in Movie Experience

Bill used TactorBots to create affective touches and developed a system that can track the mood in the movie scenes. The haptic robot will touch him to convey the corresponding emotions while he is watching a movie. The tactor's behaviors are changing based on the story's progression. For instance, it conveys happiness by shaking briskly when the protagonist accomplishes a goal, squeezes his arm with trembling when the screen turns dark and creepy music plays. It holds Bill's arm tight to convey tension when the story reaches a climax.

- Imagine you are watching a movie with this setting. What kind of role do you prefer the haptic robot to perform? Should it act like a friend watching the movie with you? Or an extension of a movie character?
- Any ideas about alternative form factors for such an affective haptic device?

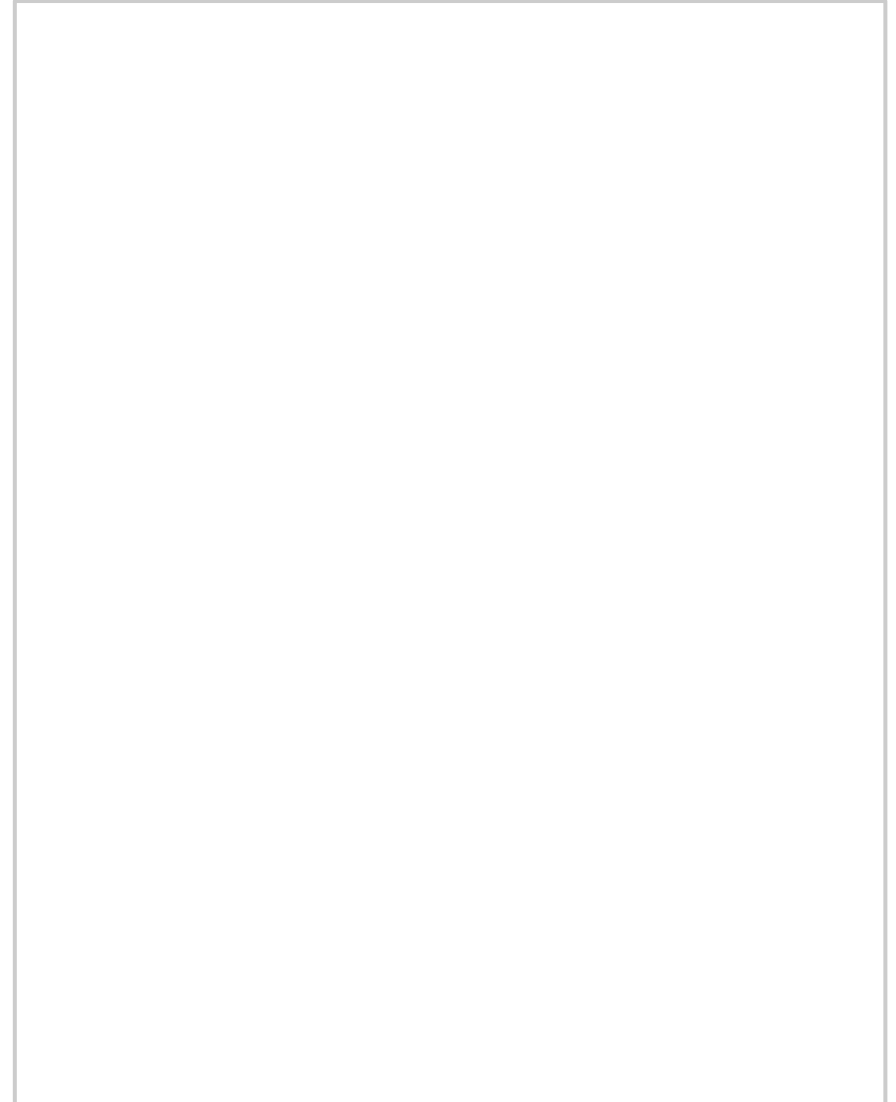
Leave your comment



- Do you think it can be appropriate for chatting between strangers? Or friends only?
- What are the potentials for such communication during online conference or live streaming?

Haptic Emoji in Online Chatting

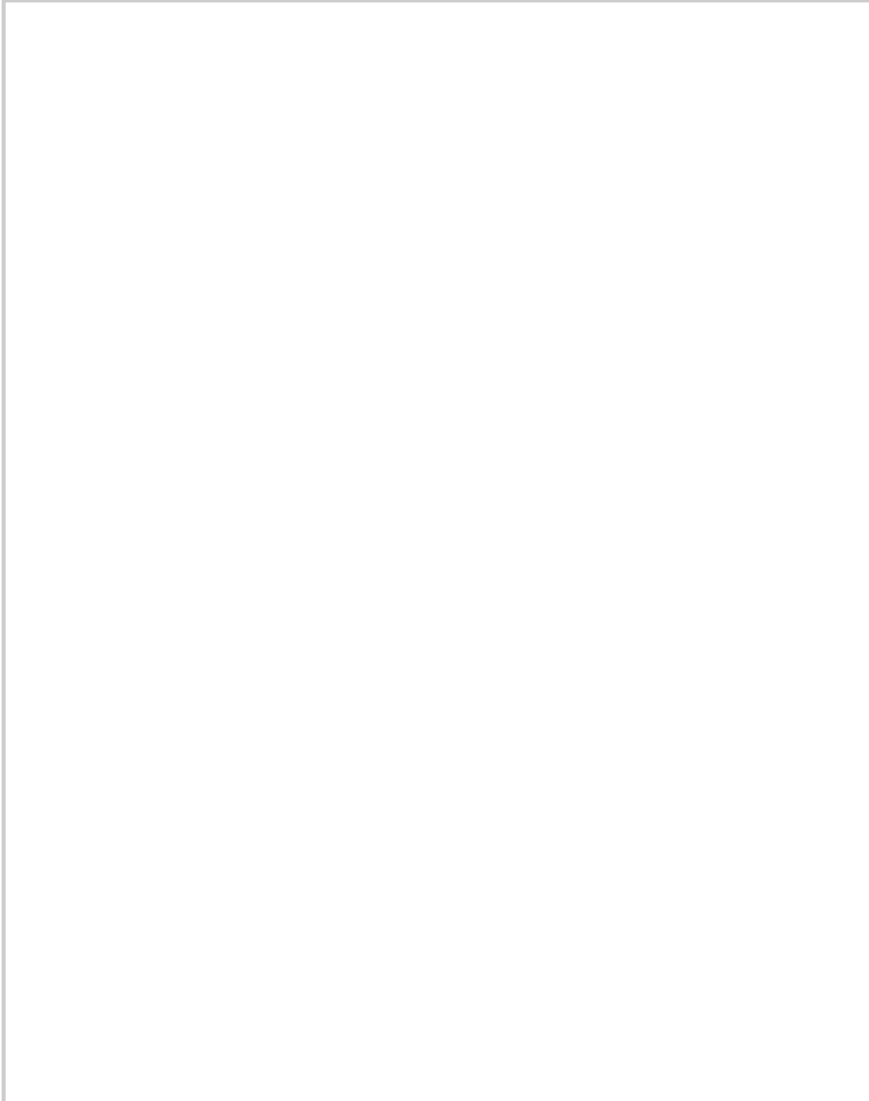
The invention of emojis has made our online chatting more engaging. What if we even could add an additional channel such as haptics in this communication? Mary designed an expressive haptic experience for online chatting by using TactorBots. She created various hapticons (haptic icons) that match popular emojis and stickers. For instance, in one of her chats with a friend, she mentioned how she feels nervous while preparing a presentation for an impending conference. Her friend Lily then replied her with a “hugging face”. At this time, the tactor held her arm simultaneously to reflect a warm embrace. When she finished the presentation, Lily sent her a “happy face” emoji. Mary then perceives a brisk shaking on the wrist from her worn tactors.



Your Application Idea 1

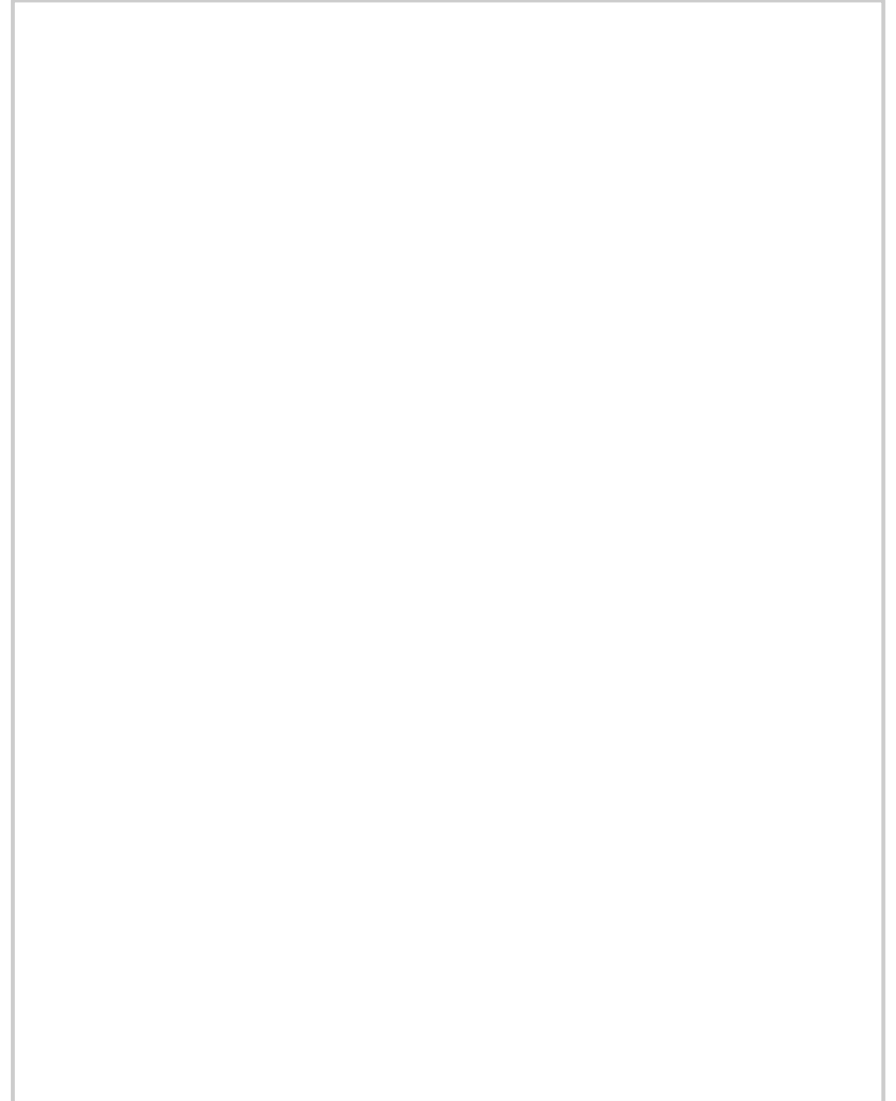
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Leave your sketch and description:



Tip:

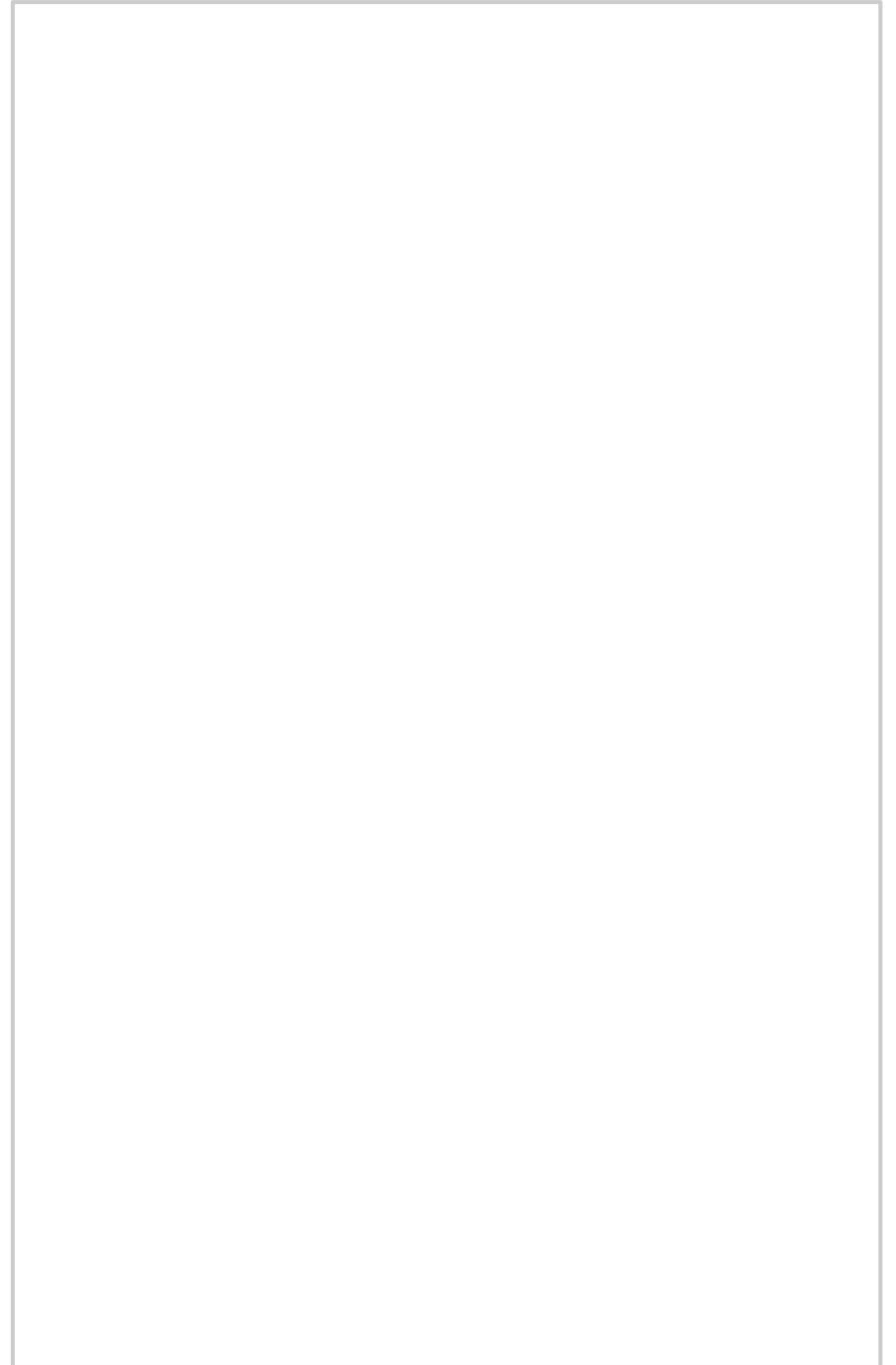
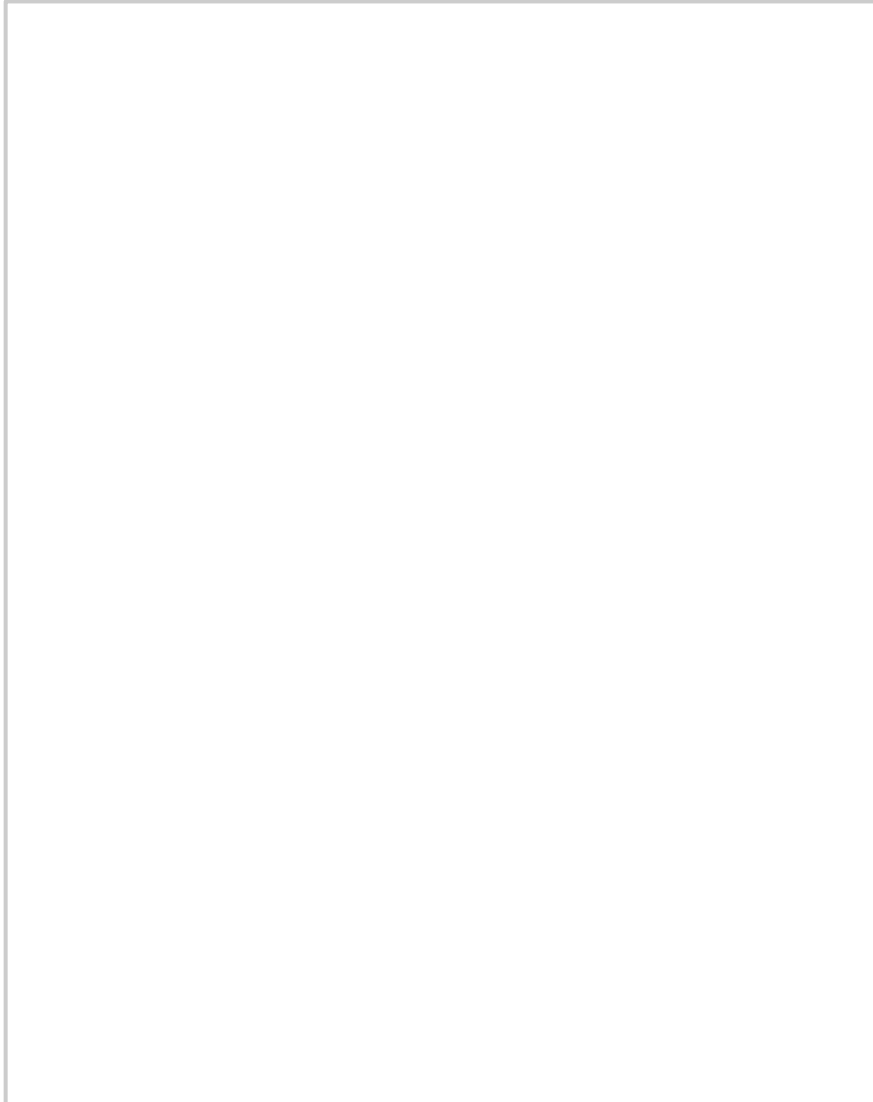
- Can TactorBots be applied to any of your current or previous projects



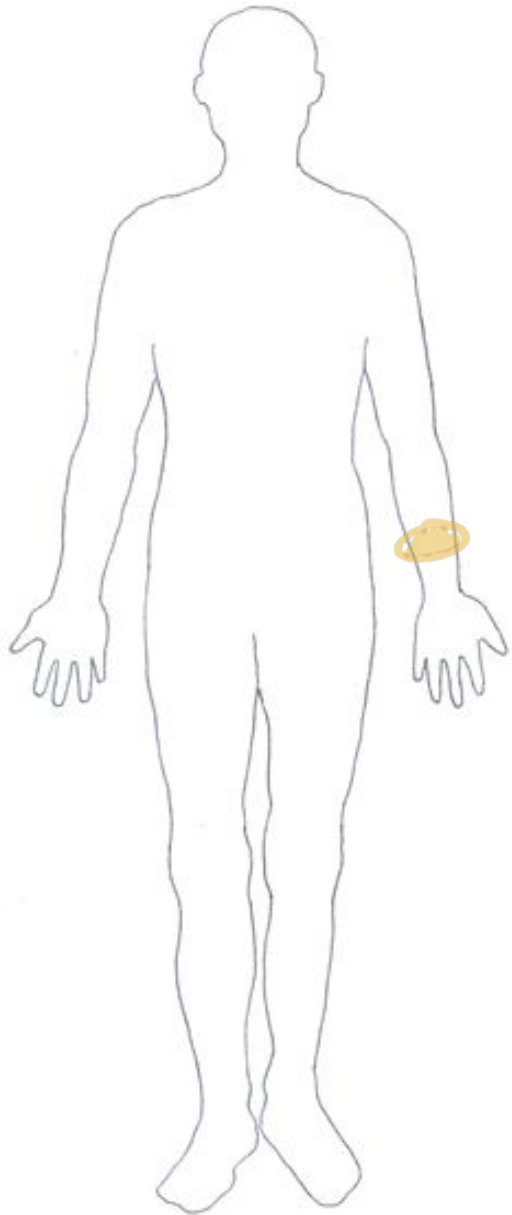
Your Application Idea 2

Title:

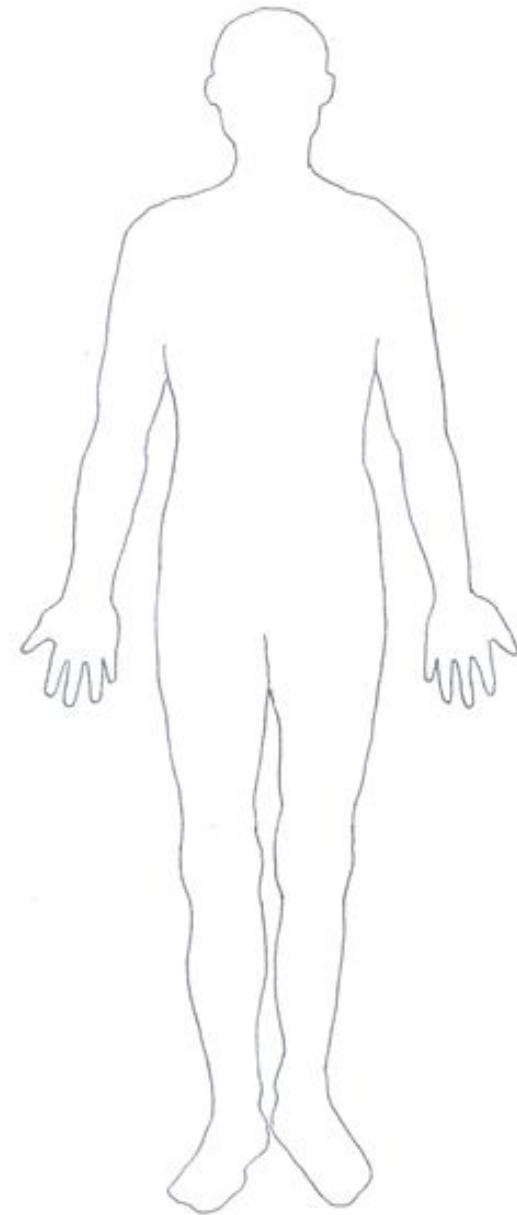
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Front

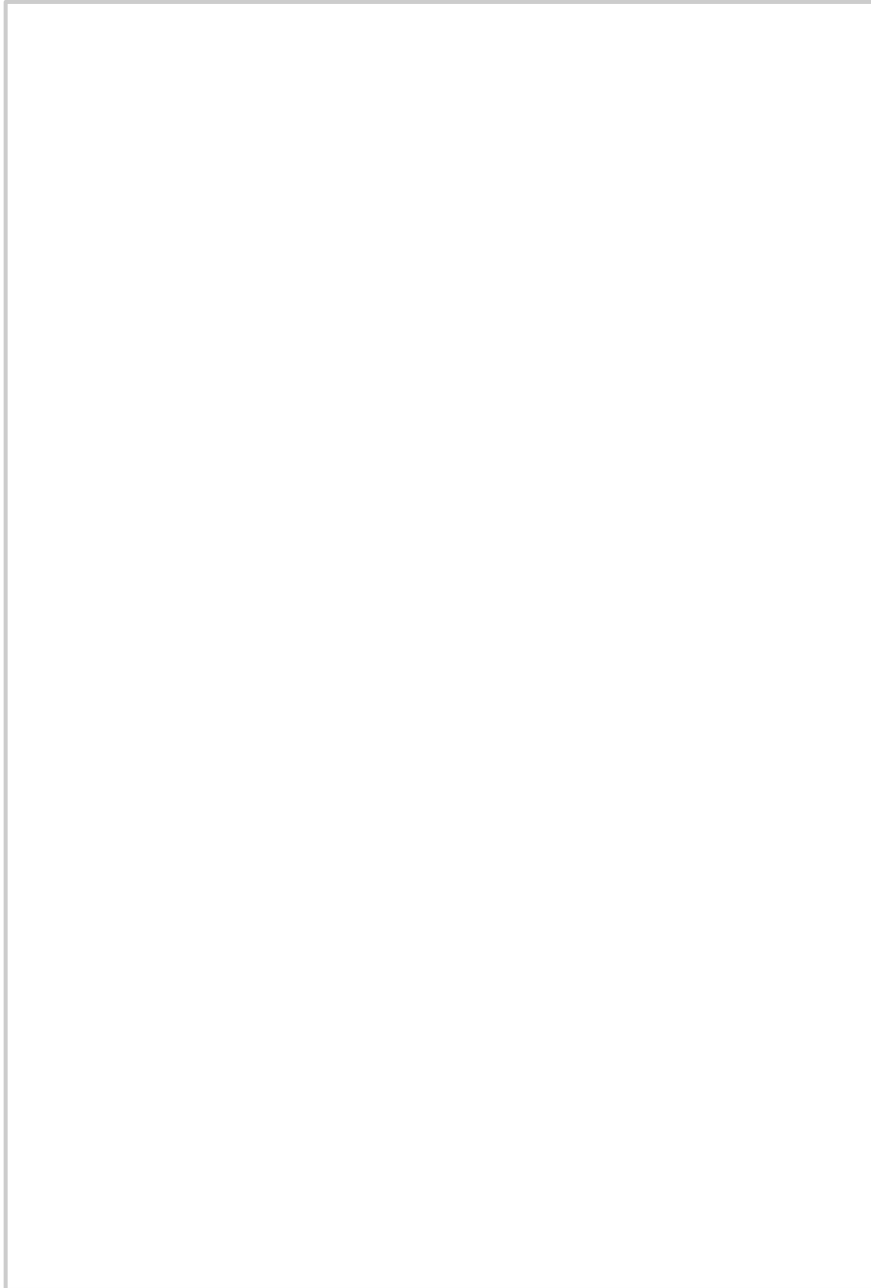


Back



Where would you try to put the TactorBots on body parts other than the forearm? Where do you think can be appropriate for receiving a robotic affective touch? Please mark the body part and briefly describe a related scenario.

Leave your sketch and description:

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Future Applications for Emotional
Robot Touch



Emotional Watch Belt

The belt will not only be a tool for mounting your smartwatch, it is also an output channel that can be expressive. Imagine your smartwatch belt can provide different kinds of notifications to you, gentle tapping for a non-urgent message, strong squeeze for important information, hit or shake anxiously when the deadline is approaching. It may also hold with trembling to show afraid and weak when your watch is running out of power. Also, the emotional watch belt can indicate the content or tone of the information and even the sender with customized hapticons.

- What other information do this such a wristband can communicate?
- Are there other wearables that may embed such functions?

Leave your comment



- What other daily objects that you touch/hold/use around you could be expressive through the haptics?
- Can you create some scenarios for the emotional everyday objects in the future life?

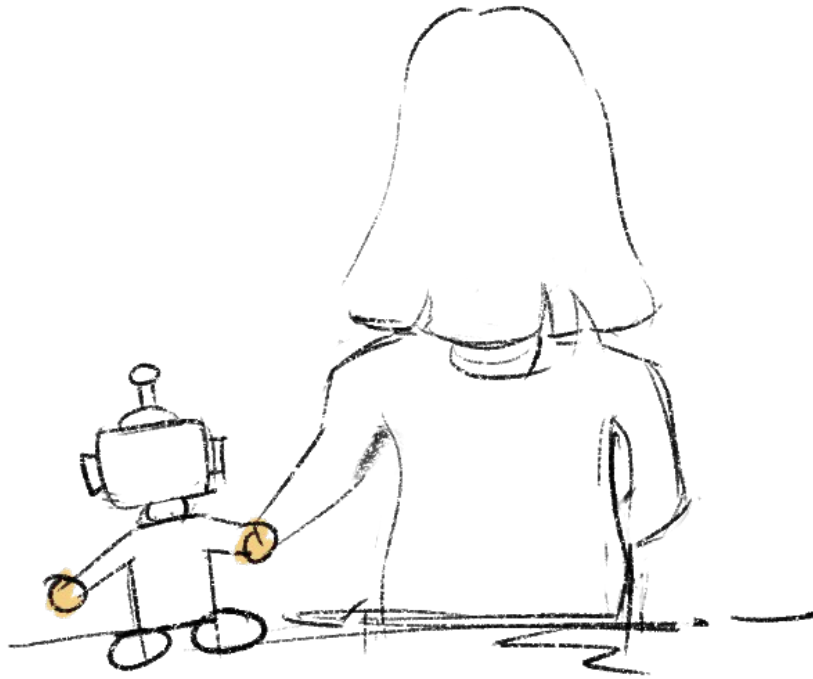
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Emotional Everyday Objects

With emotive haptic technology, we may be able to make our everyday objects expressive.

- For example, when you are watching a horror movie, a cushion that you're hugging may grab your hand nervously, or comfort you by patting based on your situations.

- Your mom doesn't want you to take too many cookies at a time. So she bought a "strict bottle lid", which will tap your hand if you open the jar too many times.



Companion Robot

What if your “Aibo” (robot) dog [1] can show its emotions by touching you with the palms? What if your “Roomba” [2] can contact your foot to express its feelings or to show off its accomplishment? What if there was a teaching robot for kids that will pat the kid to encourage them when faced with some difficult math questions; tap their shoulder to remind them to pay attention; gently tweak their hand to indicate they need to speed up; and shake their hands if they get good grades.

[1] <https://us.aibo.com/>

[2] <https://www.irobot.com/roomba>

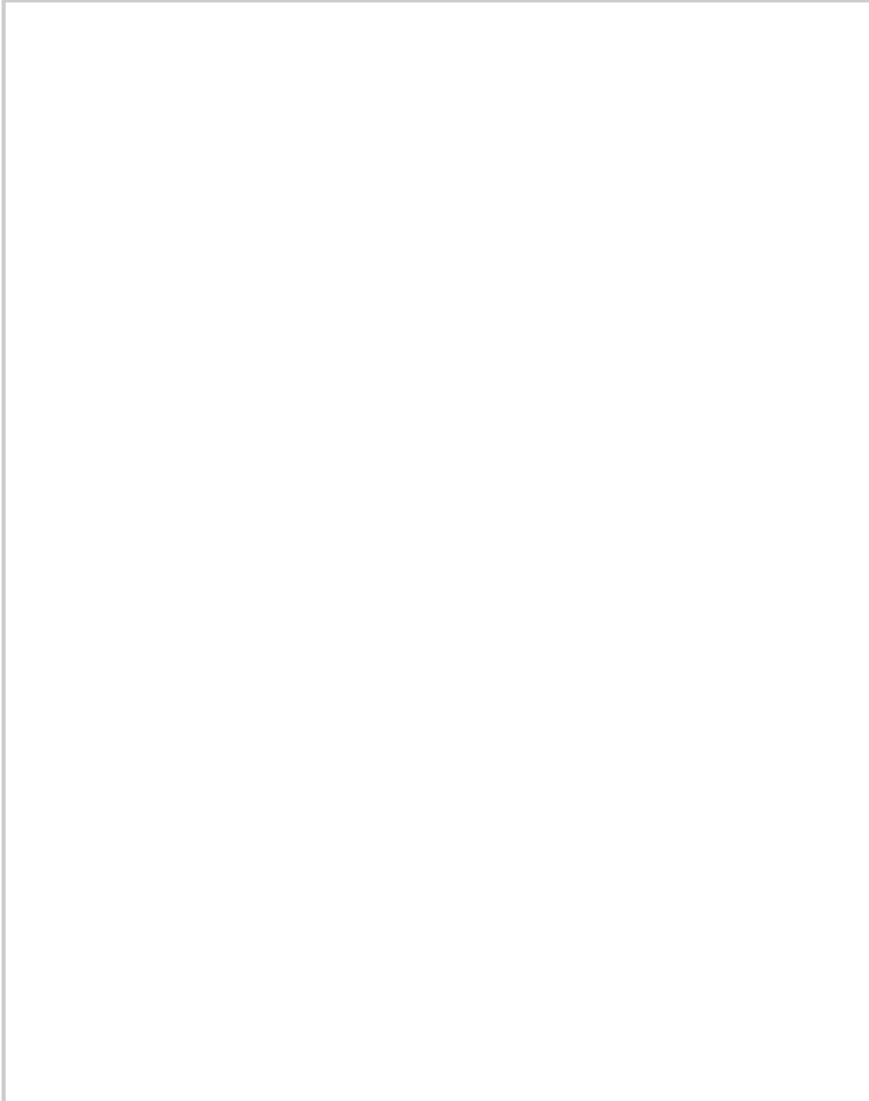
- Can you think about any other scenarios on emotional haptic interactions for companion robots?
- How may you design the robot’s haptic behaviors? For instance, will you prefer replicating human or animal behavior or creating an original haptic language for the robot?

Leave your comment

Your Application Idea 1

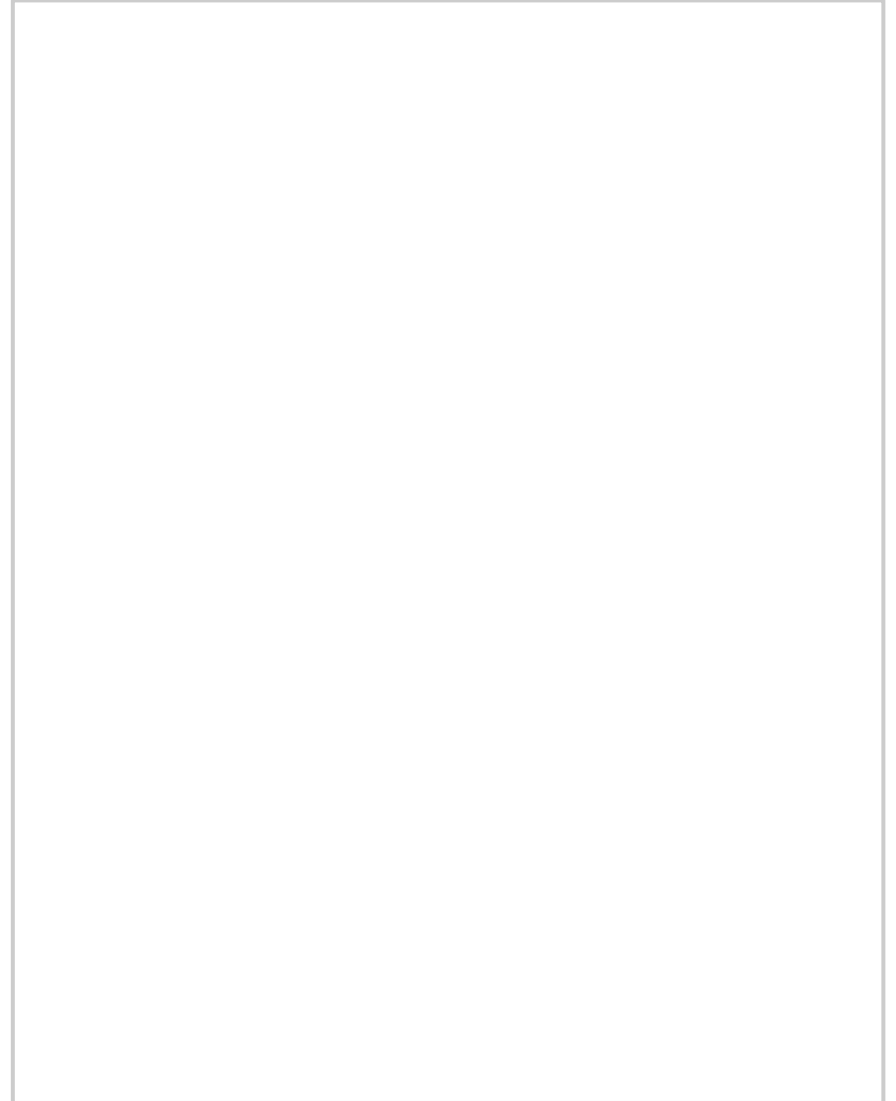
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Tip:

- Does emotional robot touch have any potential connection to your research or design focus?



Your Application Idea 2

Title:

Leave your sketch and description:

