

2024 HAPTICS Cross-Cutting Challenge: Frontiers of Softness

The Role of Softness in Touchable Comfort Objects, from a Diversity of Toucher Perspectives

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Inspired by research findings in neuroscience and behavioural psychology which underscore the importance and mechanisms of touch in human affective state and its relevance to mental health and wellness, we wanted to look at touch from the toucher's view with a design-focused lens. What do people say about how they use touch for self-comfort, and the special objects they have chosen to use? To this end, we recently surveyed 120 individuals in disparate contexts about their "Touchable Comfort Objects" (TCOs): the objects themselves (tactility, design, shape, personal meaning), and the typical touch interactions that contribute to their TCO's ability to provide comfort and help in regulating an emotion. We asked about when they sought interactions with comfort objects, what it entailed, and how they integrated these interactions into their broader emotion-regulation strategies.

Softness is a tactile quality often associated with comfort. Here, we will offer a preliminary look at softness-related survey responses, in the context of a large and rich experiential TCO dataset which we have just begun to analyze, hoping to receive cross-disciplinary input about how others would like to use it. We anticipate that this dataset's chief value will be in offering glimpses of complex interactions among object properties, usage and personalization and provoking further questions about them, with softness being just one of many possible entry points.

Methods & Dataset: In collaboration with an affective psychologist for methodological rigour and input on utility for design of forthcoming mental-health support interventions, we recruited respondents employing 5 different recruitment channels, using sub-quotas to achieve diversity in age, gender, culture, lived experiences, and education. The survey questions assess 70 properties across six categories to capture the multifaceted nature of TCOs: (1) *Object Type and Characteristics*, (2) *Contextual and Personal Factors* that affect object selection and use, (3) *Interaction Preferences*, (4) *Mechanisms and Outcomes* of TCO interaction, (5) *Interpersonal Variations*, and (6) *Design Requirements* to design technology-supported TCOs. Our data consists of responses to 55 categorical and 30 open-ended questions, the latter to undergo thematic analysis. We plan to make this dataset widely accessible by hosting it online together with interactive visualizations that will enable visitors to explore it at will.

For the CCC: We will present (1) a poster outlining the dataset composition, motivation and provenance, and static charts of softness-related results; and (b) preliminary but live, laptop-based sketches of interactive visualizations intended to prime discussion and ideas about what different members of this interdisciplinary audience will see as interesting in this kind of resource, and how they would like to explore it. We see our design-motivated perspective as complementary to traditional approaches in psychometrics and neurophysiology. We hope that this data-driven, experiential view of TCOs and their emotional significance as told with our respondents' voices, entered for now through an inquiry of softness's role in touch self-comfort, will be a unique addition to this event's conversations.

Note: The interactive visualizations will require a table, 2-3 chairs and power for 2-3 laptops to demonstrate interactive visualization sketches.