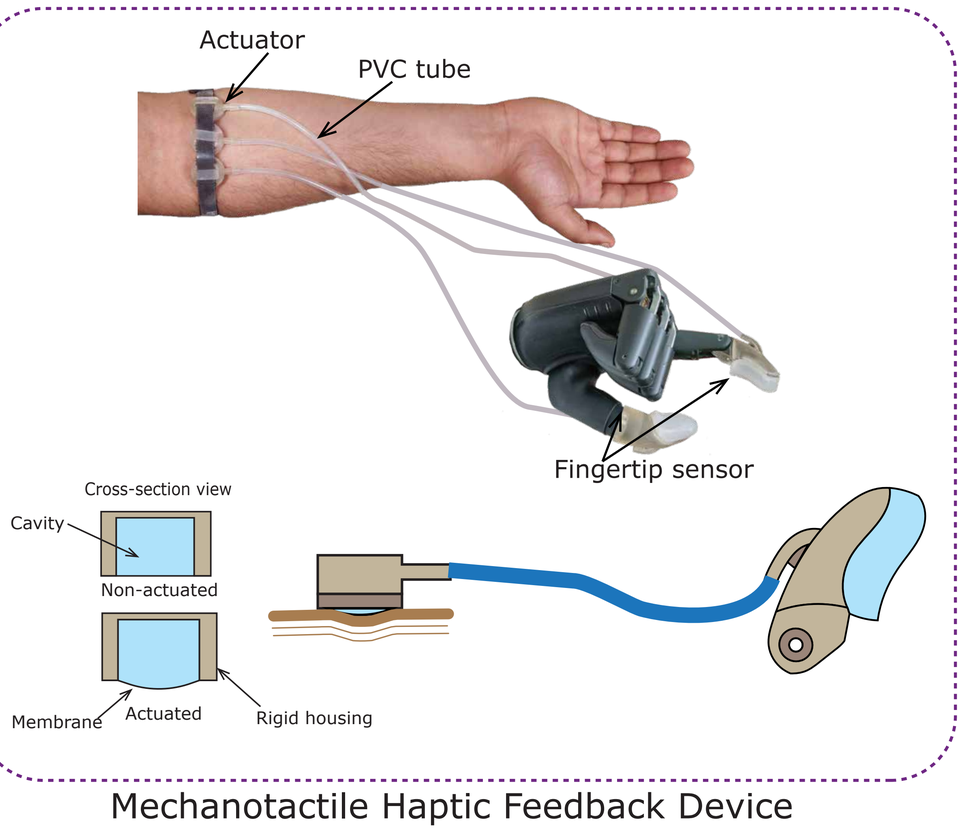
Psychophysical Evaluation of A Mechanotactile Haptic Feedback Device

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Introduction



Mechanotactile Haptic Feedback Device

- Mechanotactile haptic feedback device is purely mechanical system.
- It is a low-cost, lightweight, and highly reliable haptic system.

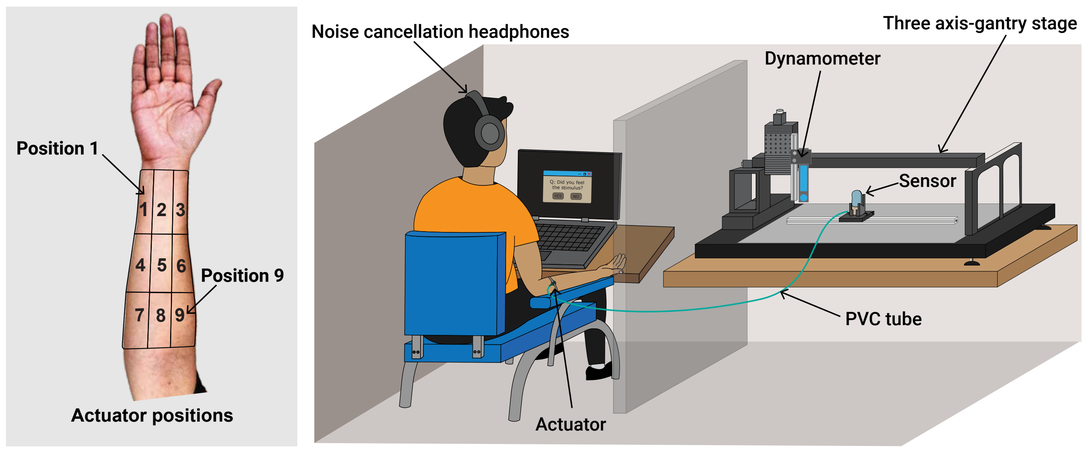
Key questions

1. What is the optimal position for the mechanotactile actuator placement?
2. What are the perception thresholds ?
3. What is the resolution of force perception?

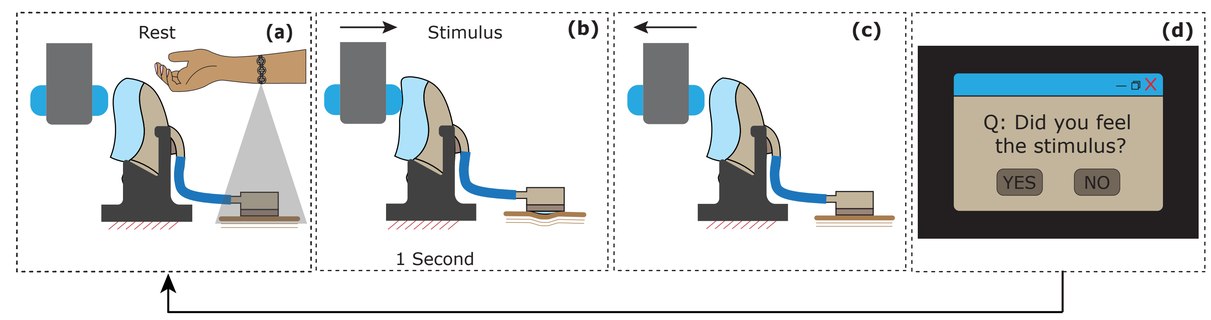
Our goal is to understand the human factors involved in mechanotactile haptic feedback.

Methods

Feedback actuator placement on forearm and Experimental setup



Experiment Procedure



(a): Rest condition , (b): Stimulus applied, hold for one second

(c): Returned to rest (d): A pop-up window appears on the screen with the question.

Results

Minimum perception thresholds at 50% was 0.55 N for the proximal-medial position.



The medial side of the forearm has the minimum absolute force thresholds.

The minimum proportion of perceived force difference at 75 % was ±0.97 N for the proximal-medial position.

For ΔF at 1N the directional accuracy was 70.6 % with the ±15.7% of 95% CI for all three positions.

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