The Social Bench Tool

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Rationale

As research on Child-Robot Interaction is taking hold in robotics [1], we need to implement tools to interpret it. When measuring children's impressions using classical techniques, they may interpret our requests differently based on their age. To better comprehend the results, different techniques can be combined, such as graphic representations of the constructs [2]. We propose adopting a tool used in Social Psychology to detect prejudice [3]. The **Social Bench Tool** (SBT, see Fig. 1) will measure the relationship between children and robots. It features the image of a bench on which a target – in our case, the robot - is sitting. **The subject is asked to choose where they would like to sit**.

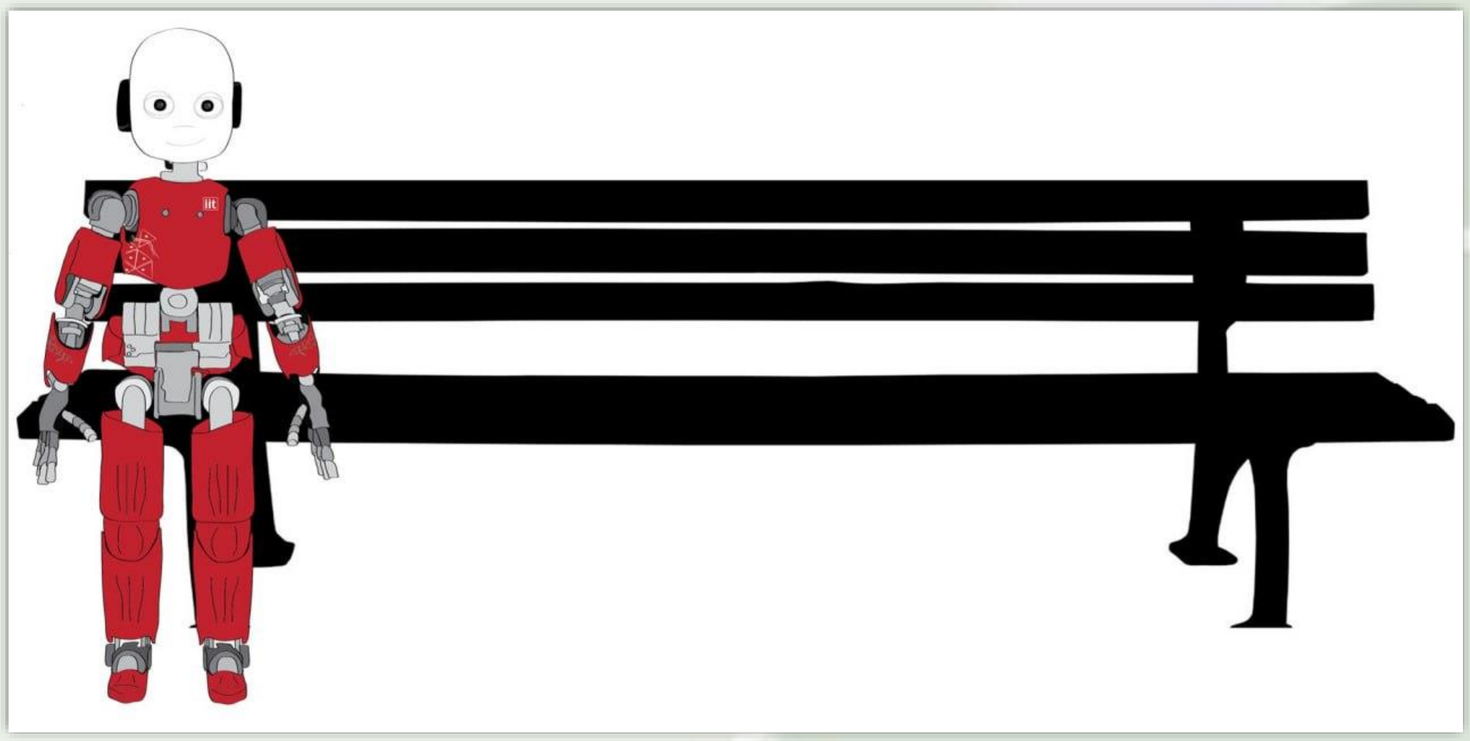

Fig. 1 *"Imagine now that you are in the park below our lab. The iCub robot is sitting on this bench. Please indicate the position you would like to occupy in the scene by clicking on it."*

Objectives

To test:

a) **Interaction Effect**: Determine whether children tend to sit closer to the robot after the interaction compared to before.
b) **Validity of the Tool**: Assess whether the SBT is suitable for studying the relationship between children and a target robot.
c) **Type of Interaction**: Differentiate between an online interaction (robot video) and a live interaction.

Procedure

Participants aged 9 to 18 years old will respond to the SBT. Following this, they will interact with the iCub robot, which will introduce itself (online vs lab study). After the interaction, they will complete the SBT once more and respond to the following measures: **Human-like appearance** [4], **IOS** [5], **Positive vs. Negative Attitude Toward Robots** [6].

Planned Study

Experimental Condition: laboratory setting vs online study (video of the robot iCub).
Analysis: *Mixed Design ANCOVA*
DV: distance on the bench.
Fixed Factors between: experimental condition.
Fixed Factor within: pre and post responses.
Covariates: IOS, Humanlike appearance, Attitude Towards Robots + Age and Gender of participants.

Pilot Study

n=45, Mage= 17.3 no experimental condition

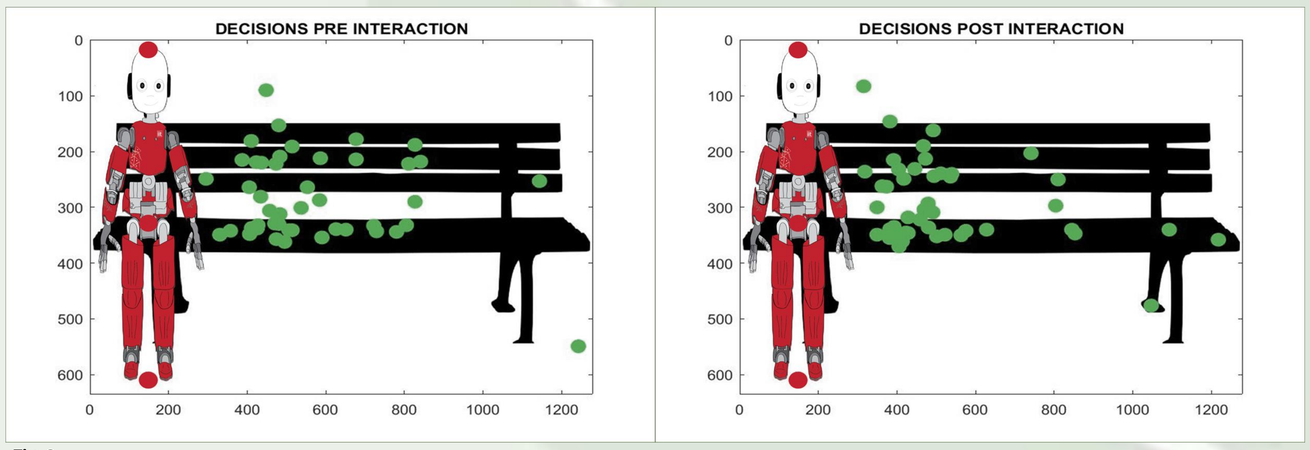

Fig. 2

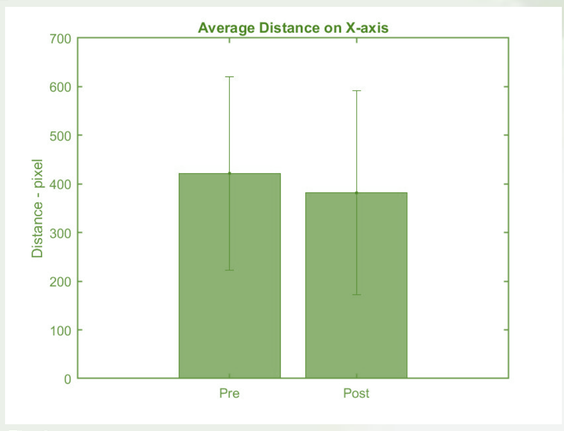

Fig. 3

Paired-sample t-tests indicate an **increase in approach tendency on the SBT after the interaction** (see Fig. 2 and 3). Also, correlation analysis shows that SBT is positively correlated with self-reported measures of a positive attitude towards the robot and negatively correlated with measures of a negative attitude towards it. This indicates that the **SBT is consistent with similar measures**

References

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