

Perceptions of a Soft Robotic Tentacle in Interaction

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ABSTRACT

Soft robotics technology has been proposed for a number of applications that involve human-robot interaction. This video documents a platform created to explore human perceptions of soft robots in interaction. The video presents select footage from an interaction experiment conducted with the platform and the initial findings obtained (also accepted to *HRI'18* as a Late-Breaking Report).

KEYWORDS

Human-robot interaction, soft robotics, aesthetics

1 INTRODUCTION

Soft robots have already been implemented in industry, but a number of applications “in the wild” have also been proposed. For many of these, human perceptions of soft robots will play a crucial role in facilitating and designing a desirable human-robot interaction. A primary benefit of soft robotics is increased safety through compliance [1, 2], but soft robots are also claimed to have a more natural and therefore pleasing aesthetic [3, 4].

To explore people’s perceptions of soft robots, a simple platform for interaction was designed. The platform is built around a soft robotic tentacle that is pneumatically actuated with low-noise pumps and can bend in all directions around its axis. It moves on its own but can also be controlled by the user.

Two versions of the platform have been built (Fig. 1) – one is equipped with a publicly available tentacle design in pink [5], the other incorporates a blue fiber-reinforced tentacle designed by the author.

2 RESULTS

Both versions of the platform have been used for an interaction experiment. Detailed analyses of the collected data are still underway. Initial findings for the pink version include that the overall appeal of the robot was positively associated with its perceived naturalness. Moreover, it was found that the robot’s appearance was rated significantly more negative when compared to the ratings of its movements and tactility.



Figure 1: The two versions of the platform (top). A participant interacting with the platform (bottom).

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