Introduction

Physical and emotional wellness are interconnected and contribute to the overall well-being of a person. The adaptive behaviors of companion robots have demonstrated promising potential in promoting physical-emotional wellness. However, social acceptance remains a key challenge in robotics implementation, particularly for vulnerable users who have limited knowledge of robotics and their integrated sensors. Perceived trustworthiness is one key component in determining the social acceptability of companion robots.

To address this concern, this doctoral research aims to comprehend the aspect of life-long wellness by studying the trustworthiness of companion robots as perceived by children and older adults.

CHIA-HSIN WU,
Tampere University, Finland
chia-hsin.wu@tuni.fi

Robots in Supporting the Perceived Trustworthiness by Children and Older Adults in Wellness Contexts

Research Questions

RQ1. What factors contribute to the trust of children and older adults towards companion robots in wellness contexts?

RQ2. How can companion robots foster trust perceived by children and older adults in wellness contexts?

a. What ethical considerations arise from robot implementation?

b. What sensor-based emotion recognition algorithms are suitable for facilitating trusted affective interaction?

RQ3. What evaluation instruments are suitable for measuring the trust of children and older adults towards companion robots in wellness contexts?

Methodology

The research adopts the Design Science Research approach (DSR, Hevner and Chaterjee, 2010), which employs both qualitative and quantitative methods for data collection and analysis.

DSR is a research paradigm aimed at understanding the problem of artifacts (specifically, the trustworthiness of companion robots and their support for physical-emotional wellness) by designing innovative solutions. In this doctoral research, various user studies that include different user groups (children and older adults), robots (humanoid and non-social), contexts of use (laboratory and real-world contexts), and research settings (long- and short-term study) will be conducted.

Acknowledgment

Expected Results

TECHNICAL
- Identify suitable emotion recognition algorithms for companion robots to initiate affective interaction.

- Investigate whether enhanced affective interaction can increase their perceived trustworthiness.

HUMAN-CENTERED DESIGN
- Present a Design Space Model to support the robotic implementation with children and older adults:

1. Suggested interaction modalities and approaches,

2. A set of design implications,

3. A measuring instrument for Human-Robot Trust

J&AE JANE AND AATOS ERKKO FOUNDATION