

Socially intelligent assistive robots

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1 Introduction

Assistive and rehabilitative robots act in a domestic setting to help older people perform household, social and physical tasks to support longer independent living at home, which as benefits on older people's physical and mental health. Moreover, such robots are believed to lessen the increasing stress on care providers, addressing the societal challenge of an ageing society and enabling care to be provided to a wider group of people. Because assistive robots are intended to be present in the home, and in many cases to support vulnerable or elderly users, their acceptability to these users is of paramount importance. To be acceptable, these robots must meet certain social criteria which are related to their adherence to expected social norms of the domestic environment. The extent to which the robots meet these social criteria determines their social credibility: this being defined as the extent to which a user perceives them as displaying a deliberate social awareness and engaging in deliberate, predictable social behaviours.

2 Project

This opportunity for a doctoral project aims to deeply explore and refine the concept of **social credibility** in interactive robots. The project aspires to define how exactly a robot's social credibility can be defined with regard to **social awareness, trustworthiness and behavioural contingency**. Moreover, the project will explore **machine learning and artificial intelligence** to measure in real-time how a robot's social behaviours perform and influence the interaction with the human user. This will enable the possibility to trigger repair mechanisms to maintain ongoing user engagement. Further, the relation between robot usability and user trust should be evaluated against this background using interaction studies with assistive robots and human participants. Within the project, the relation between credibility of behaviours and other functions, e.g. safety related interruptions should be researched experimentally, potentially making use of the robot house facility.

3 Profile

Applicants are not required to have a degree in computer science but can come from a relevant interdisciplinary background. However, they should have strong knowledge in at least one programming language and deep knowledge about experimental design practices. Knowledge about Human-Robot Interaction (HRI) and AI are highly desirable. The interdisciplinary nature of this project will demand explorations into literature and methods related disciplines, for example, psychology, ethology, or other social sciences. Candidates should be comfortable with workign in a highly interdisciplinary field, have an open mind, and be curious in exploring a quickly developing field. Applicants are encouraged to look at previous work by Dr Patrick Holthaus and are encouraged to contact him prior to making an application to discuss topic ideas or inquire about further information.

References

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