NATURAL INTERACTION WITH SOCIAL ROBOTS

Topic Group coordinated by
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Agnieszka Wykowska and Anna Esposito

SHORT INTRODUCTION

Agnieszka Wykowska

Ludwig-Maximilians-Universität
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Munich, Germany

Background:

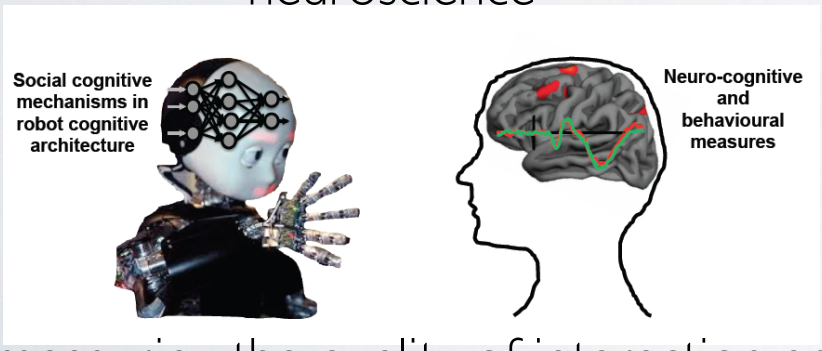
Cognitive Neuroscience, Psychology

Research interests:

Human-robot interaction, assistive robotics, social robotics, autism spectrum disorder

Approach:

objective measures of social cognitive neuroscience



measuring the quality of interaction and allowing for developing models of social cognition

Anna Esposito

Seconda Università di Napoli and International Institute for Advanced Scientific Studies, Italy

Background:

Behavioral and contextual analysis of interactions, through the cross-modal examination of speech, gesture, facial and vocal emotional expressions

Approach:

Set up of experimental scenarios devoted to reveal qualitative and quantitative dynamic behavioral (gestural and emotional) features in human-human and human-machine interactions (HMI) and related assessments of user expectations and requirements.

WHY BOTHER? — IMPLICATIONS FOR SOCIETY —

Natural/social interaction
is a key ability for companion/assistive robots
— goes beyond interaction capability and addresses various societal needs

care for people with special needs

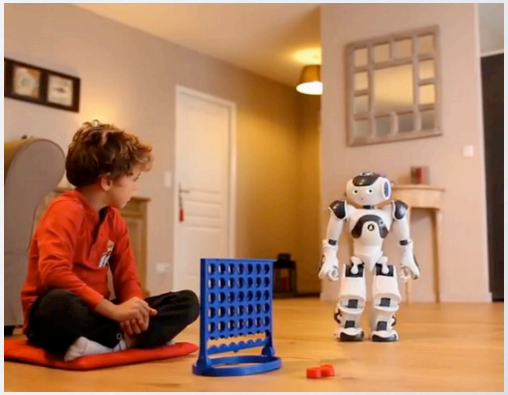
regular daily activities

healthcare

elderly care

Monitoring wellbeing

childcare and education

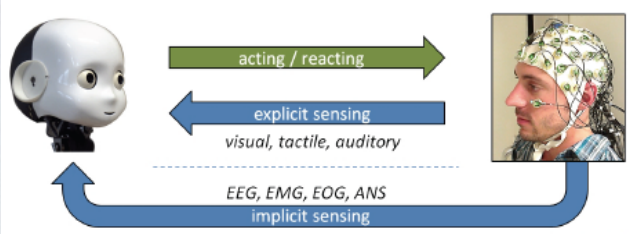


— From science to innovation —

Natural/social interaction calls for interdisciplinary methods of social robotics - these lead to innovative solutions in applications

Methods

Social sensing, perception and interfacing



BCI solutions @ ICS TUM

TECHNISCHE UNIVERSITÄT MÜNCHEN

Natural language processing/speech recognition

Applications

HuGGler (A*STAR Singapore)
- sensing for monitoring, therapy, communication

Robot-assisted therapy

Kaspar (Univ. of Hertfordshire,)

CuDDler (A*STAR, Singapore + TUM/LMU)

Social ICT interfaces

Education

Monitoring wellbeing
Soundeye A*STAR

— Vision for the Future —

Although challenges need to be met, we foresee that Social robots of the future have the potential to be

- intuitive and allowing natural and safe interaction
- allow for objective measures of successful interaction
- meet a broad spectrum of societal needs
- behave in accordance with social and moral norms of a given society
- be attuned to cultural differences
- inspire innovative solutions

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