HOW ARE HUMANISTIC RESEARCH METHODS RELEVANT FOR HUMAN-ROBOT INTERACTION RESEARCH?

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HUMANITIES AND *HUMAN*-ROBOT INTERACTION RESEARCH?

- The human being
- How the human being understands the world
- How does the human being achieve a specific understanding of the world/ life - together with other human beings and create what human beings amongst themselves call 'social life' and 'society', 'cultures'

- Mothers and fathers, daughters and sons
- Students and researchers
- Users

A SDU collaboration between Faculty of Humanities and Faculty of Engineering and Faculty of Health Sciences to develop better robots for physical training and rehabilitation

A SDU COLLABORATION BETWEEN FACULTY OF HUMANITIES AND FACULTY OF ENGINEERING AND FACULTY OF HEALTH SCIENCES TO DEVELOP BETTER ROBOTS FOR PHYSICAL TRAINING AND REHABILITATION

Embodiment

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EMCA interaction research

- Assumption between human beings about Sound production, manipulation of The human being knows the world the spective objects, bodily movement bodily spontaneous responsivenessian directs/bodied individuals typify
- engagement with ite. through bodily experience (Merleau-Ponty 2012 [1945]) and ways to interact with others, i.e. Human beings/bodied individuals typify

into embodied interaction Our reality, i.e. all that we are availably reference to features and social

other words constituted by sensorimotor structures

- Distinctions between 'behavior' and 'action
- for social interaction' is a matter of details The world is our existence and we inhabit it \bullet
 - (Bodily) responses to actions-for-interaction
- are produced with a review to the details of Impairments re-experience the body re-inhabit the world rebubilitate an bodied

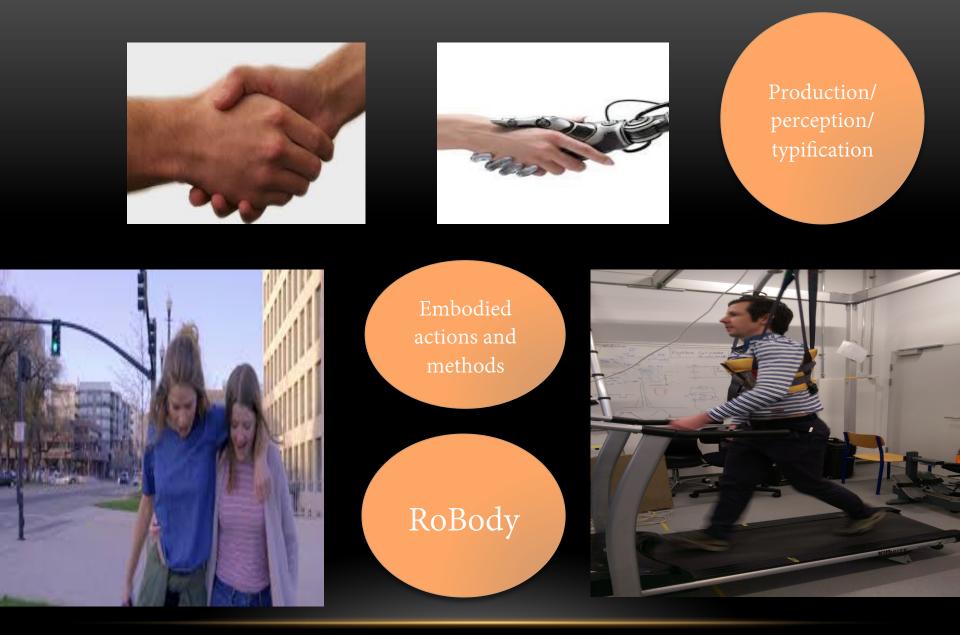
co-participant

Merleau-Ponty, M. (2012 [Original 1945. Phénoménologie de la perception. Paris: Gallimard.]). Phenomenology of Perception (D. A. Landes, Trans.). New York: Routledge. Rasmussen, G. (2016). The International Classification of Disability, Functioning and Health (ICF). Pragmatics and Society, 7(2), 217-238. doi:10.1075/ps.7.2.03ras

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• Embodiment • EMCA interaction research
as /simultaneous
with
and perceived
Embodied actions and methods
<u>for social interaction</u>

Streeck, J. (2017). Self-Making Man A Day of Action, Life, and Language. New York: Cambridge University Press.



Sørensen, A. S., & Rasmussen, G. (2018). *RoBody Interaction: A New Approach at Kinesthetic Human Robot Interaction.* Paper presented at the 27th IEEE International Symposium on Robot and Human Interactive Communication: RO-MAN.



Robody







Broth, M., & Mondada, L. (2013). Walking away: The embodied achievement of activity closings in mobile interaction. *Journal of Pragmatics*, *47*, 41-58.

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BODILY KNOWLEDGE OF 'BEING LED BY SOMEONE/SOMETHING: "HOW ARE PEOPLE INDICATE BODILY 'LEADING' AND 'BEING LED'?"

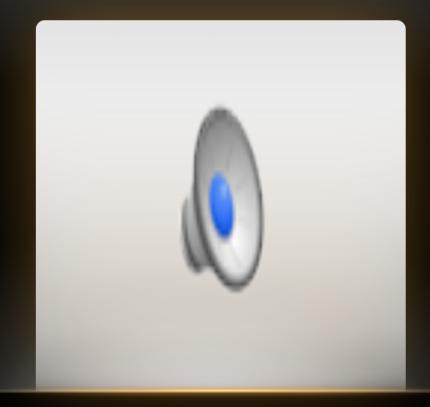


Courtesy to Cecilie Faden and Cecilie Wang Justesen, Faculty of Engineering, University of Southern Denmark.



Methods for analysis of physical HR-Interaction

- Video-recordings of embodied interaction with the robot
- Registration of numerical data through a device
- Analysis of both types of data and the relation between them.





METHOD FOR ANALYSIS OF PHYSICAL HR-INTERACTION

Bodily pattern of 'how to move' pivots on the first movement(s) in relation to position of the rope and the size of the body Upon having established a routine in terms of a combination of structure of movement, velocity and their time derivatives, change of bodily position occurs not till after 3-4 pulls

- Where we make it possible for people to start will have an influence on how they proceed
- 3-4 pulls establish a routine in terms of in terms of force and bodily position
- Robotic indications of change not until after 3-4 pulls

Rasmussen, G. (2014). Inclined to a better understanding: The coordination of talk and 'leaning forward' in doing repair. *Journal of Pragmatics, 65*, 30-45.

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ROBODY

- 1. The study of human bodily knowledge
- 2. How human bodily knowledge may be
- used when using robots for training and rehabilitation purposes probably in modified versions
- ➤ useful knowledge when programming robots for physical HR-interaction.

HOW ARE HUMANISTIC RESEARCH METHODS RELEVANT FOR HUMAN-ROBOT INTERACTION RESEARCH? THANK YOU FOR YOUR ATTENTION

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