The Architecture Space-Game experimenting with the human-robot dance performance “Doppelgänger”

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Transdisciplinary research group
H.A.U.S.
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Humanoids in Architecture and Urban Spaces
Space in Architecture
Adolf von Hildebrand, August Schmarsow, Theodor Lipps
Humanoids,
various degrees of human likeness
From age old Phantasms onto a new everyday with Humanoid robots
Humanoid robots; a robot model Romeo in scenarios of care for the elderly.
Robotic caregivers

Ethical Issues:
“Though the drive for efficiency is difficult to resist, it should not be the penultimate motive behind the creation and use of the technology.”
Jason Borenstein and Yvette Pearson

Perspective:
“good care … is … care that respects human dignity”
Mark Coeckelbergh

Concern:
“The robots will not be able to respond to patients’ anger and frustration, except by calling for human help.”
George Bekey
Spaces, perceptions and technologies
DARPA challenges;
Car accident between humanoid robot Promobot and Tesla car in autonomous mode
H.A.U.S.
Humanoids in Architecture and Urban Spaces

Frontiers in Artificial Intelligence and Applications

The book brings together current, cutting-edge issues in artificial intelligence research in the form of monographs, selected articles and short papers. It offers insights into the diverse applications of AI, ranging from engineering and healthcare to social sciences.

ARTIFICIAL INTELLIGENCE

“Cultural Spaces and Humanoid (S)Care” publication at the Frontiers in

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Architecture Space-Game and Cultural Space-Model

Public experiment at Long Night of the Robots, November 2016
Excerpt of script to the Cultural Space-Model

# Basic structure of objects
Object class:

    List = []

    def __init__(self, id, movement):
        self.id = id
        self.level = -1
        self.quesion = 0
        self.movement = movement

    Object list.append(self)

# space-related movement
neues_Objekt = Objekt(0, x2) ??? uberauszen?
neues_Objekt = Objekt(1, z4)
neues_Objekt = Objekt(2, z6)
neues_Objekt = Objekt(3, z8)
neues_Objekt = Objekt(4, z9)

# Predefined movements

def b0():
    names = list()
    times = list()
    keys = list()

    names.append("HeadPitch")
    times.append([1, 0.96])
    keys.append([-0.21939, [3, -0.66667, 0], [3, 0, 0]])

    names.append("HeadYaw")
    times.append([1.96])
    keys.append([0, [3, -0.66667, 0], [3, 0, 0]])

    names.append("HipPitch")
    times.append([1.96])
    keys.append([-0.035217, [3, -0.66667, 0], [3, 0, 0]]).
Experiment Setup:
L: Excerpt of variations of the humanoid robot dialogue (Examples of questions).
R: Floor plan of the experimental area with the location of the six objects, translated into English: the robot (R) and the interview partner (P). Naming of object, function attributed to object, property associated to function and object. Bars indicate how often names and functions were mentioned.
The Architecture Space-Game uses the connection between linguistic expressions and human practices.

Video First Space-Game experiment, October 2016
Conclusion

Video Dance performance rehearsal, January 2018
Two Outlooks:
- Research endeavors towards Cultural space-model to learn non-verbal responses.
Dance-Performance “Doppelgänger”
and two part interview

h-a-u-s.org/interview