



# Avatar-Technologies for an Inclusive Society

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The purpose of this study is to analyze the opportunities and risks that robotics and avatar technologies present to society in general and to vulnerable populations such as people with disabilities and illnesses in particular. We investigate what these technologies mean for self-actualization, diversity, social participation, and human-machine interaction. In addition, we examine whether these technologies offer new opportunities for social inclusiveness or whether they contain risks of exclusion.

## Avatars at Work<sup>1,2,3</sup>

The Ory Laboratory by Yoshifuji Kentarō has developed the avatar technology OriHime and aims to create new forms of social participation by offering new possibilities in mobility, communication, and social roles. Through the OriHime avatar technology, housebound people are enabled to virtually leave the house and participate in cultural events, sports, or the labor market. By the end of 2022 there were about 70 OriHime pilots working via the remotely controlled avatars in places such as the DAWN Avatar Robot Café, Mosburger, or the City Hall of Fukuoka.

In our qualitative study we conduct semi-structured interviews with OriHime pilots and explore their perception of social participation, work, disability, body, and space. First findings show that the robot opens up new opportunities for social participation, leads to a feeling of independence and belonging, and helps to regain or adopt a positive attitude towards life and the own future.



OriHime at DAWN Avatar Robot Café. © Celia Spoden

## Telepresence Robots at School<sup>1,3</sup>

Telepresence robots, created as avatars for children who are housebound, have come into use in schools in Japan and Germany in recent years. In our qualitative study, we compare the Japanese case of the avatar-robot OriHime of Ory Laboratory with the usage of AV1 in German schools, a similar avatar-robot developed by the Norwegian start-up No-Isolation.



AV1 at school. © Eстера K. Johnsrud

Compared to other virtual-meeting technologies such as Zoom, both avatar-robots offer an opportunity for embodiment and turn the classroom into a cyber-physical space. There, the avatar-pilot possesses a cyber-physical presence with abilities such as moving the head, focused interaction and expressing gestures or emotions. The main aim of the developers is to enable children, who cannot attend school due to an illness and their disabilities or extended hospital stays, to stay socially connected, restore normality, and prevent social isolation.

Although both robots were developed with similar aims, there are several differences. This includes different types of implementations, the involvement of diverse stakeholders, distinct modes of financing the avatar, and developing discrete infrastructures for a continuous usage. Furthermore, implementing the avatar at school involves negotiating understandings of privacy and data protection grounded in ethical values and legal norms. A comparison of both avatars also shows how these different sociocultural values and legal requirements shaped the technical functions of the two robots.

## In Cooperation with

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<sup>2</sup>Giulia Barbareschi, Keio University Graduate School of Media Design

<sup>3</sup>JST Moonshot R&D Program “Cybernetic Avatar Technology and Social System Design for Harmonious Co-experience and Collective Ability” Project

