



Robotische  
Systeme  
für die Pflege

Dear Readers,

Designing robotics in the field of nursing care is a highly complex task because it requires a future-oriented alignment of innovative hightech-research in the field of algorithmics with innovative workplace design in nursing care as a co-constructive process.

The second symposium, "Designing Care Robotics in Context," focused on various topics that comprise this design space of co-construction. The topic of value orientation is central in this context: What types of integrated, collaborative research are required to make good nursing care the guiding principle of all design efforts? Which societal, socio-political, organizational, and sociocultural factors must be considered in order to make a genuine contribution to the quality of life and care for the people involved, as well as the quality of work for the employees, by utilizing innovative digital technology?

**"With practice for practice"** - the requirement to envision a solid knowledge of the specificity of nursing care within the designing process is related to this value discourse, which can only succeed by pursuing a high user orientation as well as the participation of relevant groups of stakeholders. However, involving users in robotics projects is not an easy task. Which approaches are appropriate for bridging the gap between scientific experts, practitioners, and nursing care recipients?

# NEWS- LETTER

ROBOTIC SYSTEMS

FOR CARE

»SPECIAL ISSUE«



Claudia Müller



Richard Paluch

How can current routines and nursing practices be used to create a vision of future, technology-assisted practices? How will we be able to move beyond science-fiction-robotics concepts and establish technological assistance approaches that are well-founded in nursing practice?

Along with these concerns, there is the critical issue of interdisciplinary and interprofessional collaboration. How can experts from various disciplines, such as nursing, technology, design, or social sciences, develop a common language and collaborate as equals?

These were the main topics of discussion at the second symposium of the BMBF-funded line "Robotische Systeme für die Pflege" (2020-2023). The presentations of the ten joint projects are available on the homepage of the funding line's scientific accompanying project ([BeBeRobot](#)), as are the keynotes of international expert academics Naonori Kodate, Astrid Weiss, and Kirsten Thommes.

This special edition of our newsletter will summarize the symposium's ideas and discussions. In brief flashes, our three keynote speakers emphasize the importance of value orientation in their respective research areas. Naonori Kodate investigates the interaction of assistive robots and values in the context of novel nursing care concepts, such as the concept of "caring communities" in Ireland and Japan. According to Kirsten Thommes, user knowledge is an important resource that can be productively integrated into robotics development through the use of expedient co-design. Astrid Weiss reflects together with Anna Dobrosovestnova on overarching approaches to value orientation. They clarify how collaboration between scientists, nurses, and care recipients must be aligned in order for robotics to find their way into everyday life.

**The BeBeRobot-Consortium wishes you a pleasant reading experience!**

With best wishes,

Claudia Müller

GEFÖRDERT VOM



Naonori Kodate



**NAONORI, WHAT DOES VALUE-ORIENTED ROBOTICS MEAN TO YOU? HOW CAN THIS CONCEPT BE FILLED WITH MEANING?**

To me, value-oriented robotics means that the design, development, use and evaluation of robots are guided by (multiple) users' needs, ethical considerations and a shared vision of a caring society. In essence, it comes down to 'how we care'. Although my way of conceptualizing this may be a little bit narrow because my research primarily focuses on care settings, the functions that robots perform should be well-aligned with the beliefs and ethos espoused by the people who provide and receive care. In this sense, robots should be treated as an essential part of a care system. This does not mean that robots are treated just as human carers, but at least, they should be treated responsibly and people should feel comfortable around the robots.

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Values do not emerge in a vacuum, and they are assigned and practiced by people who come together in a community, an organization or in a family home. So people's attitudes to robots, from its production to its use, should naturally reflect their values. In other words, organizational and professional cultures, such as leadership style, team communications and workplace practices determine the shape of value-oriented robotics.

**HOW DOES YOUR CONCEPTION OF VALUE-ORIENTED ROBOTICS RELATE TO YOUR PRESENTATION AT THE SYMPOSIUM OR TO YOUR CURRENT RESEARCH?**

My current research project entitled "Harmonisation towards the establishment of Person-centred, Robotics-aided Care System (HarP:RoCS)" (supported by the Toyota Foundation under Grant 'Co-Creating New Society with Advanced Technologies') is situated in residential care facilities in two different cultural settings (Ireland and Japan). When we decided to work with a university's spin-off company called Akara Robotics and request an air-purification robot tailor-made for care settings, value-oriented robotics was very much the kernel of this entire project.

Before the pandemic, the original plan was to examine the adoption process of commercially available socially assistive robots within care settings, and the human-robot interactions. However, when the pandemic struck, we went back to the drawing board, and started to search for a robot developer who shared the vision of a caring society. The testing sites (care facilities) in both countries were selected based on the same principle. As my presentation at the Symposium highlighted, these facilities represent 'caring communities', particularly as they have been embedded in a fabric of their respective local communities for many many years. I believe that user-centeredness, human rights-based approach, and collectively caring for others are the three central elements of supporting value-oriented robotics (and also the successful implementation of assistive technologies in care settings).

**MORE INFORMATION**

Kodate N, Obayashi K, Mannan H, Masuyama S (2022). Improving care quality in a nursing home in Japan: organisational culture, robotics-aided care and systems approach. In F. Larkin, F. Vallières, H. Mannan, & N. Kodate (Eds.) *Systems Thinking for Global Health*. Oxford: Oxford University Press (In Press).

Kodate N, Donnelly S, Suwa S, Tsujimura M, Kitinoja H, Hallila J, Toivonen M, Ide H, Yu W (2021). Home-care robots - Attitudes and perceptions among older people, carers and care professionals in Ireland: A questionnaire study. *Health & Social Care in the Community*. doi.org/10.1111/hsc.13327.

Obayashi K, Kodate N & Masuyama S (2021). Assessing the Impact of an Original Soft Communicative Robot in a Nursing Home in Japan: Will Softness or Conversations Bring more Smiles to Older People? *Int J of Soc Robotics*.

**Naonori Kodate** is Associate Professor in Social Policy and Social Robotics, and the founding Director of UCD Centre for Japanese Studies (UCD-JaSt).

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### WHAT DO YOU THINK VALUE-ORIENTED ROBOTICS ENTAILS? HOW DO YOU MAKE THIS TERM COME TO LIFE?

To me, value-oriented robotics means that the development and application of robotics must benefit humans. This may seem insignificant, but it is not always taken into account, for example, if developed products do not meet the actual needs of the affected people and were not developed with these people in mind. Incorporating humans, in my opinion, entails far more than just conducting some qualitative interviews before the development process begins and implementing a user study once the process is completed: On the one hand, many research projects regard user incorporation as a rather disruptive activity. On the other hand, the users' understanding of their specific circumstances is undervalued. However, users are the experts in their own situation, and if researchers want to add value, they must find ways to incorporate the users' expert knowledge into the development process on a regular basis.

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Kirsten Thommes

### HOW DOES YOUR CONCEPTION OF VALUE-ORIENTED ROBOTICS RELATE TO YOUR PRESENTATION AT THE SYMPOSIUM OR TO YOUR CURRENT RESEARCH?

A number of very interesting projects were presented at the symposium. From my perspective, it is even more important to constantly incorporate future users into the development process, as well as to talk to them before developing the project proposal and attempting to understand their specific needs. As a result, not only is the subsequent sustainable implementation by technical partners required, but so is the ongoing integration of practical partners. Furthermore, numerous projects have already developed intriguing approaches and ideas for making technology more tangible. Particularly with complex technology such as robotics, interviewees' mental models in qualitative or quantitative interviews are very specific and may be far removed from the actual technology. That is why it is critical to at least attempt to capture their mental model. It would certainly be preferable if their mental model was based on actual user experiences rather than hypothetical considerations.

#### MORE INFORMATION

» <https://wiwi.uni-paderborn.de/dep1/organizational-behavior-prof-dr-kirsten-thommes>

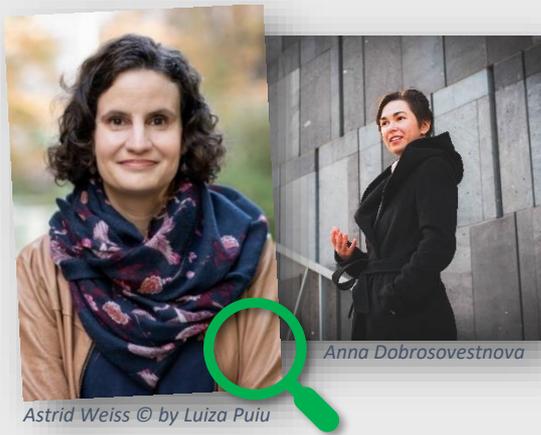
Kirsten Thommes has been Professor for Organizational Behavior at the University of Paderborn since April 2018. Before this, she studied business administration at the Phillips University of Marburg, received her doctorate at the Friedrich-Schiller-University in Jena and worked as a post-doc at the Radboud University of Nijmegen as well as the RWTH Aachen University.

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Astrid Weiss © by Luiza Puiu

Anna Dobrosvestnova

### WHAT DOES VALUE-ORIENTED ROBOTICS MEAN TO YOU? HOW CAN THIS CONCEPT BE FILLED WITH MEANING?

In our understanding, value-oriented robotics does not put user requirements or technological opportunities/limitations at the starting point of developing novel robotic solutions. Instead, it seeks to support the enactments of values in socio-technical practices. Values are thus interpreted as boundary objects in the development process. This makes values especially relevant for transdisciplinary investigations that also consider complex topics, such as autonomy, explainability, trust etc. at the intersection of human, robot, interaction situation, and broader socio-cultural environment.

In our work, we consider values in the context of care robots. In Human-Robot Interaction and related discourses, it is common to narrate care robots as a potential solution to alleviate pressure in the care system that is related to the increase of aging populations.

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From the perspective of values and cultural norms, this narrative in itself presents a challenge, as it implies a shift of responsibility for one's wellbeing from the welfare state to individuals and suggests that technology, such as robots, serves as a "fix" to assumed problems of ageing. Otherwise, while robotic technologies have strongly improved through advances in artificial intelligence, the promises for practice still remain largely unfulfilled. In response to this, we identify the following aspects that we consider crucial for advancement of human-centered and value-oriented care robotics: (i) care cannot be reduced to its functional aspects in a dyadic human-robot constellation. Rather, it is situated in a complex socio-technical material system, and we are yet to identify appropriate and desirable roles of technology within these constellations (ii) older adults must be recognized and embraced in studies and designs as a diverse group of people whose needs with respect to technology may not necessarily be defined by the assumed frailty and loss of independence.

### HOW DOES YOUR CONCEPTION OF VALUE-ORIENTED ROBOTICS RELATE TO YOUR PRESENTATION AT THE SYMPOSIUM OR TO YOUR CURRENT RESEARCH?

In April 2022 we started a new transdisciplinary project in Austria: [Caring Robots // Robotic Care](#), funded by the Austrian Science Foundation, which will run for 5 years. In this project, we aim to re-imagine robotic technology within the complex socio-technical context of care by developing novel robotic technology that is useful, safe, meaningful, and wanted through an open and reflective participatory design process that involves care givers, people in care, care organizations, and other stakeholders.

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The project also aims to achieve a cross-fertilisation between science and practice driven by two core members from the practice field – [Caritas der Erzdiözese Wien](#) and [Technisches Museum Wien](#) – with their profound know-how in the care sector and as experts on communication between science and society. Together with our practice partners we established that this reflective participatory design process needs to start from the relational and reciprocal nature of care practice. We start from the question what robotic technology in care should do instead of what it could do. We have just begun a series of ethnographic studies in which we explore “the essence” of what makes “good care” in order to open up a “technology opportunity space” to narrate new stories.

It is a challenging endeavor and the critical issue of how to bridge stakeholder needs and technological readiness remains. However, our project contributes to a novel ethically aligned design approach for care technology.

## MORE INFORMATION

Dobrosovestnova, Anna; Hannibal, Glenda & Reinboth, Tim (2022). Service robots for affective labor: a sociology of labor perspective. In: *AI & society*, 37(2), p. 487-499.

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**Anna Dobrosovestnova** is a doctoral student within the Caring Robots // Robotic Care with a background in culture studies and cognitive science.

**Astrid Weiss** (<https://astridweiss.net>) is her supervisor and 1 of 5 key researchers within the project. She is Assistant Professor at the Human-Computer Interaction Group, Institute for Visual Computing Human Centered Technology at the TU Wien (Austria).



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