12 JUNE 2025 09.00 - 11.00

Panel 16. Integrating Technology, Ethics, and Creativity in Healthcare

Convenors:

Orhan Önder, Universität Wien

Boris Abramovic, Universität Wien

Keywords: Care & Diversity, Ethics of Care, Imagining Future Care, Technology & Art & Care, Technoscience for Good & Creativity

In the context of advancing healthcare technologies, the intersections of digital innovations, care ethics, and creativity have great potential to collectively reconfigure the ways in which we perceive and engage with care practices. As digital technologies, artificial intelligence (AI), and robotics become increasingly integrated into healthcare systems, it is vital to examine their role not only as tools for efficiency but as agents which are socially and culturally capacitated to reshape care relations. With its foundation in relationality, responsibility, and attentiveness, the ethics of care offer a critical lens through which these technologies can be designed and improved to better meet the needs of people.

When we focus on creative applications of technology within care settings, we can identify cases such as virtual rehabilitation programs following surgery, artificial music therapy for palliative care patients, and care robots for story-telling and drawing in hospitals and assisted living facilities. Even if these technologies have the potential to improve patient care, it's important to understand that they pose the risk of supporting mechanistic or depersonalized forms of care and lack of genuine human reciprocity due to technical limitations and the scarcity of an ethical framework. The ethics of care require technology that is not only functional but also sympathetic and relationally attuned, with all technological interventions emphasizing human dignity and engagement. Likewise, these technologies should reflect user diversity and unique socio-cultural characteristics that shape user identity.

Rethinking the way healthcare solutions are developed and applied can be greatly aided by creativity and insights from various forms of artistic and cultural practices that extend the possibilities of technologies and engage with the concept of care in unique ways. To valorize those possibilities, this panel will bring together contributions that explore current strategies for integrating care ethics with technology and creativity, assessing their emergent promise for reimagining healthcare solutions in care settings.

We encourage proposals that address, but are not limited to, the following questions:

- How can digital technologies be reconfigured to foster more compassionate, empathetic, humane and patient-centred care practices?
- What role should care ethics play in the design and implementation of healthcare technologies?
- How can creativity and artistic practices inform the development of patient-centred technologies for care?
- How can we develop healthcare solutions that prioritize relationality, empathy, and emotional engagement alongside technological efficiency?
- Which practices and insights from artistic, scientific and ethical visionings contribute to the pluriversality of users and better integration of socio-cultural sensitivity in care practices?
- In what ways can we rethink the issues around the shortcomings of technology as it relates to the reciprocity in human-to-technology relations in the context of care?How can imaginative engagements with technology help us to ethically shape the future of care?
- In what ways can we rethink the integration of AI and robotics in care environments to enhance human relations?

12 JUNE 2025 09.00 - 11.00

ID 346 - Empowering Healthcare Providers with Virtual Labs for Migrant Maternal Support

Alessia Bisio, Universidad de Córdoba
Pilar Aparicio-martínez, Universidad de Córdoba
Aurora Ruiz-Mezcua, Universidad de Córdoba
Juri Taborri, Università di Tuscia
Enrique Yeguas-bolívar, Universidad de Córdoba

Keywords: Virtual Reality labs, barriers, sanitary training, migrant women, quality education

Education plays a pivotal role in equipping healthcare providers with the skills and knowledge necessary to address the unique challenges diverse patient populations face. Innovative training methods, such as virtual reality (VR), are revolutionizing how healthcare professionals learn to deliver culturally sensitive and gender-specific care. Despite these advancements, there remains a lack of comprehensive training and information on how to professionally support migrant pregnant women in healthcare settings.

Over the past decade, Southern European countries have seen a significant increase in migrant and refugee arrivals, with a notable proportion of pregnant women among them. These women often travel alone and face heightened risks to their pregnancies, including premature birth, low birth weight, infant mortality, postpartum depression, and other adverse health outcomes. Upon arrival in Europe, they encounter substantial barriers to accessing healthcare, particularly within public systems. These barriers include restrictive legal entitlements, fear of deportation, low health literacy, and social fragility, often deterring women from seeking care or disclosing sensitive issues, such as self-induced abortions.

Language barriers, cultural differences, and administrative challenges create obstacles for both women and healthcare providers, limiting access to quality care and leading to poor pregnancy outcomes. The lack of interpreters and cultural mediators forces reliance on untrained relatives or children, compromising effective communication and care quality.

This paper highlights the innovative use of VR laboratories as an effective training tool to improve interactions between healthcare providers and migrant pregnant women. VR technology offers immersive, interactive, and reality-based scenarios, enabling healthcare professionals to practice in a risk-free environment. These simulations allow medical staff, nurses, psychologists, and occupational therapists to develop critical skills such as cultural sensitivity, effective communication, and clinical competence. By fostering empathy and enhancing theoretical and practical knowledge, VR empowers healthcare providers to deliver tailored, culturally sensitive, and gender-specific care to this vulnerable population.

This methodological paper outlines a framework for developing a VR lab designed to raise awareness of the barriers patients and providers face while equipping healthcare workers with practical tools to overcome these challenges and improve pregnancy outcomes. In addition, the project includes testing the VR laboratories with participants from hospitals and nursing schools to assess usability and evaluate effectiveness. This evaluation will provide insights to refine the VR tool and ensure its practicality and relevance in real-world healthcare settings. Furthermore, the initiative involves a comparative analysis of neonatal and pregnancy care between two facilities: the fourth-level Reina Sofia Hospital in Córdoba, Spain, and the second-level Saint Joseph Hospital in Ikelu, Njombe region, Tanzania. This analysis seeks to underscore disparities in healthcare systems and highlight the need for specialized training programs to bridge these gaps and improve maternal and neonatal care.

This work is part of the UNITE (University Network for Inclusive and digiTal Education) project, funded by the European Union. UNITE fosters diversity awareness, cultural inclusion, and gender sensitivity through innovative and inclusive education. The VR-based training program aligns with these principles, representing a significant step toward improving healthcare outcomes for migrant pregnant women and advancing global maternal health equity.

12 JUNE 2025 09.00 - 11.00

ID 519 - From Design to Impact: How Multisensory and Smart Tech Are Transforming Care Services.

Elena Enrica Giunta, Politecnico di Milano
Silvia Peluzzi, Studio Shift
Giuseppe Bugada, ITACA Cooperativa Sociale
Sara Vavassori, ITACA Cooperativa Sociale
Elisa Veronelli, ITACA Cooperativa Sociale

Keywords: strategic design, co-design, smart tech, augmented spaces, long-term thinking

This paper presents the experience of Cooperativa Sociale ITACA (Bergamo), which, in collaboration with Studio SHIFT (a design agency), has been restructuring its personal care services since 2019. These services support people with severe disabilities and focus on mental health prevention for young people and adolescents. The co-design processes implemented align with the principles of Inclusive Design, which integrates user diversity into the design process. The development of new services has been driven by a long-term vision and continuous interdisciplinary collaboration, incorporating technological solutions such as:

- Immersive multisensory spaces for practising the Snoezelen and Basal Stimulation methods, aimed at promoting psychophysical well-being and learning.
- Computer Game Therapy, designed to enhance motor, cognitive, and relational skills.

Between 2022 and 2024, ITACA established three Snoezelen Rooms: two within Day Centers for people with disabilities and one in a multipurpose space called SPAZIO12, creating opportunities for outward-oriented experiences that cater to a broad range of community members. Currently, 135 people with vulnerabilities regularly benefit from these multisensory experiences, with additional activities offered to schools and private individuals. In 2023, the cooperative conducted its first impact assessment on the benefits of multisensory approaches for people with disabilities and autism, reporting an SROI (Social Return on Investment) of 3.5. Meanwhile, Computer Game Therapy has been structured into 12-session cycles for 12 participants per session, providing an additional pathway for personal development. Also in 2023, ITACA took a further step in knowledge-sharing by organising a Conference/Festival focused on disability and emerging technologies. The event combined theoretical reflection with hands-on activities, helping educators, psychologists, teachers, and care professionals explore the potential—and limitations—of multisensory approaches, virtual reality (VR), augmented reality (AR), and smart devices. As a direct outcome of the conference, one local community of practice and two internal training working groups (WeTech - Be Snoezelen) were established. Their experiments and findings will be presented in this paper.

12 JUNE 2025 09.00 - 11.00

ID 522 - Investigating Deception Issues Arising from the Design of Social Robot for People with Dementia

Fan Wang, Technische Universiteit Eindhoven
Giulia Perugia, Technische Universiteit Eindhoven
Yuan Feng, Northwestern Polytechnical University
Wijnand A. Ijsselsteijn, Technische Universiteit Eindhoven

Keywords: Human-Robot Interaction, Social Robot, Robotic Deception, People with Dementia

The rapid evolution of autonomous systems like social robots has reshaped human-machine interaction. Social robots aim to enhance psychological well-being and quality of life, especially for users such as people with dementia (Abdollahi et al., 2017). However, they could also blur the line between assistance and manipulation (Wolfert et al., 2020). Robotic deception—"a robot, as an artificial agent, creates a misleading

impression through its representations or signals "—remains a complex ethical challenge in this context. Social cues can foster illusions of sentience or cognition, resulting in misplaced trust and inappropriate uses (Moharana et al., 2019). For people with dementia, the emotional relationship with social robots may lead to disconnection from reality. For example, they may falsely believe that a robot offers true friendship, expressing sorrow when it breaks or is taken away, or even socially isolating from humans (Elder, 2016; Sharkey & Sharkey, 2012). By analyzing the dynamic interplay between robot design and user perceptions, our overarching goal is to help design ethical social robots for people with dementia, ensuring these technologies empower rather than exploit vulnerable individuals.

We unfold our research in two parts. First, identify the specific social cues and design pipelines contributing to robotic deception. By designing social cues such as appearance, gaze, gestures, or speech, humans natural tendencies of attributing human-/animal-like traits to non-living entities can be amplified, making users perceive or unconsciously respond as if the robots are real ones, even though acknowledging their artificial nature (Sætra, 2021; Złotowski et al., 2015). This blurring creates the foundation for robotic deception, raising an important question: How can we identify specific design features or pipelines that tap into and accommodate people with dementia's natural proneness to deception?

Second, the boundaries of acceptable and beneficial robotic deception remain unclear. Social cues amplifying anthropomorphism/zoomorphism tendencies have multiple benefits—enriching interactions, enhancing experience and engagement, and improving trust and efficiency (Admoni & Scassellati, 2017; Ishowo-Oloko et al., 2019; Waytz et al., 2014; Złotowski et al., 2015)—they also raise ethical concerns about (un) intentional deception leading to emotional dependency or loss of autonomy. Therefore, we ask: To what extent robotic deception is acceptable and beneficial for people with dementia?

Coeckelbergh (2018) and Musiał (2023) argued that the perception of social robotic deception heavily depends on user perspectives. However, understanding people with dementia from their perspective can be challenging. To address this, we plan to adopt an interactive participatory design methodology to examine deception within a dementia care context and explore users' attitudes toward robotic deception.

This research will contribute to the design of social robots and HRI by producing:

- Empirical insights into how robotic deception unfolds in people with dementia, highlighting the interplay between robot design and user perception;
- Practical design guidelines for developing ethical social robots for people with dementia balancing the benefits and potential harms;

A novel participatory approach to engage people with dementia in the ethical design of social robots, offering a replicable experience for studying deception in sensitive user groups.

12 JUNE 2025 09.00 - 11.00

ID 537 - "Is the robot deceiving grandma?" Addressing human-robot attachment within elderly care through creative solutions

Gaia Contu, Scuola Superiore Sant'Anna, Pisa

Keywords: human-robot interaction, attachment, deception, robot ethics, ethics of care

In the age of new technologies, our capacity to form attachment bonds extends beyond people, animals, and objects to include robots. The research field of socially assistive robotics focuses on investigating and creating robotic devices designed to provide care for vulnerable people, such as the elderly. The world population is indeed aging at an increasing rate, while care services remain scarce, and Personal Care Robots present a promising solution to combat loneliness and mental health issues among the elderly. However, this raises an important ethical question: what if the affective involvement formed in Human-Robot Interaction is based on deceptive premises? Given the frailty and delicate moral status of the end-users, this issue becomes a primary concern.

This presentation will explore the ethical issue of Human-Robot Attachment, proposing both an in-depth philosophical and theoretical analysis and the development of experimental designs that demand a high level of creativity, abstraction, and imagination.

Specifically, I will examine two questions:

- Is human-robot attachment inherently based on deception? (top-down approach)
- How can we configure an ethical Human-Robot Relationship in the case of elderly care? (bottom-up approach)

Starting from the theoretical frameworks of Human-Robot Affective Coordination (Dumouchel & Damiano, 2017), I will argue that the standard accuse of deception is based on false premises.

In fact, modern philosophy of mind, despite affirming the overcoming of Cartesian dualism and recognizing the mind as a cognitive machine like any other, continues to assume the human mind as a paradigmatic epistemic agent, and the argument of deception is precisely based on this residual dichotomy. In reality, this is not the case: the mind, as well as emotions and affective processes, exist within a relational space. Interestingly, this is also supported by empirical evidence. Experiments from the behavioural sciences and moral psychology have shown that the notion of an inner emotional or cognitive state being outwardly expressed only as a subsequent effect does not align with reality. Instead, the affective process is bilateral and bidirectional, as illustrated by William James's pragmatist theory.

After demonstrating this, I will argue that this conclusion must be further tested within a practical social space and that to develop such an experimental framework requires strong creative abilities. According to the perspective of Social Construction Of Technology (SCOT), User-Centred Design and Care-Centred Value Sensitive Design (van Wynsberghe, 2013), technoscience is not inevitable and does not occur in a deterministic vacuum, thus it is crucial to focus on user preferences and values, especially in delicate contexts such as care practices. Considering this, it is critical to develop empirical studies to test affective behaviours and emotional expectations in elderly-robot relationships.

Therefore, I will show that, given the ethical constraints and the challenges in experimental design, the ability to elaborate new collective and interactive solutions driven by art can play a decisive role. I will conclude that designing care robots to elicit attachment in the elderly is not inherently ethically controversial, yet specific precautions – which will be discussed - must be followed.

12 JUNE 2025 09.00 - 11.00

ID 854 - Designing Inclusive Phygital Public Spaces for Elder Care: A Speculative Role-Playing Workshop for Integrating Emerging Technologies

Tehilla Shwartz Altshuler, היטרקומדל ילארשיה וכמה *The Israel Democracy Institute*
Romi Mikulinsky, Aalto-yliopisto

Keywords: speculative design, aging technology, phygital spaces, elder care, ethics

Previous research in Science and Technology Studies has highlighted the growing gap between technological development and policymaking (Berardi et al, 2024; Hameed et al., 2024), particularly regarding technologies for aging populations. While scholars have examined technology adoption among older adults (Berkowsky, Sharit, & Czaja, 2018; Gambo et al., 2023) and the adequacy of technology to aging in place (Braun and Schultz, 2022; Marshall, et al., 2022) less attention has been paid to participatory approaches in designing future phygital spaces - environments where physical and digital realities converge through technologies like smart glasses. These technologies raise critical questions regarding human rights and values, such as privacy, autonomy, freedom, equality, control, and sociability in public spaces.

Our research employs a speculative design methodology to investigate how emerging phygital technologies impact four key interaction types: person-to-person, person-to-space, person-to-reality, Person-to-Platform Interactions (P2P, P2S, P2R, P2PL). Building on Pink's (2022) conceptualization of futures as experiential and contingent rather than predetermined, we developed a participatory board game as

our primary research tool. This game facilitates structured interactions between multiple stakeholders - elderly individuals, families, caretakers, technologists, policymakers, and designers - through role-play scenarios addressing ethical challenges in technology adoption.

This case study introduces a newly developed design-driven research methodology that combines multiple approaches to ensure ethical and comprehensive data collection and analysis. First, we conduct participatory design workshops using our custom-developed board game, which introduces participants to near-future fictional scenarios where they must navigate complex trade-offs of technology adoption. Second, we employ the Voros Futures Cone framework to analyze possible, plausible, preferable, and preposterous futures, moving beyond binary techno-utopian or apocalyptic visions. Third, we conduct stakeholder interviews and feedback sessions to gather qualitative data about participants' experiences and insights about the integration of advanced technologies in elder care (be it care robots, agentic AI, or immersive technologies). Finally, we perform a comparative analysis of emerging policy frameworks to contextualize our findings within current regulatory landscapes.

Our results reveal several key findings that contribute to both theoretical understanding and practical application. First, the game-based approach successfully bridges communication gaps between stakeholders, enabling more nuanced discussions about privacy, autonomy, and sociability in phygital spaces. Second, we identified specific friction points between different stakeholders' needs and values, particularly regarding surveillance and agency for elderly individuals and their caretakers. Third, our methodology effectively exposes blind spots in current policy approaches to aging technology, highlighting areas where regulatory frameworks need adjustment to address emerging challenges in phygital spaces.

These findings contribute to STS discourse by extending Pink and Salazar's (2017) work on anthropologies of the future into the domain of aging technologies. Our research demonstrates how speculative design can serve as a practical tool for democratic technology governance, while also advancing theoretical understanding of how futures are ""made, tamed, and transformed"" in the context of aging populations and phygital spaces. This approach enables us to consider not only technologies and innovation narratives but also the diverse needs and perceptions of older people, leading to more inclusive and equitable digital futures.

12 JUNE 2025 09.00 - 11.00

ID 875 - Technology-Supported Peer Counselling within Local Service Settings: Creative Solution or Shifting Care Responsibilities?

Urban Nothdurfter, Libera Università di Bolzano – Freie Universität Bozen
Eleonora Melchiorre, Libera Università di Bolzano – Freie Universität Bozen
Maria Alessandra Molè, Libera Università di Bolzano – Freie Universität Bozen

Keywords: technology-supported peer counselling, online peer support, digital outreach

This paper examines the implementation of technology-supported peer counselling as an innovative practice within the prevention and outreach strategies of local social and health care services in Italy. Adopting a critical and care-informed perspective, the paper discusses the findings of an in-depth qualitative investigation of anonymous online peer support practices and their ambiguous entanglement with institutionalised forms of public care. In the post-pandemic landscape, young people have emerged as one of the groups most affected by emotional and social fragility and exposed to mental health-related risks. At the same time, the help-seeking behaviour of young people increasingly relies on stigma-avoiding forms of support in their digitalised lifeworlds. This underscores the urgency to break down barriers to access services and develop innovative approaches and technology-supported tools aimed at reaching out to young people. Against this background, a national project was designed in Italy to promote and integrate technology-supported peer counselling in local service settings. Based on a peer-to-peer approach, the project aims to create an anonymous space where young people can access empathetic listening and openly exchange with volunteer peer counsellors. At the same time, the project is implemented within local service

settings and meant to provide a bridge towards social and health care services. Within a wider national research project (PRIN PNRR 2022) on digitally mediated practices of care, in-depth qualitative case studies examined the local implementation and interpretation of the project in different local service settings.

Through a qualitative methodology combining onsite visits, both onsite and online interviews with peer volunteers and professionals, digital ethnography, and conversation analysis, the case studies investigated the involvement and implementation of online peer support in local service settings by exploring different perspectives, observing accessibility and encounter practices, and analysing anonymous online support conversations between service users and peer volunteers.

The findings show both the potentials and limitations of technology-supported peer support and its involvement in the prevention and outreach strategies of local services. The findings are discussed from a critical and care-informed perspective to shed light on the ambiguous entanglements of this kind of support with the offer of social and health care services. The project opens new spaces for creative caring practices that challenge traditional boundaries in manifold ways and potentially bridge traditional service settings and digitalised lifeworld contexts of young people. At the same time, the findings show that volunteer peers may find themselves exposed to a wide range of needs and emotionally complex situations to be managed in an anonymous online environment.The findings suggest that promoting technology-supported peer counselling can be a creative solution for reaching out to young people by interweaving online volunteering and institutionalised services. At the same time, it remains essential to ensure that peer volunteers receive proper training and supervision, and that low-threshold online peer support is linked with a system of professional services and public care.