

Introduction to the Minitrack Digital Innovations for the Aging Society

Heiko Gewald
Neu-Ulm University
heiko.gewald@hnu.de

Doug Vogel
Harbin Institute of Technology
isdoug@hit.edu.cn

Karoly Bozan
Duquesne University
bozank@duq.edu

The aging society faces several challenges that digital innovations have the potential to address, albeit with accompanying hurdles. One of the primary challenges is the digital divide that separates the tech-savvy from those who have limited or no access to technology. This divide is often more pronounced among older populations due to various factors such as lower technology literacy, apprehension towards adopting new technologies, and physical limitations like reduced vision or motor skills. Digital innovations aimed at this demographic must, therefore, prioritize ease of use, intuitive interfaces, and accessibility features. However, this presents an opportunity for inclusive design that can result in products that benefit not just the elderly but anyone needing simplified and accessible technology. Moreover, there is the potential for digital platforms to enhance the social connectivity of the elderly, who often face isolation, by providing them with tools to engage with their communities, friends, and families.

Healthcare represents a domain where digital advancements present both challenges and opportunities. Wearable devices, telemedicine, and AI-driven diagnostic tools can drastically improve the quality of healthcare for the elderly, allowing for more personalized and preventive care approaches. However, these technologies also raise concerns about data privacy, security, and the potential for widening health disparities if not equitably accessible. Ensuring that digital health innovations are compliant with privacy laws and are developed with a focus on equity can help mitigate these challenges. Furthermore, there is an opportunity to leverage big data and machine learning to understand the aging process better and develop interventions that can enhance the quality of life for older adults. As the demographic of older individuals grows, the impetus for scalable, effective digital solutions in healthcare becomes increasingly urgent, opening up a field ripe for innovation and investment. This year's submissions aim to provide insights and address some of the aforementioned challenges and opportunities.

“AphaDIGITAL – Digital Speech Therapy Solution for Aphasia Patients with Automatic Feedback Provided by a Virtual Assistant” by Eugenia Rikova presents aphaDIGITAL, a mobile app designed to aid German-speaking individuals with aphasia in their speech and language therapy (SLT), featuring automated speech recognition and text analysis for comprehensive feedback on various errors. Users engage with personalized exercises on their mobile devices, guided by an avatar-based SLT assistant, with all data processing handled by a server.

“Designing for and Assessing Learning in Digital Health Apps and Platforms: Case Study of a Comprehensive Digital Self-care Support System (CDSSS - myHESTIA) for the Aging” by Priya Nambisan explores the effectiveness of Digital Health Apps and Platforms (DHAPs) like 'myHESTIA' in promoting health awareness and self-management, and introduces a novel scale to evaluate learning outcomes within such systems, drawing insights from psychology, communication, and sociology. It also details the ongoing validation of this scale and discusses the broader implications of a learning framework in DHAPs for both research and practical applications.

“The Relationships between Different Forms of Gamification and User Experience: A Study in the Context of Elderly Well-being Applications” by Yanping Zhang investigates the impact of different gamification designs on the user experience of the elderly, identifying a gap in research regarding their role in promoting well-being in an aging society. It examines how various types of gamification affect elderly users' feelings of comfort, engagement, and other relevant experiences in the context of health applications through an offline experiment involving 372 participants. Findings reveal that achievement-oriented gamification positively influences engagement and novelty, among other factors. Social-oriented gamification improves most user experience dimensions, and immersion-oriented gamification significantly enhances comfort and immersion.