The role of centers in advancing Gerontechnology
N. Charness (Convener)

Participants: S. J. Czaja (USA), W. R. Boot (USA), J. Sanford (USA), N. Charness (USA), W. A. Rogers (USA). **ISSUE** Gerontechnologies have potential to improve the wellbeing of aging adults, yet there is a significant lag in adoption of technology by older cohorts. Part of the reason may lie in inefficient strategies for disseminating research and product development to end users: aging adults living in communities. **CONTENT** Our symposium will discuss strategies adopted by university-specific and federally-funded USA Centers to disseminate research findings both to the scientific community and to aging populations. It will highlight: 1) methodologies in common across centers; 2) different challenges for locally funded and nationally funded centers; and 3) evaluation processes to assess dissemination plans and strategies. **STRUCTURE** Czaja discusses the evolution of the CREATE center, a five-times funded (National Institutes of Health) interdisciplinary group with over 20 years of experience in human-factors-guided development of gerontechnology. Boot discusses the dissemination plan in a new Rehabilitation Engineering Research Center, ENHANCE, funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), that provides formal training about product development and marketing to principal investigators. Sanford discusses a mature NIDILRR center, TechSAge, and provides examples of how TechSAge disseminates its findings. Charness discusses the mission of the Institute for Successful Longevity, a relatively young university-based Center, and how it provided community support during the initial lockdown stage of the COVID-19 pandemic. Finally, Rogers discusses a relatively new University center, CHART, and the role of partnerships in developing community linkages. **CONCLUSION** Bridging the gulf between academic research and product development requires linking academic research, product developers, and community members to ensure that gerontechnologies suit diverse aging populations. We provide specific examples of how both academic and federally funded research centers can develop effective dissemination strategies to ensure that both developers and aging adults partner effectively in the development and dissemination of gerontechnology products. Such partnerships are crucial for bridging the digital technology divide.

CREATE: Center for Research and Education on Aging and Technology Enhancement

S. J. Czaja, W. Boot, N. Charness, W. A. Rogers, J. Sharit

Purpose The Center for Research and Education on Aging and Technology Enhancement (CREATE) was founded in 1999 and is a multi-disciplinary, multi-site Center that is supported by the National Institutes of Health. The focus of CREATE is on aging adults and their interactions with technology systems. The overarching goal of CREATE is to harness the potential benefits and power of technology to maintain, support, and foster the cognitive, emotional, and physical health of aging adults to enhance independence, well-being, and quality of life. **Method** The aims of CREATE are to conduct research aimed at developing, implementing, and evaluating technology-based solutions that support successful and productive aging; provide interdisciplinary training and research opportunities to students and junior scientists; and broadly disseminate the findings, protocols, and tools of CREATE. To achieve these aims CREATE has a research program that includes individual and cross-site projects (Weill Cornell Medicine; Florida State University, University of Illinois at Urbana Champaign) and a pilot research program; Administrative, Data and Technical Development, and Dissemination Cores and Community, Scientific and Industry Advisory Boards. The conceptual framework for CREATE is based on a transactional model of person-technology interactions which recognizes the importance of individual differences, the influence of context (physical and social) on performance, and that human-technology interactions are dynamic and changes over time. CREATE's research approach is guided by a combined Human Factors Engineering and Cognitive Psychology approach with a focus on user-centered design. The user-centered design process is a fundamental component of our research projects. Our cross-site structure enables us to examine issues surrounding aging and technology with diverse populations in diverse contexts. It also enables us to expand our scientific and technical resources and to broaden our dissemination footprint. **Results and Discussion** CREATE has developed a comprehensive data base on aging and technology; examined issues of aging and technology across a range of tasks, technologies, and populations; promoted new areas of research; trained new investigators; and broadly disseminated our findings and tools nationally and internationally to researchers, policy makers, service providers, and aging adults. Our research portfolio encompasses attitudinal issues, issues related to technology adoption and acceptance, input and interface design, training and instructional support, and technology applications in living, work, leisure, and healthcare settings. The research projects explore innovative uses of existing technologies and support the development of new technology tools and are designed to make contributions to science and yield practical outcomes with direct impacts for older adults and families. Importantly, our book *Designing for Older Adults* (part of the Human Factors and Aging Series)*,* jointly authored by the CREATE Principal Investigators, is now in its third edition and we also co-authored a compendium Case Studies companion book. CREATE also has established strong community and industry partnerships, that are essential to our research, training, and dissemination programs. Overall, CREATE strives to develop, implement, and evaluate technology-based lines of research, interventions, and programs, to support health and wellbeing; ensure that technology applications achieve full potential, and are accessible, useful to, and usable by diverse populations of aging.

SYMPOSIUM PRESENTATION 7: OTHERS

Enhancing neurocognitive health, abilities, networks, & community engagement

W. R. Boot, S. J. Czaja, N Charness, W. A. Rogers

Purpose The ENHANCE Center represents a consortium of three institutions (Weill Cornell Medicine, Florida State University, University of Illinois at Urbana-Champaign). The focus of ENHANCE is on developing novel technology solutions to help older adults living with cognitive impairments live independently. The target populations of the ENHANCE Center are older adults living with mild cognitive impairment (MCI), older adults living with cognitive impairments due to traumatic brain injury (TBI), and older adults living with cognitive impairments due to stroke (PSCI). Technology solutions developed by ENHANCE aim to support transportation and mobility needs, socialization and cognitive engagement, and prospective memory functioning. **Method** The ENHANCE team of investigators and key members includes experts in human factors engineering, gerontology, neurology, rehabilitation medicine, psychology, applied health sciences, communication disorders, biostatistics, computer science, and artificial intelligence. A multidisciplinary perspective is crucial to the development of useful and usable gerontechnology for older adults living with cognitive impairments. Gerontechnology design involves an iterative, user-centered design process, including feedback from older adults, care partners, and community and industry stakeholders at all stages of development. Multiple large and small-scale needs assessment studies provide valuable information regarding challenges older adults with cognitive impairments face in their everyday lives and potential technology-based solutions. In addition to traditional academic dissemination routes (e.g., conferences, journal publications), a diverse External Advisory Board facilitates bidirectional communication among researchers and community and industry partners to ensure relevant needs are being addressed and findings reach outside of the laboratory/academic setting. Evolving technology transfer plans aim to maximize the chances for developed technologies to have real world impact. Finally, webinars are another method of dissemination, including to technology designers, and student design competitions help to engage and train the next generation of gerontechnologists. **Results and Discussion** The work of the ENHANCE Center aims to improve the lives and community engagement of older adults with cognitive impairments and the developed infrastructure of the Center aims to ensure that findings reach those for whom they would be most useful.

ENHANCE

SYMPOSIUM PRESENTATION 7: OTHERS

TechSAge: Rehabilitation engineering research center technologies to support aging-in-place for people with long-term disabilities

J. A. Sanford, W. A. Rogers, T. L. Mitzner

Purpose The Rehabilitation Engineering Research Center Technologies to Support Aging-in-Place for People with Long-term Disabilities (RERC TechSAge) is a multi-disciplinary, multi-site Center founded in 2013 that is supported by the National Institute on Disability, Independent Living and Rehabilitation Research, which is housed in the Administration for Community Living, U.S. Department of Health and Human Services. TechSAge features multidisciplinary research, development, and training projects that are dedicated to understanding the needs of, and developing supportive technologies for, people aging with long-term vision, hearing, and mobility disabilities. **Method** TechSAge aims to support and empower people with chronic conditions and long-term impairments to age-in-place through increasing knowledge about, availability of, and access to effective design and technologies that enable individuals to sustain independence; maintain health; engage safely in basic activities at home and in the community, and fully participate in society. To achieve these aims TechSAge has an administrative core as well as research, development and training programs at Georgia Institute of Technology, University of Illinois at Urbana Champaign, and Georgia State University that are guided by an Advisory Board with academic, scientific and industry advisors. The conceptual framework is based on the *TechSAge Aging and Disability Model* which integrates the World Health Organization's International Classification of Functioning Disability and Health and ecological models of person-environment fit, to recognize that the additive effects of age-related functional declines on pre-existing impairments disrupts the dynamic relationship between the environment, including technology, and activity performance and participation. As such, TechSAge R&D is guided the approach that disability can be minimized or avoided through the understanding and implementation of human-centered, universal design strategies that meet the unique needs of people aging with long-term sensory and mobility disabilities. **Results and Discussion** TechSAge user needs research has advanced knowledge about the challenges in the performance of everyday activities and needs for, and use of, assistive and smart technologies. Research has also focused on increasing the accessibility and availability of technology-based interventions (e.g., voice-activated software applications and an evidence-based, home exercise program) to support independence, health, and aging-in-place for people aging with sensory and mobility impairment. Development projects are engaged in enhancing the safety and support in performing daily activities in the home and community through the deployment of innovative mobile software and virtual reality applications, user-friendly starter kits for voice-activated assistants and the development of a smart bathroom laboratory. Finally, training is designed to expand the supply of skilled individuals qualified to conduct advanced rehabilitation engineering research and/or develop useful and accessible aging-in-place technologies. A variety of resources highlighting the RERC's work are available in publication, Youtube and at TechSAge.gatech.org, including publications, technology products, podcasts, webinars, videos and tools for researchers, practitioners, and consumers.

The Institute for Successful Longevity (ISL) at Florida State University, USA
N. Charness

Purpose The goals of the ISL are 1) to understand the mechanisms of age-associated disorders and functional and cognitive declines; .2) to develop the best holistic interventions to counter those declines; 3) to disseminate this knowledge to the community, to aging adults, and to their care partners; 4) to cultivate the scientific, social, and political leadership on this issue that will engage the nation. **Method** ISL is a university-based Center supported financially through the Office of the Provost, and a critical contributor to our Age-Friendly University initiative. We typically have about 90 affiliates from a broad variety of disciplines and Colleges on campus. To address our first two goals, ISL organizes interdisciplinary research projects focused on applying for federal funding to support its scientific mission. We also provide a pilot grant program to form interdisciplinary teams and have arranged "collaborative collisions" to put faculty interested in interdisciplinary research together. ISL also specializes in intervention research projects, particularly those supported by gerontechnology. Aside from using a listserv to announce funding opportunities, ISL also has a regular brown bag lunch series during the Fall and Spring semesters to enable interdisciplinary exchanges, a Successful Longevity lecture series speaker twice a year, and manages a participant registry containing approximately 2600 adults age 60+ who have volunteered to participate in aging research projects. We also provide an annual student poster day event to allow graduate students from different disciplines to meet. To support our dissemination goal, we have a joint advisory board consisting of members of the university and the community that meets quarterly to discuss how we can better disseminate our findings and organize our activities. We also invite community members to attend our brown bag and speaker series events, though this has shifted during the pandemic to virtual meetings. The Director and other ISL members also give talks to community groups. To support virtual meetings during Covid-19 lockdowns, we provided training on the use of Zoom videoconferencing to community members. We partner broadly with other groups with interests in aging on campus and in the community to sponsor outreach events such as an annual transportation day and partner on interdisciplinary conferences. We also publish a quarterly newsletter and an online blog that features ISL research projects. We also maintain a web page and a Facebook page that features daily postings. **Results and Discussion** ISL has created research collaborations that have led to federal funding for interdisciplinary teams. ISL collaborates closely with our community senior center for events such as senior expo, recognizing nonagenarians, supporting the City of Tallahassee's Wellness & Retirement event for their employees, and cross-advertises other community and campus events. Having links to and from the community has enabled us to address dissemination of research findings beyond traditional academic outlets such as journals and scientific meetings.

CHART: Collaborations in Health, Aging, Research, and Technology

W. A. Rogers, A Stanfield

Purpose Collaborations in Health, Aging, Research, & Technology, or CHART, is an interdisciplinary research program comprised of University of Illinois Urbana-Champaign faculty, students, community members, and healthcare providers devoted to supporting research efforts that promote aging successfully through the use of technology. It was founded in 2017 and is Directed by Wendy Rogers and Coordinated by Alyssa Stanfield https://chart.ahs.illinois.edu/. **Method** The mission of CHART is to enable successful aging through fundamental research; advanced technology development; education of researchers, developers, healthcare professionals, and older adults; guidance for policy decision-making; and translation of these efforts to positively affect the lives of older adults. CHART receives guidance from a Steering Committee that includes faculty members and community partners. We have adopted a set of core values that are foundational to our activities: transformative approach; positive views about aging; inclusive and people-centered design; ensure equity, reduce disparities; affordable, available, high-quality, effective solutions; research with older adults, not for them; integration with industry, agencies, policy makers; international in scope and impact; interdisciplinary and collaborative. **Results and Discussion** CHART is the lead on the Age-Friendly University (AFU) initiative that was approved at our university in 2020. We had tremendous support for our proposal from all areas of campus, including the Chancellor, the Provost, six deans, and several institute directors. We are using the shared principles of the AFU as a framework to advance the mission of CHART. As such, we are developing strong links to the community, coordinating efforts with the Age-Friendly Champaign-Urbana Cities group, the Senior Task Force, and the Illinois Department on Aging. We are supporting a student organization that is intended to link undergraduate students with older adults in the community and assist them in developing legacy books that tell their story. We are developing the CHART Panel of Elders that will enable researchers to receive guidance on their technology development activities from older adults with a range of abilities. We work closely with interdisciplinary faculty teams to support their grant activities and facilitate their use of the McKechnie Family LIFE Home, a novel home simulation space on campus. The LIFE Home is multi-function and interdisciplinary facility to support research, education, and outreach activities, including a simulated home environment for research; teaching, learning, and design activities; faculty innovation; community engagement; industry partnerships; and healthcare provider collaborations.