Approximately 9 % of those aged 65 and over have a cognitive impairment due to a variety of causes including Alzheimer's disease and other forms of dementia, Mild Cognitive Impairment (MCI), Parkinson's disease, traumatic brain injury (TBI), and stroke. Few technology solutions have been directed towards supporting older adults with cognitive impairments and the literature regarding the efficacy of these solutions is sparse. In this symposium, we describe our new Center called ENHANCE (Enhancing Neurocognitive Health, Abilities, Networks, and Community Engagement), which is focused on developing technology support for aging adults with a cognitive impairment due to MCI, TBI, and Stroke. Sara Czaja will provide an overview of the conceptual framework, goals, and structure of ENHANCE, and describe the STRUMM project, that focuses on the design and evaluation of an innovative intelligent adaptive software package aimed at providing cognitive and social support to aging adults with cognitive impairments. Wendy Rogers will discuss the ENACT project, a longitudinal needs assessment focusing on understanding the needs, challenges, and support preferences of our target population and informal caregivers. Neil Charness will describe the AUGMENT development project, which is concerned with developing an instructional support tool for mobility activities, such as wayfinding, locating, and using transportation services. Finally, Walter Boot will discuss the DREAM development project, which is focused on developing a technology-based cognitive aid to support prospective memory activities. Michelle Bourgeois will serve as the discussant for the symposium and highlight the unique opportunities and challenges associated with ENHANCE.

STRUMM: AN INTELLIGENT, ADAPTIVE SOFTWARE PACKAGE FOR OLDER ADULTS WITH A COGNITIVE IMPAIRMENT

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Many older adults have a cognitive impairment (CI), which negatively impacts on their quality of life and threatens their independence. In this presentation, we provide an overview of the conceptual framework, structure, and processes of our multi-site Center, ENHANCE, which is focused on developing technology support for aging adults with a CI. ENHANCE has two cross-site research projects, two cross-site development projects, training, and dissemination components. A core battery of measures is collected across all projects. We also discuss the Supportive Technology Resources through Usability & Machine-learning Methods (STRUMM) research project, which focuses on an innovative intelligent adaptive software package aimed at providing cognitive and social support, and support for resource access to aging adults with a CI. STRUMM is designed to meet the user's varying cognitive needs. Finally, we present preliminary data regarding the perceived usability and value of STRUMM from our clinical partners and potential user groups.

EVERYDAY NEEDS ASSESSMENT FOR COGNITIVE TASKS: CHALLENGES FOR PERSONS WITH COGNITIVE IMPAIRMENT

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ENACT (Everyday Needs Assessment for Cognitive Tasks) is an exploration and discovery project to gather information on challenges in daily and community living experienced by individuals aging with compromised cognition due to mild cognitive impairment, traumatic brain injury, or post-stroke. We are exploring their challenges through a longitudinal needs assessment study involving interviews with older adults with cognitive impairment and their care partners. We will describe the study development process wherein we interviewed subject matter experts, including persons with professional (neurology, rehabilitation, gerontology) or personal experience with individuals who have cognitive impairment. Based on their collective insights, we selected the following categories of activities for the ENACT in-depth interviews: health, social engagement, transportation, domestic life, and leisure/recreation. The ENACT longitudinal data will provide insights to guide development of adaptive, context-sensitive technology-based supports for the AUGMENT, DREAM, and STRUMM projects described in this symposium, as well as other initiatives.

AUGMENT: NAVIGATION APPS INSTRUCTION FOR OLDER ADULTS WITH COGNITIVE IMPAIRMENT

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Augmenting User Geocordinates and Mobility by ENhanced Tutorials (AUGMENT) is a development project in the ENHANCE Rehabilitation Engineering Research Center aiming to promote community engagement for aging adults with cognitive impairment (CI) from stroke, traumatic brain injury, and mild cognitive impairment. AUGMENT aims include 1) providing proof of concept that a robust instructional package can support successful use of existing, complex navigation apps, Google maps and rideshare app Uber, by a diverse set of people with CI; and 2) providing proof of product by testing performance with and without instruction. We discuss the needs assessment phase and development of new tests to assess wayfinding abilities and reported difficulties with navigation, using a control sample of 384 community-dwelling older adults. We found that self-reported navigation difficulties are predicted (R-square = .28)