

# DESIGN AND DEVELOPMENT OF AN ASSISTIVE ROBOTIC MANIPULATION EVALUATION TOOL (ARMET)

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## ABSTRACT

More than 7.7 million Americans have a disability that limits their ability to self-care, and more than 150,000 Americans would benefit from the use of assistive robotic manipulators (ARMs). The lack of a standardized tool to evaluate the effects of ARMs is one of the key factors holding back robotic arms from more common assistive technology use. This paper presents the design and development of a performance-based observation tool, the Assistive Robotic Manipulator Evaluation Tool (ARMET), to measure the functional performance and effects of ARMs. During the design and development of this tool, we focused on a user-participatory approach by involving end users, clinicians, and researchers. Meaningful and feasible tasks for the ARMs were identified with focus group studies. Prototype ARMET task boards and modules were built in accordance with International Classification of Functioning, Disability and Health (ICF) with varied complexities. Feedback from 5 end users and 6 clinicians/researchers were incorporated into the final ARMET.

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