Meet Our Members: Desmond Asante

Desmond Asante is a PhD student in the NeuroRehabilitation Across the Life Span (NeuRAL) Laboratory in the School of Kinesiology at the University of Minnesota, Twin Cities. He became an ASNR member in 2025 to engage with the neurorehabilitation community and present his research. In this short interview, Desmond shares more about his background and his work.

1) How did you get interested in science, and what steps did you take to get to your current role?

My regular hospital admissions as a child in Ghana instilled in me a deep empathy for individuals who are sick and sparked a curiosity about how the human body works, particularly how we move. I directed my many “hows” and “whys” about the human body to my father, who encouraged me to consider pursuing a degree in the sciences. My compassion for those who were ill, combined with my fascination with human movement, motivated me to pursue a degree in Physical Therapy at the University of Ghana.

After completing my degree, I practiced as a Physical Therapist for six years across various departments, including cardiothoracic, orthopedic, outpatient, and neurology. During this time, I worked with many individuals recovering from stroke and gained firsthand insight into the challenges of achieving functional upper-limb recovery, both for therapists and for individuals with stroke. I also recognized that the lack of objective, quantitative assessments often limited our ability to accurately evaluate recovery and guide individualized rehabilitation.

Driven by a desire to better understand and promote functional upper-limb recovery after stroke, I joined the University of Minnesota, Twin Cities, to pursue my PhD in Kinesiology at the NeuroRehabilitation Across the Lifespan (NeuRAL) Laboratory under the mentorship of Dr. Rachel Hawe. In my current role, I have received funding through the Clinical and Translational Science Institute, the Interdisciplinary Doctoral Fellowship, and the Doctoral Dissertation Fellowship to develop quantitative assessments of bilateral arm use that are suitable for clinical practice and research.

2) What is the focus of your current research, and what are some of your findings?

My current work focuses on the use of technology to assess bilateral arm movements following stroke. Most everyday activities require coordinated movements of the arms. Stroke impairs the ability to coordinate both arms, interfering with performance of functional tasks. Although stroke is typically characterized by unilateral sensorimotor impairments, individuals with stroke often experience additional difficulties coordinating both upper limbs. These challenges cannot be explained by one-sided deficits. However, there are currently no assessments that specifically

measure impairments in bilateral upper limb coordination. As a result, a key part of stroke rehabilitation, specifically, how the two upper limbs are coordinated during goal-directed reaching and functional tasks, remain poorly quantified.

Therefore, my goal is to evaluate objective, technology-based methods for quantifying bilateral upper limb movements in healthy adults and chronic stroke populations, using robotic and computer vision approaches in both simple reaching and functional movements. Initially, I compared how the performance of healthy young adults differs between robotic and augmented reality-based computer vision assessments of simple unilateral and bilateral reaching. The results of this study demonstrate that, while both robotics and computer vision can provide quantitative measures of unilateral and bilateral reaching, much of how an individual performs is specific to the way reaching was assessed. Currently, I am evaluating the accuracy of computer vision-based motion capture for assessing bilateral functional task performance in individuals with chronic stroke, relative to the gold-standard three-dimensional infrared motion analysis system.

3) How have you benefited from your membership in ASNR and receipt of the Diversity Fellowship Award?

As an ASNR member, I presented posters at the ASNR 2025 and 2026 Annual Meetings in Atlanta and Los Angeles, respectively. Through interactions with other experts at both conferences, I gained valuables ideas that have shaped the trajectory of my work. At the 2026 conference, for which I was sponsored by the Diversity Travel Fellowship, I was exposed to potential career opportunities beyond my PhD through roundtable discussions and conversations. Thanks to the fellowship, I can participate in the next two ASNR Annual Meetings, further expanding my professional network. This will allow me to gain more valuable perspectives that will continue to inform my research and career development

4) What are your longer-term career goals?

In the long term, I envision a career that combines translational clinical research and mentorship. I aspire to integrate emerging technologies, such as computer vision, into impactful neurorehabilitation applications that improve the assessment and treatment of individuals with neurological conditions. I also look forward to mentoring and training the next generation of students, encouraging them to pursue research that addresses meaningful clinical challenges.

You can connect with Desmond on LinkedIn to learn more about him and his research.