

Board of Directors Spotlight: Dr. Michelle Johnson

ASNR provides excellent leadership opportunities for members with our Board of Directors, which includes Board Members, as well as officer and committee chairs on our Executive Committee. Earlier this year, we were excited to welcome Michelle Johnson, PhD, as our newest Board of Directors Member. Dr. Johnson is an Associate Professor of Physical Medicine and Rehabilitation at the University of Pennsylvania, where she also holds secondary appointments as an Associate Professor in Bioengineering and as an Associate Professor in Mechanical Engineering and Applied Mechanics. She directs the Rehabilitation Robotics Lab at the Perelman School of Medicine at the University of Pennsylvania which is also a part of the General Robotics Automation Sensing and Perception (GRASP) Lab in the School of Engineering and Applied Mechanics. In this interview, Dr. Johnson shares more about her background, her work, and her perspectives as she begins her new role as a leader within ASNR.



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

I can't remember a time when I was not interested in science. I was always fascinated by math and the human body. I went to Bronx High School of Science in the Bronx, New York. I knew I was good at it, and I loved doing math and science work. When I was in my junior year, I went to talk to a guidance counselor about potential careers. I told her about what I found most interesting, and she told me about biomedical engineering. I applied and was accepted into UPenn's Bachelor of Science in Engineering (BSE) in Bioengineering Program, but I quickly changed my major because I realized I liked building and designing more than learning about tissues and bodies. That started me on my journey to degrees in mechanical engineering. I got into robotics during my master's program and then discovered rehabilitation robotics when my grandma had a stroke. When I found out that I could potentially help her with robots and smart assistive technologies, I knew this was what I wanted to pursue.

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

I am now passionate about developing affordable rehabilitation and assistive robotic technologies that can be used by adults and children in all types of settings — both low and high resource settings, in the USA and in developing countries. I am primarily focused on using these technologies with persons who have non-traumatic brain injuries such as stroke, cerebral palsy, HIV-associated brain injury, etc. Currently, my research is examining how these technologies

can help us understand impairment at the intersection of cognitive and motor function, and how these impairments impact activities of daily living (ADLs). I am also focused on developing affordable robotic technologies that can be translated into the clinic.

3) Why did you decide to get involved with the ASNR Board of Directors?

The short and honest answer is that I was contacted by Dr. Catherine Lang, the Immediate Past President, and invited to join the Board. I wasn't expecting this opportunity, but when I considered it, I realized I had always wanted to be more involved in ASNR and its Annual Meeting. I would like to see more engineers involved in the society as well. I think engineers can learn a lot by interacting more with clinicians, and I believe that engineers also have valuable perspectives and skillsets that we can share with clinicians and neurorehabilitation researchers from other backgrounds.

FAST FACTS

FAVORITE BREAKFAST CEREAL

FROSTED FLAKES

FAVORITE BOOKS OR MOVIES

ACTION ADVENTURE/SCI-FI, SUCH AS *STAR TREK* AND *LORD OF THE RINGS*

FAVORITE PLACES TO TRAVEL

I PARTICULARLY LOVE ITALY

FAVORITE SCIENTIFIC JOURNALS TO FOLLOW

IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING (IEEE TNSRE) AND *NEUROREHABILITATION AND NEURAL REPAIR (NNR)*

IF YOU DIDN'T PURSUE A CAREER IN NEUROREHABILITATION, WHAT OTHER CAREER MIGHT YOU HAVE CHOSEN?

MY MOM ALWAYS SAID I ARGUED A LOT, SO A LAWYER, I THINK, OR MAYBE A HISTORIAN - HISTORY FASCINATES

4) What do you enjoy most about being an ASNR Board Member?

I am new to the Board, so I can only anticipate that it will be a great learning experience. In deciding to join, I also took into consideration who I would be working with in this position, and I am very excited to collaborate with this exceptional group of people to help shape the future of ASNR and advance the field of neurorehabilitation. I have worked with the incoming president, Dr. Lewis Wheaton before on NIH Advisory Board and found his thoughts and insights on various topics in the field to be synergistic with my own and hope that under his leadership I can contribute to ASNR's mission.

5) What do you see as the biggest challenges or areas of opportunities in neurorehabilitation research right now?

I think there is an increased need to foster multidisciplinary collaborations that include engineers and other technical disciplines. For too long, we have developed technology solutions for therapy and everyday function that don't make it into the clinic. It is time for that to change, and it will only change if we work together and not in silos. As devices leverage more and more complex technologies, the need for collaboration only increases.

Another issue for me is cost. Too many times, access to rehabilitation and technologies is poor, even in the USA. The shortage of clinicians, combined with the rapid increase in persons with disabling impairments, suggest that these access issues will only get worse. As an engineer, I see technology playing an important role in improving access to high-quality rehabilitation care to improve outcomes for the individuals we serve. But that is only feasible if we work well with our rehabilitation research and clinical colleagues.