

I have spent the majority of my life surrounded by people with limited access due to their disabilities or health problems and seen firsthand how their lives were impacted by things other people can take for granted. For example, until I had tried making a prosthetic arm or tried to emulate their experience to get a better understanding, I never realized just how hard it is for a patient to be able to grasp a button and button their shirt if they are an amputee. Since I began experiencing these types of underappreciated issues, I have spent much of my time endeavoring to find the best ways to make all of the work that I do accessible to as many people as possible. These reasons are among the strongest for why I was most attracted to the specialties of medicine I am interested in. I have also had the good fortune to grow up with Aspergers' syndrome as my diagnosis has led me to be highly observant of other people and their behaviors, needs, and wants. It has also allowed me the opportunity to experience life around and with other students with disabilities and to meet my high school best friend, who was unable to hold things that were reasonably heavy due to a physical disability. He had to type on a computer and needed someone to help him carry things because of his condition.

These experiences and interests have made me increasingly aware of the small things in my everyday life that people might take for granted and were intensified once I found myself with an injured knee last year. Recovering from surgery, I found maneuvering the home I once found simple to traverse to be difficult without some sort of support along the walls or at my sides. This experience combined with my spending seven years at RIT collaborating with deaf and hard-of-hearing students have made me increasingly aware of the importance of accessibility, patient quality of life, and continuum of care. It may then be unsurprising that the areas of medicine that most interests me were those associated with physical access to a fulfilling life such as the musculoskeletal and neurological sciences.

That interest was further strengthened through my interest in biomechanics and neural interface technologies as a way to restore sensory perception and general quality of life for amputees. As I delved deeper into the medical science, I found the importance of medical devices in the application of medicine to be overwhelming and determined I would need to be able to design devices myself to be able to best help my future patients. As I delved deeper into these interests I found myself knee-deep in literature but with a need to experience what it would be like to work in these fields as a physician. The same summer as my knee surgery, I also spent several weeks volunteering at a physical therapy office watching patients recover and thereafter attended the same office as a patient. Not everyone does all of their assigned exercises or does them correctly when they go home so it can be important to consider continuum of care in treating patient disability and injury. I also was able to spend a few weeks shadowing the hand surgeon and a physical medicine & rehabilitation specialist at the same facility both in office and in the outpatient surgical facility and I saw firsthand patients coming in for their first meeting, their procedure, and how their lives were improved afterward. I could see how much of an impact the doctor's treatment process had on the trust of that patient and how his treatment process was affected by their trust. This experience was extremely moving for me to watch and is one of the major reasons why I feel that being in that position will allow me to effect the greatest benefit onto patients' lives because as a physician, patients will trust

me with much of what ails them and makes them uncomfortable that I might not ever hear or experience otherwise. I not only feel this is crucial in designing an optimal treatment for the patient but I also feel it is an aspect often overlooked in the medical device design process. So often amputees abandon their prostheses because they are too difficult to use or weren't designed while considering the human factors of the design. As a physician I will be able to intimately discuss how best to address the problems of these individuals and my game design and biomedical engineering experience will prove of utmost importance in delivering on that mission. I also value scientific exploration just as much as treating patients today as I see research as an investment in the patients of tomorrow. My experiences in research helped me to recognize the importance of patient privacy, recognition of vulnerable populations, and the importance of informed consent in all parts of the patient treatment and research processes. All of these are just as important, if not more important, in medical practice as they are in generalizable research. I also spent time at the University of Rochester's Ambulatory Orthopedics department as a volunteer where I helped clean rooms, wheel patients around, keep tabs on inventory, and ensure patients are being taken care of. There was one patient that spent a long time waiting in the office to get a cast but no one came to help him for almost an hour so I went around to try to find someone who could help him. He was not happy or conversational at first, likely due to pain and impatience, but after he got helped he was visibly happier and I was elated to have been able to help him, though still wishing I could have helped him more quickly. I had a similar experience on an engineering design challenge where I was faced with the issue of not being able to see patients quickly enough at another facility so I imagine this is a fairly common problem, particularly in the dichotomy of the choice between spending more time seeing each patient and seeing more patients for less time. I imagine physicians struggle with this every day.

My game design program has also afforded me opportunities to design software and technologies which are accessible to the blind, colorblind, deaf, and those otherwise impaired. In today's entertainment and everyday technologies, I find it quite uncommon that I hear about these being deaf friendly or blind friendly or accessible in some other way. Even though these people share in everyone's desire to enjoy themselves through play and to be able to have conveniences in their everyday lives, I don't often hear people thinking about "what if someone couldn't tell the visual difference between these colors (for someone who is colorblind)?" or "what if someone can't hear the auditory instructions given to them?". That said, our society is filled with technologies that enable this sort of functionality. Many train stations have floating light up message signs which dynamically adjust text to notify passengers of approaching trains; this is a lot more useful to someone who cannot hear the announcer mentioning them. I'd like to incorporate these elements into my own private practice one day to make a truly accessible health experience for all.

I was also a member of a large number of other student organizations over the years. Among them were the RIT Reach Mahjong club, where I learned patience and tolerance as a result of my several years playing the game, and Phi Sigma Pi, where I found opportunities to provide support for people who were emotionally or otherwise struggling or in need of

leadership. Seeing a need for one, I also started a club to teach other students how to make games and give them a place to work collaboratively together. I ran the club for about five years and today the club has a consistent nearly fifty-member attendance and continues to serve as a free educational service to all students regardless of their circumstances or identity.

Ultimately, I hope to become a physician-scientist treating amputees and other physically disabled individuals and investigating ways we can better serve these patients with new treatment modalities. We also need more physicians with engineering experience who understand medical devices they use because it is not as helpful to just be able to read a scale but knowing why it might not be working correctly can add insight which can help you to appreciate how the function of the device may impact the patient's quality of life, continuum of care, personal experiences, and their diagnosis and treatment.