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Virtual reality for persons with disabilities: Current research and future challenges

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Immersive Virtual Reality (VR) has been in research labs since the 1960s, but it will soon finally make it into the home (hopefully). Facebook's $2 billion acquisition of Oculus, a small kick starter funded startup for immersive head mounted displays, was a historical landmark in 2014 towards the goal of affordable, home-based VR systems. However, what impact will this have on persons with disabilities? Will at-home VR be universally usable and accessible? Based on the current research in VR, there are many challenges that must be overcome for VR to be usable and beneficial for persons with disabilities. Although researchers have studied fundamental aspects of VR displays and interaction, such as the effects of presence (i.e., the sense of 'being there', the suspension of disbelief), interaction techniques, latency, field of view, and cyber sickness, etc., almost all of the prior research has been conducted with healthy persons. Thus, it is not known how to effectively design an immersive VR experience for persons with disabilities, which could have a significant impact on emerging fields like VR rehabilitation and serious games. This talk explores what we know (or what we think we know) about how persons with disabilities experience VR and highlights the grand challenges that if met, could significantly improve quality of life for persons with disabilities.

Biography

John Quarles is an Assistant Professor at the University of Texas at San Antonio in the Department of Computer Science. He is both a virtual reality researcher and a multiple sclerosis patient, who has an array of disabilities. This gives him a unique perspective on how virtual reality can potentially improve the quality of life of persons with disabilities. In 2014, he received the prestigious National Science Foundation's Career award for his work in this area.

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