Concept Exploration: Virtual Reality in Medical Training

CSE 326 Software Engineering

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1/29/2021

Over the past decade we've seen a significant improvement in the software and hardware available for virtual reality experiences. With the commercialization of popular VR headsets like HTC(Vive) and Oculus(Rift), it's not surprising that a lot of different fields of study are developing VR software for educational/research purposes. One of the fields that we can see making some of the most significant developments in virtual reality software has been in Medicine and Healthcare. There's a lot of great companies that have released hardware and software for stuff like training doctors by walking them through specific procedures simulated in VR, visualizing medical problems in patients, and even treatments.

As far as educational purposes goes, there's a lot of software that will walk medical students through specific procedures, giving them a better visual representation of what that operation may look like as we have graphics that can anatomically represent the body perfectly. The next logical step to this technology would be developing a software that would enable medical students to perform these procedures themselves on a virtual body, excluding the need for cadavers or patients to practice on. The main problem when coming to this is designing accurate graphics to do this, as there are many different tissues, fluids, and parts that make up the human body that work, move, and react to interaction in different ways.

From the research I've done it seems pretty common for projects like this to develop their own virtual reality interface and hardware. VR interfaces are important as it's important to get an accurate and intuitive visual user experience so that it is useful and not disorienting. For

something that needs to be very accurate such as replicating a surgery, there would also have to be precise designing for accurately tracking fine motor skill tasks. I can imagine this software could be implemented in a headset/handset sort of way or in the intense VR rooms that exist at certain universities/institutions for the type of accuracy and development I was speaking to previously.

Sources:

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