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Medical Experience: Usability Testing of Displaying Computed Tomography Scans and Magnetic Resonance Imaging in Virtual and Augmented Reality for Accurate Diagnosis

Authors : Alyona Gencheva

Abstract : The most common way to study diagnostic results is using specialized programs at a stationary workplace. Magnetic Resonance Imaging is presented in a two-dimensional (2D) format, and Computed Tomography sometimes looks like a three-dimensional (3D) model that can be interacted with. The main idea of the research is to compare ways of displaying diagnostic results in virtual reality that can help a surgeon during or before an operation in augmented reality. During the experiment, the medical staff examined liver vessels in the abdominal area and heart boundaries. The search time and detection accuracy were measured on black-and-white and coloured scans. Usability testing in virtual reality shows convenient ways of interaction like hand input, voice activation, displaying risk to the patient, and the required number of scans. The results of the experiment will be used in the new C# program based on Magic Leap technology.

Keywords : augmented reality, computed tomography, magic leap, magnetic resonance imaging, usability testing, VTE risk
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