

Special Issue

Virtual, Augmented, and Mixed Reality in Biomedical Engineering

Message from the Guest Editor

Within neurosurgery, extended reality (XR) has experienced substantial growth over the past decade. XR refers to virtual reality (VR), augmented reality (AR), and mixed reality (MR), providing varying degrees of immersive three-dimensional (3D) virtual imaging experiences. VR provides a fully immersive experience, while AR and MR blend virtual elements into the real world. Several neurosurgical centers have reported various benefits of using XR. XR complements existing neuronavigation systems in situations where two-dimensional navigation is limiting, and its precision has been demonstrated in treating cranial and spinal pathologies. XR-based training offers an interactive surgical experience, integrating visualization of anatomy and haptic feedback. Other benefits include reduced radiation exposure and improved surgical precision. This Special Issue is dedicated to “Virtual, Augmented, and Mixed Reality in Neurosurgery.” Manuscripts on the clinical and technical aspects of different XR systems used for cranial, spinal, and educational purposes are welcomed.

Guest Editor

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