

Abstract

Introduction to Extended Reality in Medicine

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Extended Reality (XR) is a term referring to all real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables. It includes representative forms such as augmented reality (AR), mixed reality (MR) and virtual reality (VR) and the areas interpolated among them. The levels of virtuality range from partially sensory inputs to immersive virtuality, also called VR. XR is a superset which includes the entire spectrum from "the complete real" to "the complete virtual" in the concept of reality–virtuality continuum introduced by Paul Milgram. XR is a rapid growing field being applied in a wide range of ways, such as entertainment, marketing, real-estate, training and remote work. In medical areas, XR is showing promise in a) training or education, b) diagnosis and pre-procedural planning, d) intraprocedural applications, e) digital therapy and so on. In order to effectively apply XR technology to the medical field, we need to learn about its component technologies and check safety and clinical trial issues from the perspective of Software as a Medical Device (SaMD).