

# A Study of Interactive Digital Multimedia Applications

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**Abstract.** Many communication models for communication arts and numerous interactive multimedia applications for computer science were discussed over many decades ago. However, there has been little work giving an overview of recent integrated research of digital media and emerging trends, such as interactive multimedia experience in an interdisciplinary aspect. In this paper, we review and study recently interactive digital multimedia applications using and applying the aforementioned emerging trends. We provide a short blueprint for interactive digital multimedia research when applying virtual reality, image processing, computer vision, real-time augmented reality, and interactive media into the senses of hearing and vision for virtual environments. A SMCR (Source-Message-Channel-Receiver) model for communicating via all human senses is also explained and linked to some interactive digital multimedia applications presented recently. After that, the senses of hearing and vision are discussed using related-technologies. It will be of good value to the new researchers in this integrated emerging field of interactive digital multimedia.

**Keywords:** Interactive media • Interactive digital multimedia • Real-time • Mobile-based • Digital multimedia • Virtual reality • SMCR model

## 1 Background

Over past several decades, computer with internet has evolved from traditional teletypewriters to great memorizers to today's powerful tools for connecting people to people, even people to limitless opportunity. This modern technology is changing the way we live, the way we work and, of course, the way we communicate. Today, digital multimedia is not restricted only to old style dimensions [1, 2, 3], but it is also enjoying broader and wider use every moment, especially interactivity. It has even changed the method of old-fashioned communications and conventional art works. More specifically, one of very classical communication models, although it was presented very long time ago, is Berlo's model [4]. This is sometimes called as SMCR (Source-Message-Channel-Receiver) model. This model is defined as four related-elements of communication: Source, Message, Channel, and Receiver. The first element is the start of the communication for encoding the message. The second element is basically the package or packages of meaning that contain generally the intent from the first element.