A User-driven Interactive 3D Video Streaming Transmission System with Low Network Bandwidth Requirements

Zhenli Zhou, Li Zhuo, Jing Zhang, Xiaoguang Li
Signal and Information Processing Laboratory, Beijing University of Technology, Beijing, China
zhouzhenli@emails.bjut.edu.cn, zhuoli@bjut.edu.cn, zhj@bjut.edu.cn

Abstract—With the rapid development of electronic and computing technology, a growing number of new applications in the area of 3D video have come into sight, including the popular interactive 3D service. In this paper, the system architecture of a user-driven interactive 3D video streaming transmission is presented, which is simple to be realized with legacy displays. In particular, a novel idea is proposed, in which the viewer’s position is determined using face detection and tracking technology, and then the location information is employed as feedback to the video server-side in real time, and at last the server adaptively selects the best matched parts of video stream data with the user’s viewing angle. Under the existing network bandwidth conditions, the proposed system enables the viewers to select their viewing directions at their willing and enjoy a high quality of 3D experience anywhere they like.

Keywords—User-driven, 3D video, Interactive technology, Face detection, Stream switching.