BUDDY: A Virtual Reality Based Computer System for Children with Autism Spectrum Disorders

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BUDDY: A Virtual Reality Based Computer System for Children with Autism Spectrum Disorders

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Abstract

Autism Spectrum Disorder (ASD) is a neurological and developmental disorder, and it has two essential domains of symptoms: (1) restrictive and repetitive behaviors, such as having a lasting and intense interest in certain topics, and sensory challenges; (2) social impairment and communication difficulties. According to the US Centers for Disease Control and Prevention, about 1 in 68 children has been identified with Autism Spectrum Disorders (ASD) and the prevalence increased by 119.4% from 2000 to 2010. In the US alone, there are more than 3.5 million people who suffer from ASD and autism services cost $236-262 billion annually. In this project, we aim to develop an avatar-based computer program to help children with ASD to improve their social skills by presenting videos and questions designed to teach them what are the appropriate behaviors in different scenarios through modeling and coaching. We utilized the Vizard Virtual Reality Toolkit, the Blender software to perform 3D modeling of the scene, and the Python computer programming language to script the interactions of the avatar and the child with ASD. Several scenarios were designed with the corresponding video clips produced.