

# A 3D Interaction Technique for Augmented Reality on Smart Glasses

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**Abstract-**We propose a 3-dimensional (3D) interaction technique for augmented reality (AR). Our interaction technique is implemented on a smart glasses that is equipped with a depth camera. A stable performance has been achieved with low CPU and memory usage. At first, virtual 3D objects are created and rendered by Unity 3D. By wearing smart glasses, the users are able to see these virtual 3D objects being overlaid to the real world and interact with them with their hands. The depth camera detects the certain region surrounding the virtual objects. Once something, such as user's hands, appears and moves in the region of interest (ROI), the motion vector map of ROI will be calculated using blob matching algorithm. Key features such as position and direction of the moving blobs are extracted for classifying the type of manipulation. After feature extractions, support vector machine (SVM) is adopted to convert the motion into three manipulations including translational move, rotation and zooming.

**Keywords-***3D interaction; augmented reality; computer vision; smart glasses; depth camera*