Real-time pre-placed marker-less square-ROI verification system based on contour-corner approach for breast augmentation

ABSTRACT

This paper aims to enhance the current contour and corner detection approach by applying smoothing and adaptive thresholding techniques to the stream input and then use subpixel corner detection to obtain better and more accurate interest point. There are two main steps involved in AR application, first - detect and extract local features and second – visualization and rendering. Our focus is the first part of the whole operation – features. We proposed marker-less approach as to avoid the needs to prepare the target environment and to make our approach more flexible. The proposed method starts with first getting an input from the real environment through a camera as visual sensor. On receiving an input image, the proposed system will process the image, finds and detects strong interest point from the ROI by applying enhanced contour-corner detection. From the ROI, features such as number of corners and vertices can be extracted and later can be used to determine a marker. For testing purposes, a mannequin as an input is used. Based on the experiment, the proposed method manage to capture the environment, convert captured frame into grey-scale image, detect corners and contours and also able to identify and verify a marker.