Human Upper Body Pose Region Estimation

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Abstract

The objective of this chapter is to estimate 2D human pose for action recognition and especially for sign language recognition systems which require not only the hand motion trajectory to be classified but also facial features, Human Upper Body (HUB) and hand position with respect to other HUB parts. We propose an approach that progressively reduces the search space for body parts and can greatly improve chance to estimate the HUB pose. This involves two contributions: (a) a fast and robust search algorithm for HUB parts based on head size has been introduced for real time implementations. (b) Scaling the extracted parts during body orientation was attained using partial estimation of face size. The outcome of the system makes it applicable for real-time applications such as sign languages recognition systems. The method is fully automatic and self-initializing using a Haar-like face region. The tracking the HUB pose is based on the face detection algorithm. Our evaluation was done mainly using 50 images from INRIA Person Dataset.

Keywords: Human Upper Body, Pose Region, Estimation

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