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Physical Blob Detector and Multi-Channel Color Shape Descriptor for Human Detection

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Abstract

Human detection is a very important research problem due to its relevance to a wide range of applications. This paper proposes a new method for human detection in RGB-D images. Based on the observation that human head often forms a distinguishable blob-like region in depth image and its physical size and height are in well-known ranges, we propose a physical blob detector to efficiently locate candidate human regions. Since color information and 3D physical structure information are both important cues for characterizing human upper body, we propose to incorporate these two sources of information and construct a novel Multi-Channel Color Shape Descriptor (MCSD) to further verify the candidate regions. The experimental results on four publicly available datasets consistently show that the proposed method can reliably detect humans in RGB-D video in real time.

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