基于矩形拟合的人体检测

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Abstract
A new algorithm for human detection in a static image is proposed in this paper. Human is seen as a model constructed by a torso and four limbs. The torso is fitted by a quadrangle, and each limb is fitted by one or two quadrangles. Detecting human is to search a combination of quadrangles constrained by some geometrical and topological relations. The first step is to detect and fit rectangles in the image, and then try to search some reasonable combinations of rectangles that should satisfy the geometrical and topological relations. If the probability of the combination is more than a fixed threshold, the vertex positions of the rectangles are adjusted to get a compact model of human in that image. At last, the probability of the compact model is recalculated. Experimental results show that this algorithm can be applied in the content-based image retrieval and the analysis of human motion based on video.

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摘要
提出了一种在单幅图像中检测人体的新算法.将人体看作由躯干和四肢构成.用一个四边形拟合躯干,用一个或者两个四边形拟合每个肢体.人体检测就是寻找满足一定几何和拓扑约束的四边形组合.首先检测与拟合图像中的矩形区域,然后搜索满足几何和拓扑约束的矩形组合.如果该矩形组合的概率大于阈值,则调整各个矩形顶点的坐标,以便得到一个紧凑的人体模型表示.最后,重新计算该紧凑模型的概率.实验结果表明,该方

法可以用于基于内容的图像检索以及基于视频的人体运动分析.

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