Contour Detection Approaches

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Abstract

Contour detection in real images is a fundamental problem in many computer vision tasks. Contours are distinguished from edges as follow: edges are variations in intensity level in a gray level image whereas contours are salient coarse edges that belong to objects and region boundaries in the image. By salient is meant that the contour map drawn by human observers include these edges as they are considered to be salient. However, the contours produced by different humans for a given image are not identical when the images are of complex, natural scenes. In such images, multiple cues are available for the human visual system (HVS) – low level cues such as coherence of brightness, texture or continuity of edges, intermediate level cues such as symmetry and convexity, as well as high level cues based on recognition of familiar objects. Even if two observers have exactly the same set cues, they may choose contours at varying levels of granularity. Thus saliency of an edge is a subjective matter and varies accordingly. Nevertheless, the fact remains that a contour map drawn by human observers is sparser than an edge map derived by processing the digital image.