מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 141 ,Ziskind Building
on Thursday, May 14, 2015
at 12:15

Please note unusual location.

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Full interpretation of minimal images

Abstract:

The goal in this work is to produce ‘full interpretation’ for object images, namely to identify and localize all semantic features and parts that are recognized by human observers. We develop a novel approach and tools to study this challenging task, by dividing the interpretation of the complete object to interpretation of so-called 'minimal recognizable configurations’, namely severely reduced but recognizable local regions, that are minimal in the sense that any further reduction would turn them unrecognizable. We show that for the task of full interpretation, such minimal images have unique properties, which make them particularly useful.

For modeling interpretation, we identify primitive components and relations that play a useful role in the interpretation of minimal images by humans, and incorporate them in a structured prediction algorithm. The structure elements can be point, contour, or region primitives, while relations between them range from standard unary and binary potentials based on relative location, to more complex and high dimensional relations. We show experimental results and match them to human performance. We discuss implications of ‘full’ interpretation for difficult visual tasks, such as recognizing human activities or interactions.