מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building
on Thursday, Sep 08, 2016
at 12:15

Tali Dekel
Google

Exploring and Modifying Spatial Variations in a Single Image

Abstract:

Structures and objects, captured in image data, are often idealized by the viewer. For example, buildings may seem to be perfectly straight, or repeating structures such as corn's kernels may seem almost identical. However, in reality, such flawless behavior hardly exists. The goal in this line of work is to detect the spatial imperfection, i.e., departure of objects from their idealized models, given only a single image as input, and to render a new image in which the deviations from the model are either reduced or magnified. Reducing the imperfections allows us to idealize/beautify images, and can be used as a graphic tool for creating more visually pleasing images. Alternatively, increasing the spatial irregularities allow us to reveal useful and surprising information that is hard to visually perceive by the naked eye (such as the sagging of a house's roof). I will consider this problem under two distinct definitions of idealized model: (i) ideal parametric geometries (e.g., line segments, circles), which can be automatically detected in the input image. (ii) perfect repetitions of structures, which relies on the redundancy of patches in a single image. Each of these models has lead to a new algorithm with a wide range of applications in civil engineering, astronomy, design, and materials defects inspection.