Image Parsing

Svetlana Lazebnik
University of Illinois at Urbana-Champaign, USA

Abstract

Image parsing, or the problem of segmenting images and labeling their regions with object classes, is one of the key problems in scene understanding today. First, I will motivate this problem and survey major classes of existing approaches, and then I will focus on the most challenging aspects of designing state-of-the-art image parsing systems: (1) being able to learn from very large-scale, constantly evolving datasets and (2) achieving broad coverage across hundreds or even thousands of object classes commonly occurring in indoor and outdoor scenes. At present, nonparametric data-driven approaches show the most promise for being able to address these challenges. I will cover the design of all the key components for such approaches, including segmentation, image matching with global and local features, feature combination, and contextual reasoning.
I will also discuss advanced topics such as extensions to video parsing and incorporation of sliding window detectors.

Keywords: Scene understanding, Image parsing, recognition, Nonparametric methods, Context, Object detection, Segmentation