Randomized Decision Forests for Segmentation and Recognition

Jamie Shotton
Toshiba, Multimedia Laboratory
Corporate R&D Center
Kawasaki, Japan

Abstract

In this tutorial we will take an in-depth look at randomized decision forests and their application to recognition and image segmentation. Randomized forests are ensembles of decision trees that are trained on random subsets of the data and a random pool of features. Decision trees can be seen as a generalization of classifier cascades, and are particularly fast to evaluate. We will see how decision forests can be used both for both explicit classification and implicit clustering of local image patches. Finally we will demonstrate a real-time algorithm based on randomized forests that accurately segments images and simultaneously recognizes the objects present.

Syllabus: Randomized decision forests, segmentation, textons, object category recognition.