Image Annotation Software Tool for Computer Vision Reseach

Student's Name: Justin Madigan
Email: jjm5748@.rit.edu

Faculty Advisor: Dr. Andreas Savakis
Email: axseec@.rit.edu

Department of Computer Engineering
Rochester Institute of Technology, Rochester, NY, 14623

Abstract

Object detection is an extremely important and challenging problem in computer vision. Various approaches have been developed, such as statistical classifiers, neural networks, etc., but they all require training based on image data. The goal of this project is to create an image annotation tool that allows users to annotate regions within an image based on a segmentation mapping. Following annotation into semantic categories, the output data can be used to train a various algorithms for object detection and materials classification. Annotated regions within an image are assigned textual information describing region type and may additionally store other region-specific features, called metadata. Annotated regions can be highlighted onscreen for clarity and optionally contain brief on-screen textual descriptions of region the contents. On-screen annotation text can be fully customized as far as placement, font and text color. Any annotations created within the program can be saved to disk or loaded from memory at any time. Editing capabilities have also been developed in order to allow the user to return to a previous annotation to make appropriate additions, deletions, or edits. Additionally, a database of common annotation names can be used to facilitate annotation of several images containing similar types of regions. The databases of commonly used annotation names are fully customizable through the user interface and may be saved and loaded using XML format. The final product is a highly sophisticated image annotation software tool that can assist in generating ground truth information for use in computer vision research.