Recognition of Cartoon Characters in Comic Strips

Joseph Landry (jlandry@stanford.edu)
Jessica Maxey (jmaxey@stanford.edu)
Phil Lee (philee@stanford.edu)

Description

We will be using an Android Device.

The goal of our project is to recognize cartoon characters from a pool of various cartoons (e.g. Garfield, Calvin & Hobbes, Peanuts).

We will take the following steps to achieve this:

Database preparation and training:

- Collect cartoon strips belonging to Garfield, Calvin & Hobbes, and Peanuts.
- Crop characters and label them. We will use approximately 100 images per character.
- We will generate fisher-images for each character.
- Store in searchable database. This database will be located on the phone if it will work fast enough, otherwise it will be on a server.

Real time processing:

- Detect and correct tilt of comic strip. We can do a Hough Transform to determine the tilt angle, and a simple rotation transformation to orient the strip.
- Isolate frames within comic strip.
- Isolate a flat region of the image to estimate background noise. If there is significant noise we can use median filtering.
- We will use then use the Hessian to detect keypoints in the image. While the Hessian takes longer to process, since we will be taking pictures with our phone we should be able to spare the processing time.
- Find descriptors and use to isolate candidate characters.
- Generate fisherimages for the detected objects.
- Compare with fisherimages stored on the phone, server if necessary.
- Label character in image with correct name if match is found.

If all of the above goes smoothly and there is extra time, we will try to use OCR to extract the text from each character.

References