Snake Active Contours – Final Project

# Introduction

Snakes is an active contour based parametric modeling approach which uses the criterion of minimizing the force acting on the contour such that the iteratively comes closer the edges in the image and eventually the contour snaps on to the image.

# Accomplishments

We are able to achieve very good performance in that the contours match the boundaries of the object very well for all images. The Lena image is quite complex with a lot of edges, but still we are able to get most of Lena’s face and hat in the contour.

We have obtained snakeForce4e from an undergraduate team. And utilized the snakeA4e developed in the last project assignment. Also created the iterative code for snakeIterate4e which performs reparametrization using snakeReparm4e after every 1000 iterations.

We achieved good performance by changing the parameters for SnakeMap4e for the edge map using no thresholding, and the 11σX11σ Gaussian with σ=5. The Gaussian helps to smooth edges and also remove any noise. We did not perform any other pre-processing.

The corresponding python code was also ran to compare the performance, and the performance of our matlab code was comparable to the Python code.

# Improvements

• Try normalizing the MOG force field • Did we do this?

# Conclusions