EN 161: Image Understanding

Assignment 8: Active Contours (Snakes)

Due Date: Wednesday, November 23, 2005

Notes:

Here are a couple of important things you should keep in mind when submitting your solutions for the next MATLAB assignment.

- You **must** send your source code for each function or MATLAB script you used in your solution
- You should prepare a lab report including your output images and results. Any globally accepted file format is OK (.doc, .pdf or .ps).
- Also you should submit a hard copy of your report. You may either hand it to Prof. Cooper in class or leave it on my desk at B&H 309.
- The reports should include:
    - Important technical details (names of functions and .m file's you created or you use, how to run your source code)
    - Explanation of your algorithm including some specific lines of code are important to your application, you might include them in your report.

Problem: In this assignment you will implement the Active Contours (Snake) algorithm described in Trucco and Verri, p. 108-113 (if you don't have this handout, send an e-mail to ieden@lems.brown.edu).

Comment on the effects of:

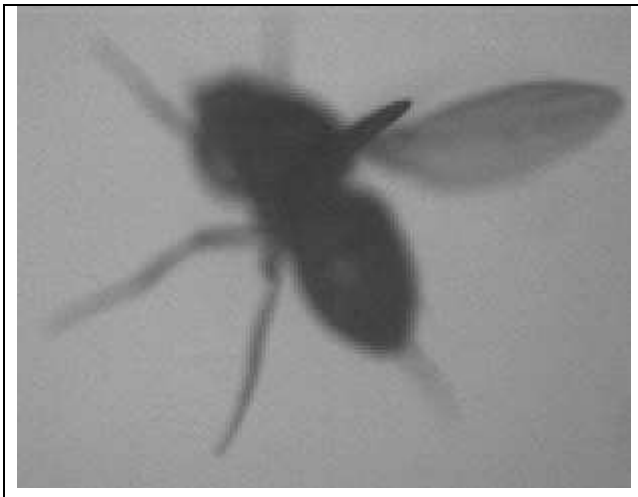
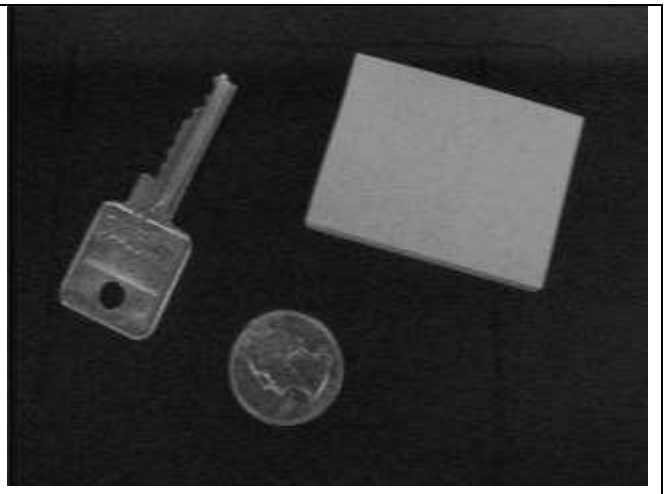
1. parameters of the energy function (α_i, β_i, γ_i) on your results
2. the initial position of the snake on the convergence of the greedy algorithm

Data Sets:

There are four images provided for this assignment. “fruitfly.jpg”, “mir.jpg”, “model.jpg” and “objects.jpg”. You need to run your application on “fruitfly.jpg” and “objects.jpg”. Other images are optional.

You can download the image set from the course website:

http://www.lems.brown.edu/~ieden/en161/labs.html

	
fruitfly.jpg	objects.jpg

Hints:

For selecting initial position of the snake and displaying the snake, you can use the source code provided at:

http://www.cs.bc.edu/~dmartin/teaching/cs343f05/assignments/hw03/download/

If you want you can implement your own functions for these purposes.

For further information on active contours (snakes) you can look at:

http://homepages.inf.ed.ac.uk/rbf/CVonline/LOCAL_COPIES/MARBLE/medium/snakes/snakes.htm
http://www.cse.unr.edu/%7Ebebis/CS791E/Notes/DeformableContours.pdf
http://www.icaen.uiowa.edu/%7Edip/LECTURE/Understanding2.html