NASA Droplet Image Analysis

ECS 193AB Spring 2015

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Summary

I. PROJECT OUTLINE

II. PROJECT TIMELINE

1. We each took five weeks to serve as group leader. Tasks included:

   (a) Planning meetings with Professor Liu and our sponsor.

   (b) Communicating with our sponsor via email.

   (c) Scheduling group meetings.

   (d) Making sure group is aware of due dates.

   (e) Submitting assignments.

   (f) Coordinating presentations.

   First 5 weeks was done by Amanda, the second 5 by Willie, the third 5 by Ramya, and then the last 5 by Rylan.

2. Rylan wrote the first draft of the MATLAB script.

3. The group decided to bifurcate. One team would develop an executable based on OpenCV, the other based on MATLAB's image processing toolbox.

4. Ramya worked on OpenCV (entire implementation).

   (a) Looked into installation and documentation of OpenCV.

   (b) Worked on preliminary scripts and algorithms in OpenCV.

   (c) Worked on modifying script so as to run on all files in directory, as well as locate all possible candidates for the circle.

   (d) Worked on modifying the algorithm so as to implement a backtracking approach to reduce false IDs of circles. Had to rewrite algorithm several times.

   (e) Worked on creation of video file and GIF file for result checking via command line tools in UNIX.

   (f) Debugged and code up-kept OpenCV version.

5. To see what would work well, the MATLAB team worked on three algorithms.

   (a) Rylan looked into active contour models and edge detection algorithms

   (b) Amanda worked on multi-level zoom (i.e. identify a region of interest, zoom, identify a region of interest, etc.) She also wrote the Make_Video script in the final software package.

   (c) Willie looked on dynamic circle finding (i.e. vary sensitivity, threshold)

6. Willie put it all together for final draft of MATLAB