Final project idea for Computer Vision course.

Josh- I wrote but did not publish either of the two attached papers. Siva Allu assisted with one of these two papers but has no interest in furthering the research. I think these two concepts can be merged into a single publishable paper and a single software app for a smartphone running Tensorflow lite.

The basic idea is this:

1. use a smartphone to take pictures of the eye (fundus images)
2. load those images into a smartphone app (TEHI- they eyes have it)
3. run ML algorithms or DL CNNs to determine which of 5 classes the images fall into for diabetic retinopathy (level 0 [none] through level 4 [prolific])
4. run ML algorithms or DL CNNs to determine the binary classification for potential cardiovascular disease likelihood (0 CVD unlikely or 1 CVD likely)

The most favored algorithms for classification seem to be logistic regression, decision tree, random forest, support vector machine, K nearest neighbor, and naïve bayes.

The CNNs I tried with my previous dataset were VGG19 and Inception V4 (could also use Inception ResNet).

I’ve attached two papers and a powerpoint from last year’s Ideafest to get your thoughts on combining these ideas into a single app and single publishable paper.

Peruse these at your leisure and let me know your thoughts.

-Bruce