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Pupil diameter

Andre Gouws <andre@ynic.york.ac.uk>

19 January 2015 at 12:21

To: Susana Santos Maia <smsm501@york.ac.uk>, Gary Green <gary.green@ynic.york.ac.uk>

Attached code that you will have to get Gary to check!

The important lines are 165-202 .. this is where the code uses the image moments to calculate the second order moments of the blob (or contour) we have detected, from which we can extract orientation information. the eigenvector should give us the orientation and eigenvalues the primary (largest) axis and secondary (shorter) axis .. you can think of these as the height and length of an ellipse that bounds our contour.

the maths behind this are at:

http://en.wikipedia.org/wiki/Image_moment#Examples_2

we already use the first order moments to calculate the centre of mass (centre position) of the pupil (cx and cy in the code) .. the second order moments are held by the same object that gave us the first order ones $M = cv.Moments(c)$.. for a description see http://docs.opencv.org/modules/imgproc/doc/structural_analysis_and_shape_descriptors.html

As we discussed, the longest dimension across a tilted ellipse should correspond to the pupil diameter.

If Gary agrees that the logic and maths are correct, we can perhaps think about making a window that draws this vector over the pupil so we can check it.

A

On 12/01/15 12:54, Susana Santos Maia wrote:

P1235C21R3753_2014Jul21_154901.mpg

<https://docs.google.com/a/york.ac.uk/file/d/0BwBQmK0VnZu0cGV4X0lIdWNUVvK0/edit?usp=drive_web>

Hi,

I am attaching here the code that right now gives us the pupil area. All I need is for it to retrieve the pupil vertical diameter instead. I am also attaching one of the videos.

Thanks.

Susana Maia

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 **pupilDataAG2015_diameter.py**
24K