



Project Management and System Development

Real-time Gaze Estimation

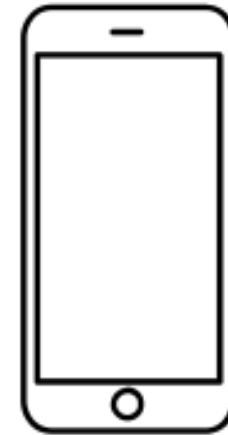
Project requirements presentation – 07/05/18

Project supervisor: Benjamin Busam

Presented by: Matthieu Zhang

Background and motivations

- Identifying where the users pays more attention
- Multiple applications
 - Commercial applications
 - Medical applications (attention or active estimation)

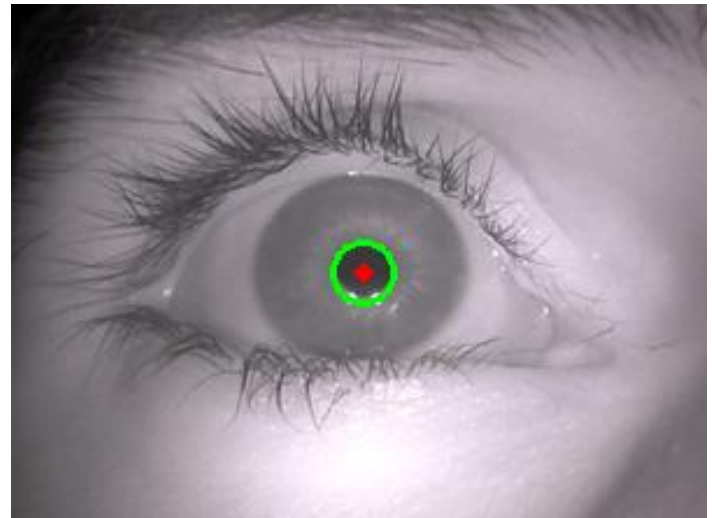


<https://www.roboticsbusinessreview.com/health-medical/robot-surgeon-good-human-still-aide/>



Existing project

- PMSD 2017
 - Pupil Tracking
 - Linear algebra algorithms attempt
 - Works well when algorithm starts in the eye

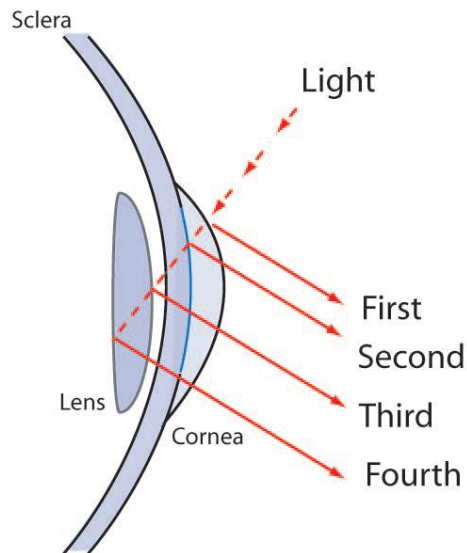


<https://stackoverflow.com/questions/39167828/eye-pupil-tracking-using-hough-circle-transform>

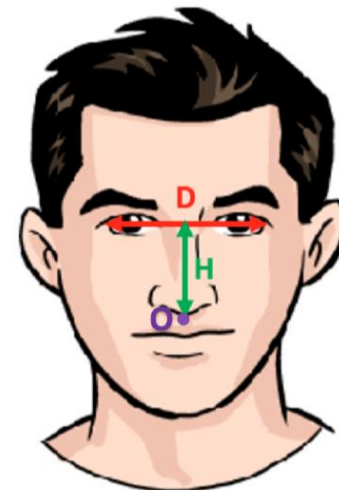


Task and future development

- Use of a new camera type
 - Able to send a light that reflects on the eye
- Finish getting familiar with the hardware and framework
- Geometrical study of the problem
 - Glint
 - Head pose
- Linear algebra to calibrate



In the Eye of the Beholder: A Survey of Models for Eyes and Gaze,
Dan Witzner Hansen and Qiang Ji



Real-time gaze estimation via pupil center tracking,
Dario Cazzato, Fabio Dominio, Roberto Manduchi, and Silvia M. Castro



Project timeline

- April – May (1st and 2nd week)
 - Get familiar with Framos framework, material and past project code
 - Read articles concerning state of the art algorithms
- May – June (1st week)
 - First prototype of project using geometrical study and linear algebra
- June
 - Refinement of the project and second prototype
 - Real tests on multiple users + acquiring more data to train algorithms
- Beginning of July
 - Final prototype
 - Preparation of the final presentation





Questions ?

