Eye Tracking in Games

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Personal background

Dynamic Audio Tuning [1] - Software Engineering MVK13

Eyepostors [2] - Computer Graphics and Interaction DGI14
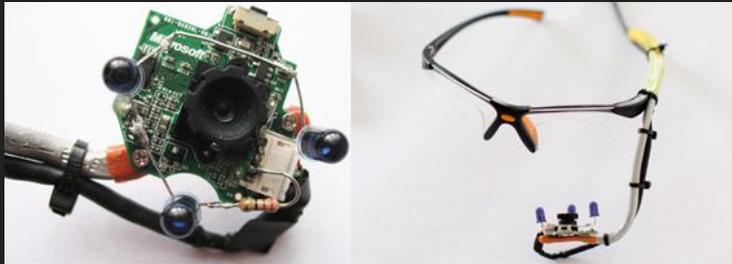
Personal background

UFPS with EyeX [3]

Will speak about:

- Short about different eye tracking techniques
- Eye movements
- Gaze data quality
- Eye tracking in AAA games

Eye Tracking

- Some eye tracking techniques
  - Scleral search coil
  - Electrodes
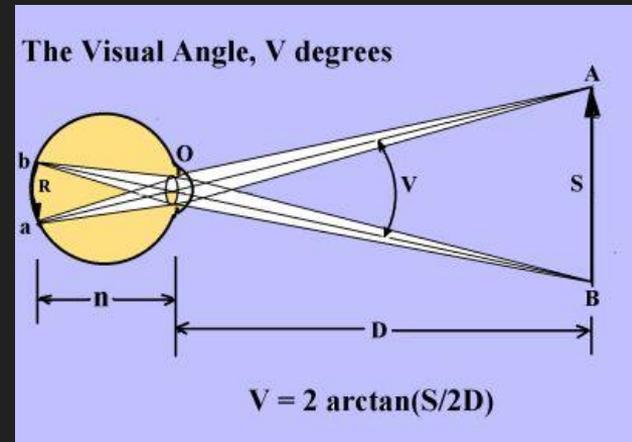 - Video based eye tracking

DIY Eye Tracker [4]

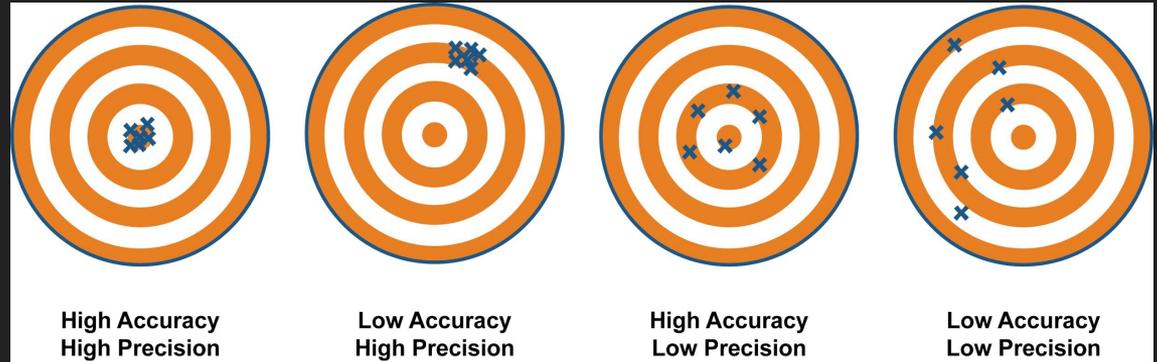TX300 Tobii Pro [5]

Eye Tracking

- Visual Angle
- Eye movements
  - Fixations
  - Saccades
  - Smooth Pursuit

The Visual Angle, V degrees

$$V = 2 \arctan(S/2D)$$

Visual Angle [6]

Eye Tracking

- Latency
- Precision
- Accuracy

Precision/Accuracy [7]

Eye Tracking

- Eye tracking in AAA games
  - Tom Clancy's The Division
  - Assassin's Creed Syndicate
- Currently official games using Tobii eye tracking: http://www.tobii.com/xperience/apps/
- Much much more interactions and scenarios to be explored!

Eye Tracking

The Division with EyeX [8]

Thanks for listening!

Dog Cam [9]

References

[1]   Dynamic Audio Tuning: https://www.youtube.com/watch?v=VuYPayh157E

[2]   Eyepostors: https://www.youtube.com/watch?v=dksd5AL-op4

[3]   UFPS with EyeX: https://www.youtube.com/watch?v=XDNTxx3XT4w

[4]   Do-It-Yourself Eye Tracker: http://rmantiuk.strony.wi.ps.pl/projects/diy/

[5]   TX300 Tobii Pro: http://www.tobiipro.com/product-listing/tobii-pro-tx300/

[6]   Visual Angle: https://commons.wikimedia.org/wiki/File:EyeOpticsV400y.jpg

[7]   Precision/Accuracy: http://climatica.org.uk/climate-science-information/uncertainty

[8]   The Division with EyeX: https://www.youtube.com/watch?v=H-N9alJb3Cw

[9]   Dog Cam: http://gurneyjourney.blogspot.se/2011/12/dog-cam.html