



ROBUST DETECTION OF USER'S Tomáš Juhaniak prof. Mária Bieliková COGNITIVE LOAD Using Personalized Pupillary Response Model

1. Pupil calibration

- relaxed participant
- short projection of blank screens
- different luminosities
- center participant gaze
- linear regression
- obtain reference curve



High summative accuracy Novel personalized algorithm to

Goal

bring application's testing:

non intrusive

100+ Dar

- just with eyetracker
- with easy set up
- with easy evaluation

6. Post analysis

compute color Juminosity

2. User testing

 optional labeling real unchanged environments totally non-intrusive



3. Reference pupil prediction

- every pixel is assumed
- apply gaussian matrix
- apply reference curve
- predicted relaxed pupil

4. Cognitive load detection

 exporting csv documents contain summary results raw pupils and other data

5. User testing evaluation

- real-time or exported video
- intervals with higher cognitive load
- labeling interesting intervals

 compute absolute color luminosity sum up perceived luminosity

> • obtain real pupil diameter subtract predicted diameter ideally not negative cognitive load = result of subtraction divide by dilation rang