

Gdańsk University of Technology  
Faculty of Electronics, Telecommunications and Informatics

## **TECHNICAL REPORT**

**02/2022**

### **ANALYSIS OF THE EYE-TRACKER USABILITY BASED ON RECORDINGS OF CHILDREN WITH AUTISM SPECTRUM DISORDER WHILE INTERACTING WITH A SOCIAL ROBOT**

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#### **ABSTRACT**

In this work we present the analyses of eye-tracking data recorded in the first observation round of the European Commission's Erasmus Plus project "EMBOA, Affective loop in Socially Assistive Robotics as an intervention tool for children with autism". In total, the project partners recorded data in 82 robot-supported intervention sessions for children with autism spectrum disorder. Eye-tracking data were recorded using the Gazepoint GP3 eye-tracker. For each session we provide the total time child eye gaze and fixation points were detected. Finally, we discuss identified issues and limitations of eye-tracking-based automatic emotion recognition in robot-supported intervention settings.

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## 1. Introduction

Children with autism spectrum disorder (ASD) have problems in social interactions that could be treated through therapy [1]. Previous studies revealed that children with ASD usually prefer interactions with human-like looking robots to interactions with humans and therefore benefit from robot-based interventions in order to improve their socio-communicative skills [2]. However, robots used in the therapy need to be manually operated by the therapist, because they cannot react on the child's behaviour and emotions in the real time. In order to facilitate the work of therapists in the future, current researches focus on automatic emotion recognition systems.

The EU Erasmus+ project „Affective loop in Socially Assistive Robotics as an intervention tool for children with autism” (<https://emboa.eu>), conducted by an international and multidisciplinary consortium of researchers from Gdansk University of Technology (GUT; Poland), University of Hertfordshire (UH; United Kingdom), Istanbul Teknik Universitesi (ITU; Turkey), Yeditepe University Vakif (YT; Turkey), the Macedonian Association for Applied Psychology (MAAP; North Macedonia), and University of Augsburg (UA; Germany), focuses on the practical evaluation of the use of state-of-the-art emotion recognition technologies in robot-supported interventions and aims to develop guidelines for the application of such technologies in intervention settings.

Data from multiple observation channels, e.g. facial expressions and physiological parameters, was collected by the project team during intervention sessions in which children with ASD were interacting with the social robot Kaspar (<https://www.herts.ac.uk/kaspar>). Based on these data, the researchers aim to evaluate each observation channel in terms of its information gain for automatic emotion recognition. This report focuses on the analyses of eye-tracking data recorded in the first observation round.

The report is organised as follows. Section 2 describes the available eye-tracking data. Results on child eye gaze activity detection are reported in Section 3. Section 4 discusses revealed challenges and limitations of automatic child eye gaze detection and eye-tracking-based emotion recognition in robot-supported intervention settings.

## 2. Methods

The data was recorded by the EMBOA team in the years 2020 and 2021 during intervention sessions that were supported by the social robot Kaspar. For eye-tracking data collection we have used Gazepoint GP3 eye-tracker.

31 children diagnosed with ASD by a mental health professional in the country of living participated in the present study. They were recruited in institutions in the partner countries North Macedonia, Turkey, Poland, and UK. The children's legal guardians agreed in writing for participation in the study. The children recorded by GUT/Poland were 6 years old, the children recorded by ITU-YU/Turkey were between 6 and 10 years old, the children recorded by MAAP/North Macedonia were between 2 and 6 years old, and the children recorded by UH/United Kingdom were 11 to 12 years old. The sample was heterogeneous regarding gender, exact age, language skills, and co-morbidities.

During recordings, the EMBOA team difficult some technical issue with connecting Gazepoint GP3 eye-tracker. Thus, not all sessions have recordings from all of the observation channels. Tables 1 and 2 present number of sessions recorder with the eye-tracker by each institution in total and per each session, respectively.

*Table 1: Eye-tacker data included in analysis. GUT = Gdansk University of Technology, Poland; ITU-YU = Istanbul Teknik Universitesi and Yeditepe University Vakif, Turkey; MAAP = Macedonian Association for Applied Psychology, North Macedonia; UH = University of Hertfordshire, United Kingdom.*

<b>Partner</b>	<b>No. sessions recorded</b>
GUT/Poland	2
ITU-YU/Turkey	8
MAAP/North Macedonia	54
UH/United Kingdom	18
Sum	82

*Table 2: Availability of eye-tracker data for each session. GUT = Gdansk University of Technology, Poland; ITU-YU = Istanbul Teknik Universitesi and Yeditepe University Vakif, Turkey; MAAP = Macedonian Association for Applied Psychology, North Macedonia; NA = not available/insufficient data quality, no. = number, rec. = recorded, UH = University of Hertfordshire, United Kingdom.*

<b>Session</b>	<b>Total no. of children</b>	<b>Children rec. by GUT/Poland</b>	<b>Children rec. by ITU-YU/Turkey</b>	<b>Children rec. by MAAP/North Macedonia</b>	<b>Children rec. by UH/United Kingdom</b>
1	19	NA	8	4	7
2	13	2	NA	6	5
3	10	NA	NA	7	3
4	10	NA	NA	7	3
5	6	NA	NA	6	NA
6	6	NA	NA	6	NA
7	6	NA	NA	6	NA
8	3	NA	NA	3	NA
9	5	NA	NA	5	NA
10	3	NA	NA	3	NA
11	1	NA	NA	1	NA

### 3. Results

Current research tries to identify the best features from eye-tracking sensors for automatic emotion recognition [3]. The most common ones are a pupil diameter and a fixation duration. Thus, we decided to analyse two parameters from each available eye-tracker recording: (1) a percentage of the time when the eye gaze was detected; (2) a percentage of the time when the fixation point was detected. Without the first parameter, i.e. without eye gaze detected, we are unable to obtain any eye-tracking feature, including a pupil diameter. The second parameter is *de facto* the total fixation duration in the recorded session.

An overview of the results is presented in the Table 3, while detailed information for each analyzed session recording is included in the Appendix.

*Table 3: Overview of results on child eye gaze activity detection. GUT = Gdansk University of Technology, Poland; ITU-YU = Istanbul Teknik Universitesi and Yeditepe University Vakıf, Turkey; MAAP = Macedonian Association for Applied Psychology, North Macedonia; UH = University of Hertfordshire, United Kingdom.*

Activity	Eye gaze detection	Eye gaze fixation
Available sessions	82	82
Session duration; mean $\pm$ std [s]	592 $\pm$ 218	592 $\pm$ 218
Proportion of time with detected child eye activity per session; mean $\pm$ std [%]	28.75 $\pm$ 17.21	0.57 $\pm$ 0.69
Time with detected child eye activity per session; mean $\pm$ std [s]	171.90 $\pm$ 119.39	3.54 $\pm$ 4.82
GUT/Poland – Proportion of time with detected child eye activity per session; mean $\pm$ std [%]	5.95 $\pm$ 8.31	0.13 $\pm$ 0.19
ITU-YU/Turkey – Proportion of time with detected child eye activity per session; mean $\pm$ std [%]	26.25 $\pm$ 19.29	0.79 $\pm$ 0.93
MAAP/North Macedonia – Proportion of time with detected child eye activity per session; mean $\pm$ std [%]	30.49 $\pm$ 13.53	0.38 $\pm$ 0.36
UH/United Kingdom – Proportion of time with detected child eye activity per session; mean $\pm$ std [%]	27.16 $\pm$ 24.64	1.09 $\pm$ 1.03

### 4. Discussion

From our analysis it can be concluded that the eye-tracking data cannot be used for automatic emotion recognition in children with ASD. It is a surprising finding for the EMBOA team, since current researches reported promising results for automatic emotion recognition from eye-tracking data [3, 4]. Thus, we decided to investigate each session recording by an expert in order to find any justification for that matter. During our investigation, the most common recurring issues were identified in three areas: (1) technical, (2) therapy characteristics, and (3) child behaviour.

The technical issues mostly corresponds to the wrong setting of the eye-tracker. It pointed too high of from one side, while it should be placed frontally. In some recordings, a child was sitting too far from the eye-tracker or there was too dark in the room. One of the most common technical issue, which is also related to the children behaviour, is a way how eye-tracker finds a fixation point. It is done while a child is moving his eye gazes, while younger children change point of view by moving their head instead of the eye gazes.

Many issues are consequences of a therapy characteristics. The eye-tracker works the best while a person is sitting still. However, children are asked to move and play during the robot-based interventions. One of the tasks was even to cover your face with your hands. Thus, the children's eyes were not visible for some time. In some recordings, especially with younger children, there is a hand of a therapist visible between a child and the eye-tracker. This also decreases the time that the eye gaze can be detected.

The most common issues regarding a children's behaviour are movements of the children and closed eyes. Some of the situations are connected with an intervention scenario while others are specific for a certain child, e.g. younger children are prone to cry.

To conclude, researchers who would like to use eye-tracking data for automatic emotion recognition in children with ASD during robot-assisted interventions should consider all of the above factors. We also do not recommend the eye-tracker as the only sensor used for automatic emotion recognition.

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## Appendix A

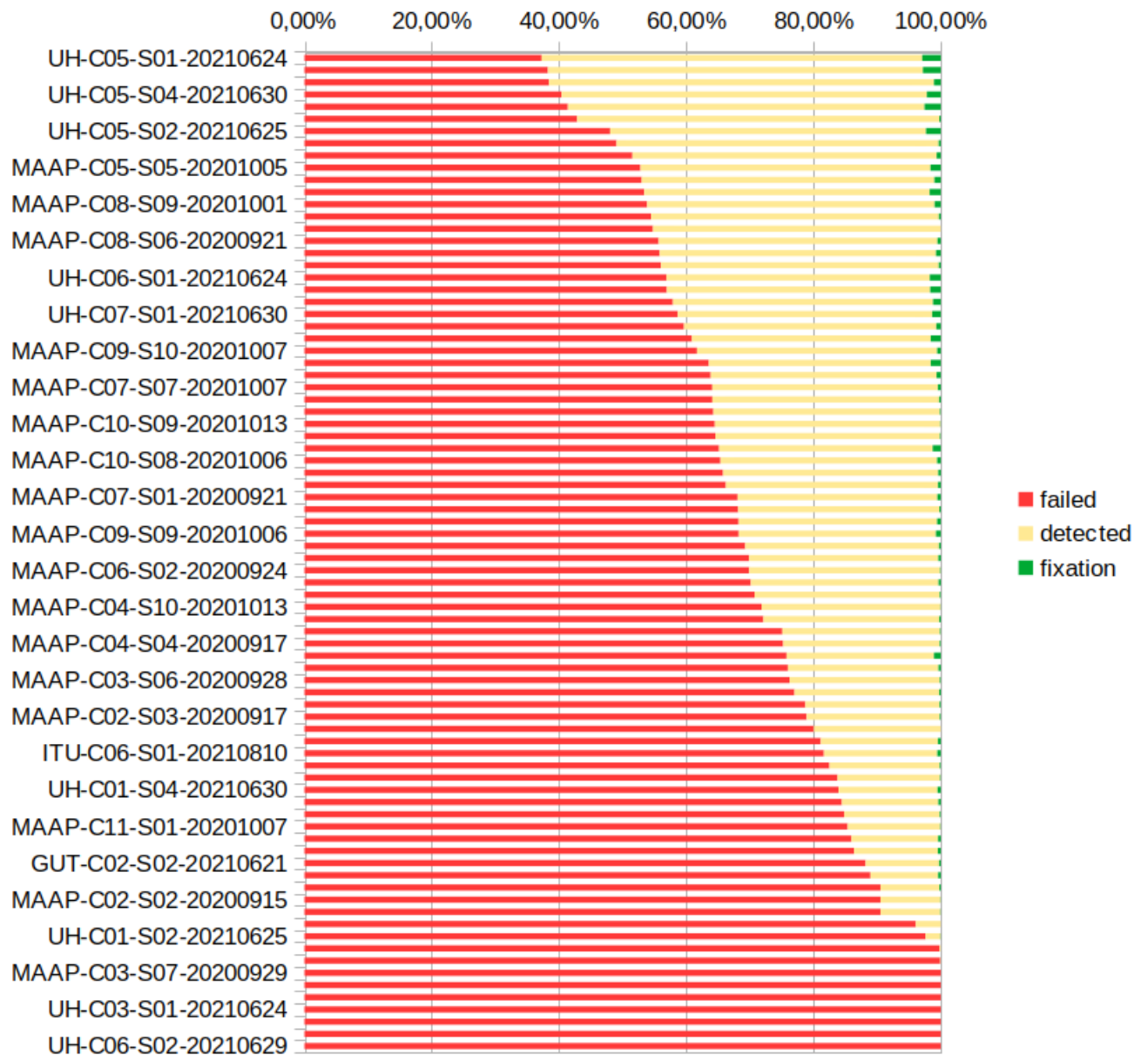


Figure A.1: Percentage values of recognized/unrecognized child eye gaze activity during each session. GUT = Gdansk University of Technology, Poland; ITU-YU = Istanbul Teknik Universitesi and Yeditepe University Vakif, Turkey; MAAP = Macedonian Association for Applied Psychology, North Macedonia; UH = University of Hertfordshire, United Kingdom.

Table A.1: Detailed session-wise results on child eye gaze activity detection. GUT = Gdansk University of Technology, Poland; ITU-YU = Istanbul Teknik Universitesi and Yeditepe University Vakif, Turkey; MAAP = Macedonian Association for Applied Psychology, North Macedonia; UH = University of Hertfordshire, United Kingdom.

ID	Failed [%]	Detected [%]	Fixation [%]
GUT-C01-S02-20210621	99,93	0,07	0,00
GUT-C02-S02-20210621	88,18	11,55	0,27

ITU-C01-S01-20210605	86,36	13,20	0,44
ITU-C06-S01-20210810	81,65	17,82	0,53
ITU-C07-S01-20210810	38,26	58,93	2,80
ITU-C08-S01-20210810	63,56	34,88	1,56
ITU-C09-S01-20210810	85,96	13,64	0,40
ITU-C10-S01-20210810	54,78	45,22	0,00
ITU-C12-S01-20210810	88,94	10,65	0,40
ITU-C13-S01-20210810	90,52	9,26	0,22
MAAP-C01-S04-20200921	84,82	15,02	0,16
MAAP-C02-S02-20200915	90,52	9,44	0,04
MAAP-C02-S03-20200917	78,94	20,91	0,15
MAAP-C03-S03-20200915	84,47	15,18	0,35
MAAP-C03-S04-20200921	70,16	29,52	0,32
MAAP-C03-S05-20200922	83,78	16,13	0,09
MAAP-C03-S06-20200928	76,22	23,64	0,14
MAAP-C03-S07-20200929	100,00	0,00	0,00
MAAP-C03-S09-20201006	69,87	29,78	0,35
MAAP-C03-S10-20201007	82,51	17,33	0,16
MAAP-C04-S03-20200915	81,15	18,43	0,43
MAAP-C04-S04-20200917	75,24	24,60	0,15
MAAP-C04-S05-20200922	75,08	24,80	0,11
MAAP-C04-S06-20200924	77,01	22,73	0,26
MAAP-C04-S07-20200929	64,10	35,64	0,26
MAAP-C04-S08-20201001	72,13	27,62	0,25
MAAP-C04-S09-20201006	66,23	33,35	0,42
MAAP-C04-S10-20201013	71,83	28,13	0,04
MAAP-C05-S01-20200921	68,24	31,20	0,56
MAAP-C05-S02-20200924	90,54	9,40	0,06
MAAP-C05-S03-20200928	68,17	31,61	0,22
MAAP-C05-S04-20201001	75,98	23,67	0,34
MAAP-C05-S05-20201005	52,81	45,59	1,60
MAAP-C06-S01-20200921	63,85	35,50	0,65
MAAP-C06-S02-20200924	69,88	30,03	0,08
MAAP-C06-S03-20200928	99,82	0,18	0,00
MAAP-C06-S04-20201005	65,16	33,58	1,26
MAAP-C07-S01-20200921	68,06	31,41	0,52

MAAP-C07-S02-20200922	70,72	29,13	0,15
MAAP-C07-S03-20200928	42,84	56,92	0,23
MAAP-C07-S04-20200929	51,53	47,83	0,64
MAAP-C07-S06-20201006	59,64	39,66	0,70
MAAP-C07-S07-20201007	64,08	35,49	0,43
MAAP-C08-S05-20200917	78,71	21,11	0,18
MAAP-C08-S06-20200921	55,68	43,80	0,52
MAAP-C08-S07-20200924	56,03	43,67	0,29
MAAP-C08-S08-20200928	38,41	60,54	1,05
MAAP-C08-S09-20201001	53,85	45,18	0,97
MAAP-C08-S11-20201007	65,79	33,84	0,37
MAAP-C09-S05-20200917	49,05	50,63	0,32
MAAP-C09-S06-20200921	55,83	43,43	0,74
MAAP-C09-S07-20200924	69,27	30,45	0,28
MAAP-C09-S09-20201006	68,26	31,00	0,75
MAAP-C09-S10-20201007	61,68	37,77	0,55
MAAP-C10-S02-20200915	96,08	3,92	0,00
MAAP-C10-S03-20200917	54,46	45,25	0,29
MAAP-C10-S04-20200922	64,27	35,61	0,12
MAAP-C10-S05-20200924	64,58	35,31	0,11
MAAP-C10-S06-20200929	52,99	46,02	0,99
MAAP-C10-S07-20201001	57,89	40,90	1,21
MAAP-C10-S08-20201006	65,38	34,06	0,57
MAAP-C10-S09-20201013	64,49	35,46	0,04
MAAP-C11-S01-20201007	85,38	14,55	0,07
MAAP-C11-S02-20201013	80,08	19,92	0,01
UH-C01-S01-20210624	100,00	0,00	0,00
UH-C01-S02-20210625	97,61	2,35	0,04
UH-C01-S04-20210630	83,93	15,58	0,49
UH-C02-S01-20210624	100,00	0,00	0,00
UH-C03-S01-20210624	100,00	0,00	0,00
UH-C03-S02-20210629	75,77	23,17	1,07
UH-C03-S03-20210630	56,95	41,41	1,64
UH-C04-S01-20210624	100,00	0,00	0,00
UH-C04-S02-20210625	100,00	0,00	0,00
UH-C04-S03-20210629	60,89	37,55	1,56



UH-C04-S04-20210630	53,38	44,87	1,75
UH-C05-S01-20210624	37,26	59,83	2,91
UH-C05-S02-20210625	48,04	49,66	2,30
UH-C05-S03-20210629	41,40	56,05	2,54
UH-C05-S04-20210630	40,41	57,42	2,18
UH-C06-S01-20210624	56,89	41,39	1,72
UH-C06-S02-20210629	100,00	0,00	0,00
UH-C07-S01-20210630	58,67	39,96	1,37

## Appendix B. An analysis for each sessions

### UH-C05-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C05-S01-20210624	37,26%	59,83	2,91%

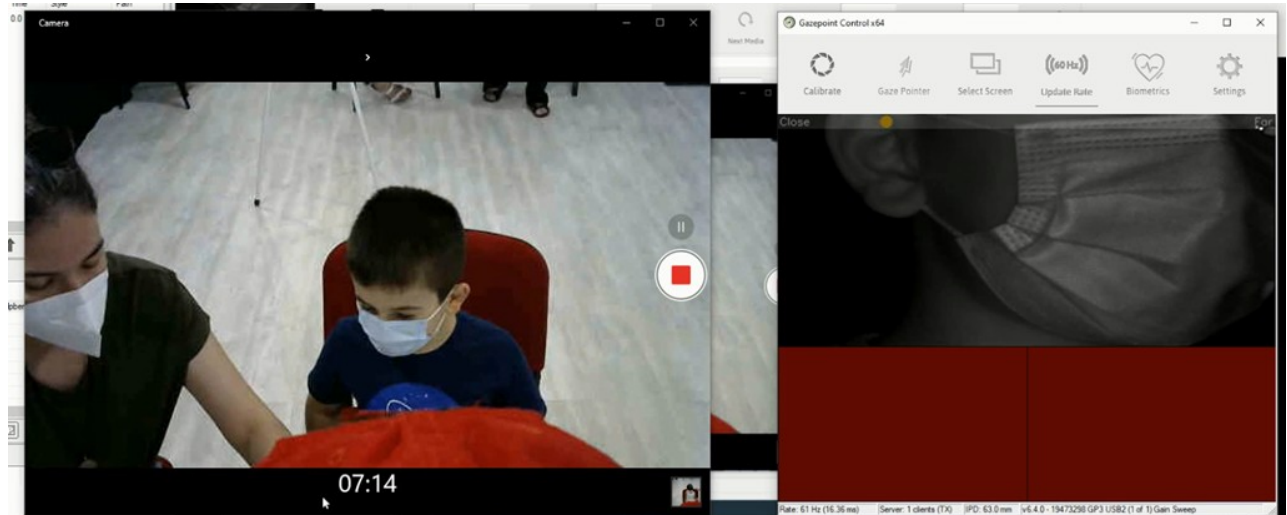


#### Notes:

- During interaction with a robot, a child get out of the frame (while moving his head).

ITU-C07-S01-20210810

Code	FAILED	DETECTED	FIXATION
ITU-C07-S01-20210810	38,26%	58,93	2,80%

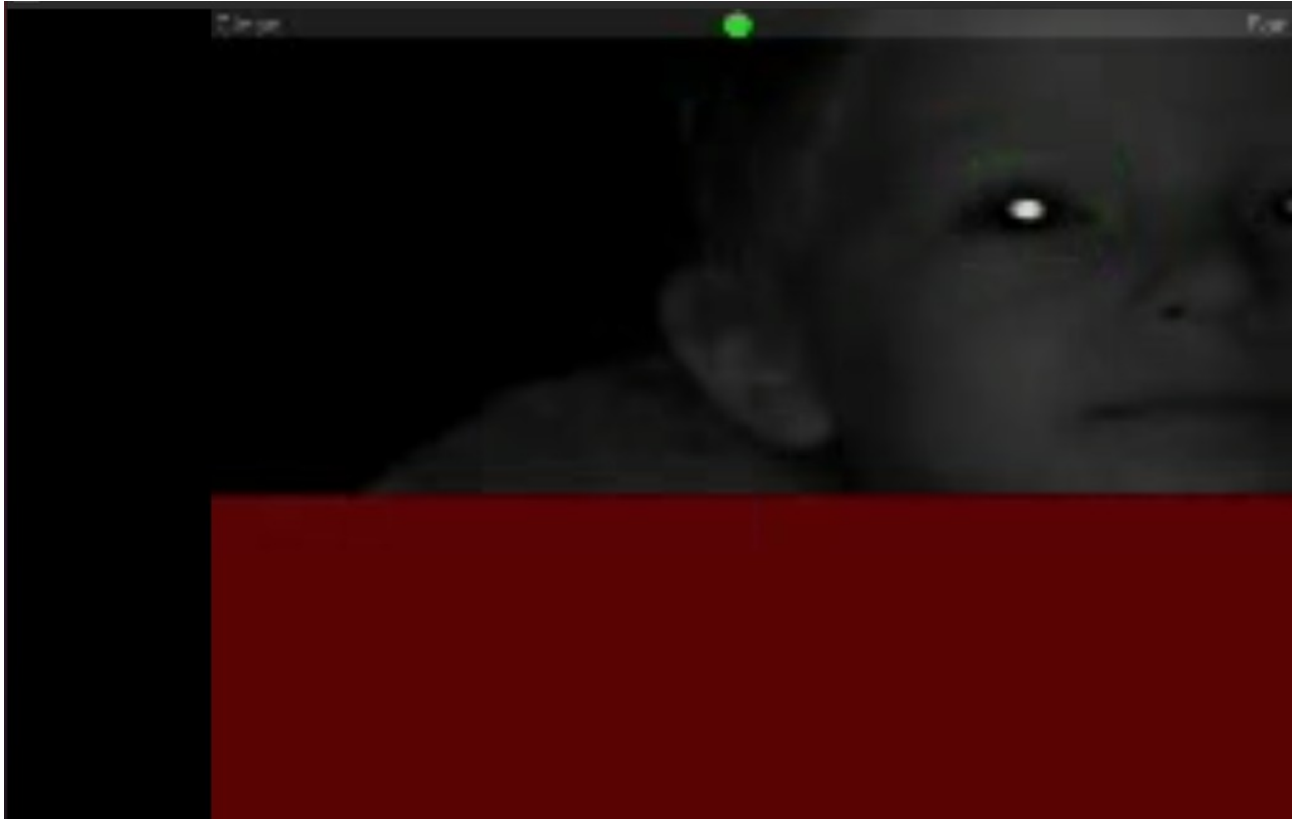


Notes:

- In the middle of the session the child gets nearer to the robot.

MAAP-C08-S08-20200928

Code	FAILED	DETECTED	FIXATION
MAAP-C08-S08-20200928	38.41	60.54	1.05



Notes:

- It seems like it is dark in the room (bad contrast)
- Child seems to be crying: he closes his eyes and touches face. However, it was a task given by the robot (therapist).
- Child is moving out of the frame.

UH-C05-S04-20210630

Code	FAILED	DETECTED	FIXATION
UH-C05-S04-20210630	40.41	57.42	2.18



- Notes:
- Child is moving while interacting with a robot.

UH-C05-S03-20210629

Code	FAILED	DETECTED	FIXATION
UH-C05-S03-20210629	41.40	56.05	2.54

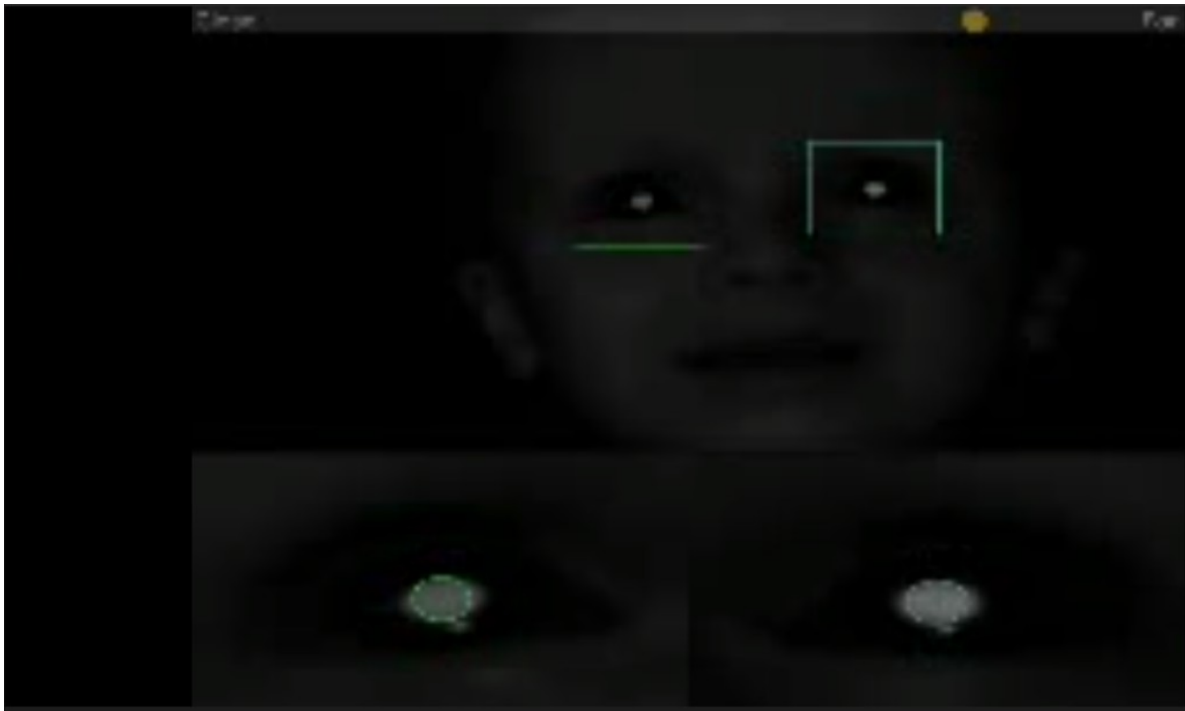


Notes:

- Child is moving while interacting with a robot.

MAAP-C07-S03-20200928

Code	FAILED	DETECTED	FIXATION
MAAP-C07-S03-20200928	42.84	56.92	0.23

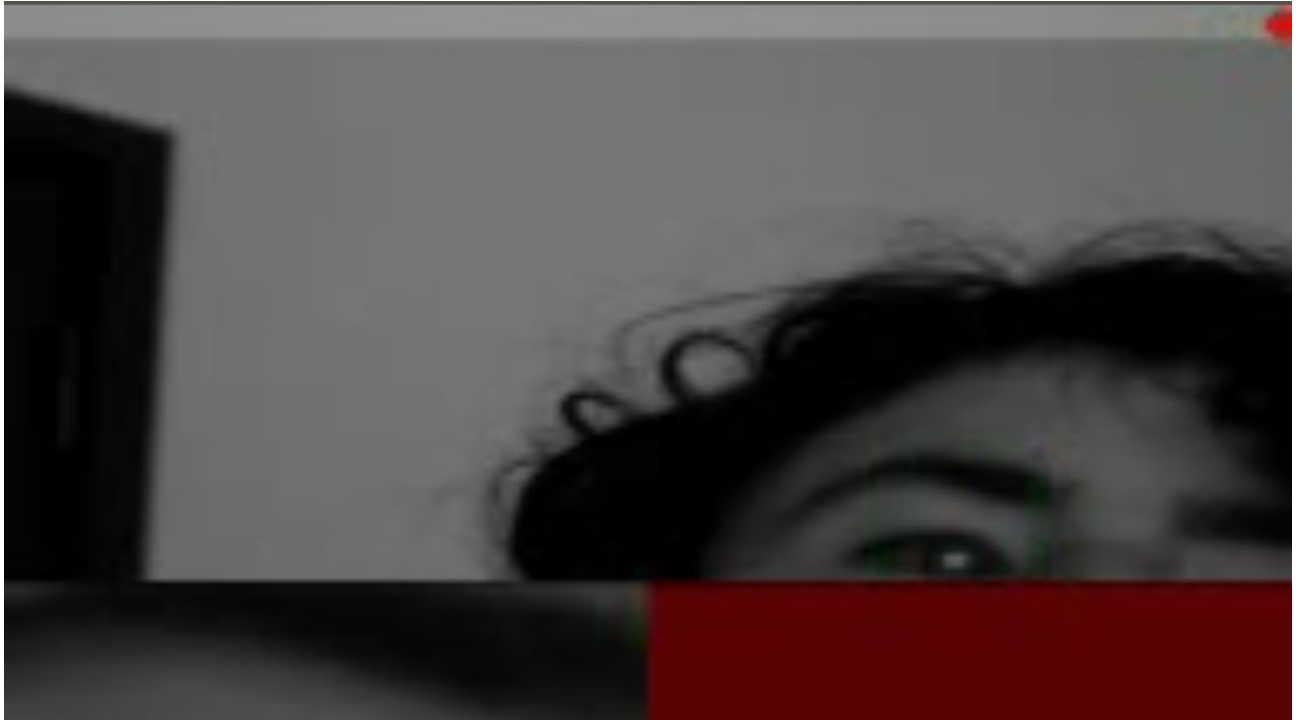


Notes:

- A bad contrast in recording.
- Child is moving while interacting with a robot.

UH-C05-S02-20210625

Code	FAILED	DETECTED	FIXATION
UH-C05-S02-20210625	48.04	49.66	2.30



Notes:

- Child is moving while interacting with a robot.
- Wrong setting of the eye-tracker - pointing too high



**MAAP-C09-S05-20200917**

Code	FAILED	DETECTED	FIXATION
MAAP-C09-S05-20200917	49.05	50.63	0.32

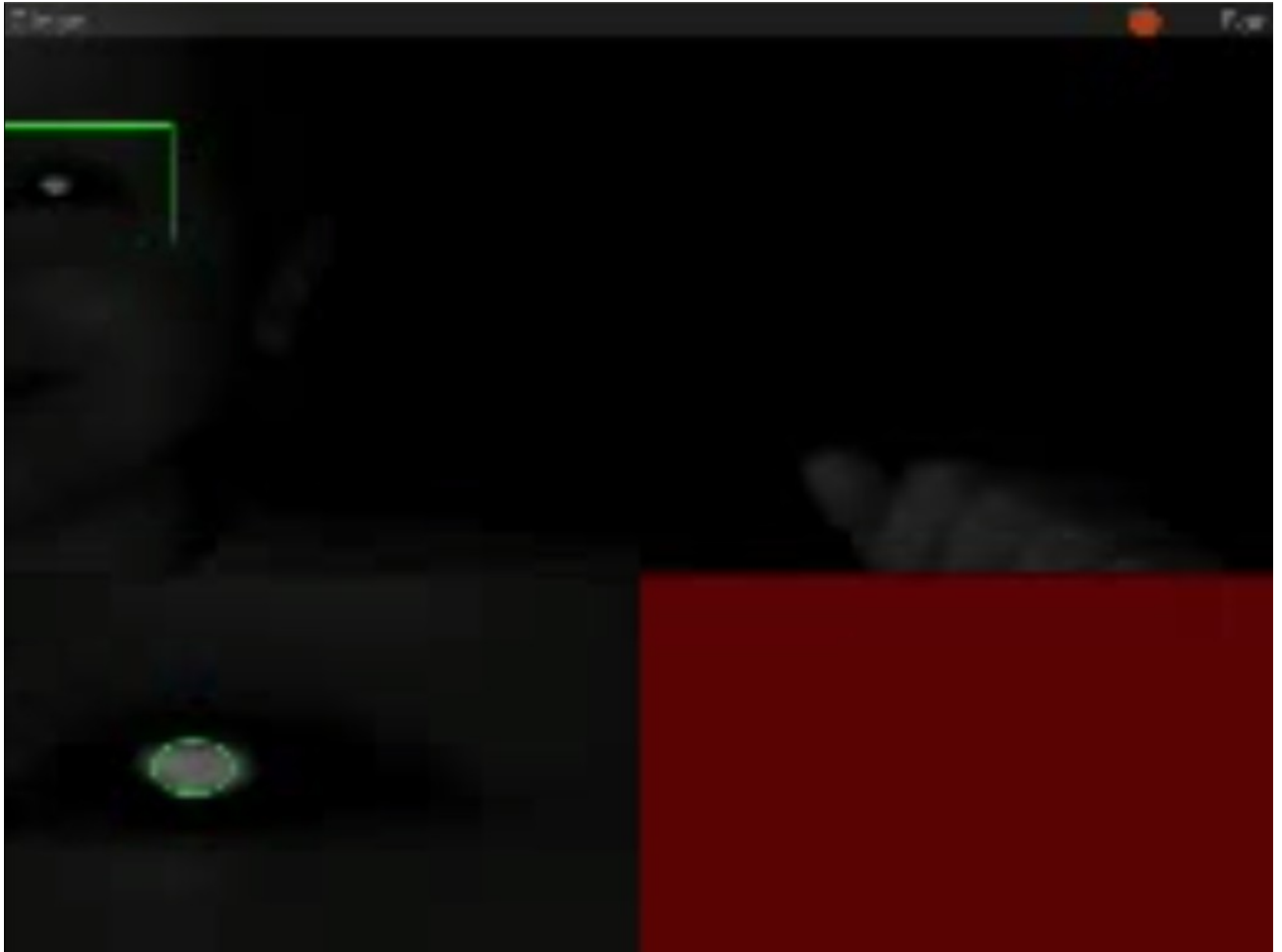


## Notes:

- Child is moving while interacting with a robot.
- Child has closed eyes for some time.
- Child plays with a toy which hides his face.
- There is a hand of a therapist visible between a child and the eye-tracker.

MAAP-C07-S04-20200929

Code	FAILED	DETECTED	FIXATION
MAAP-C07-S04-20200929	51.53	47.83	0.64



Notes:

- Child is moving while interacting with a robot.
- Child hides behind his hands (part of a task).
- There is a hand of a therapist visible between a child and the eye-tracker.

**MAAP-C05-S05-20201005**

Code	FAILED	DETECTED	FIXATION
MAAP-C05-S05-20201005	52.81	45.59	1.60



## Notes:

- Child is moving while interacting with a robot.
- Child hides behind his hands (part of a task).
- There is a hand of a therapist visible between a child and the eye-tracker.

**MAAP-C10-S06-20200929**

Code	FAILED	DETECTED	FIXATION
MAAP-C10-S06-20200929	52.99	46.02	0.99

**Notes:**

- Child is moving while interacting with a robot.
- Child hides behind his hands (part of a task).
- Child plays with a toy which hides his face.
- There is a hand of a therapist visible between a child and the eye-tracker.

UH-C04-S04-20210630

Code	FAILED	DETECTED	FIXATION
UH-C04-S04-20210630	53.38	44.87	1.75

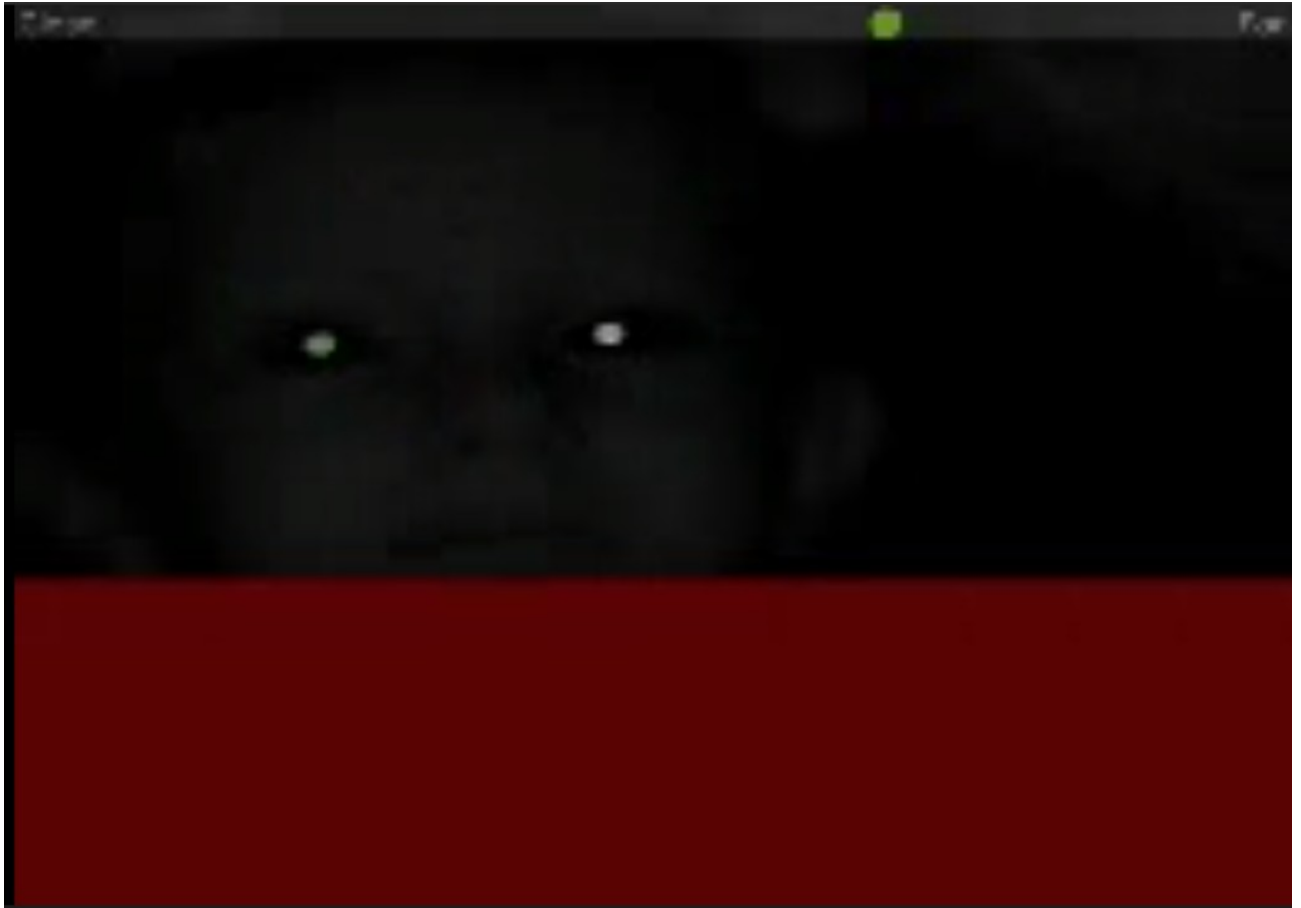


Notes:

- Child is moving while interacting with a robot.
- Eye-tracker finds a fixation point while the child is moving his eye gazes not his head.

**MAAP-C08-S09-20201001**

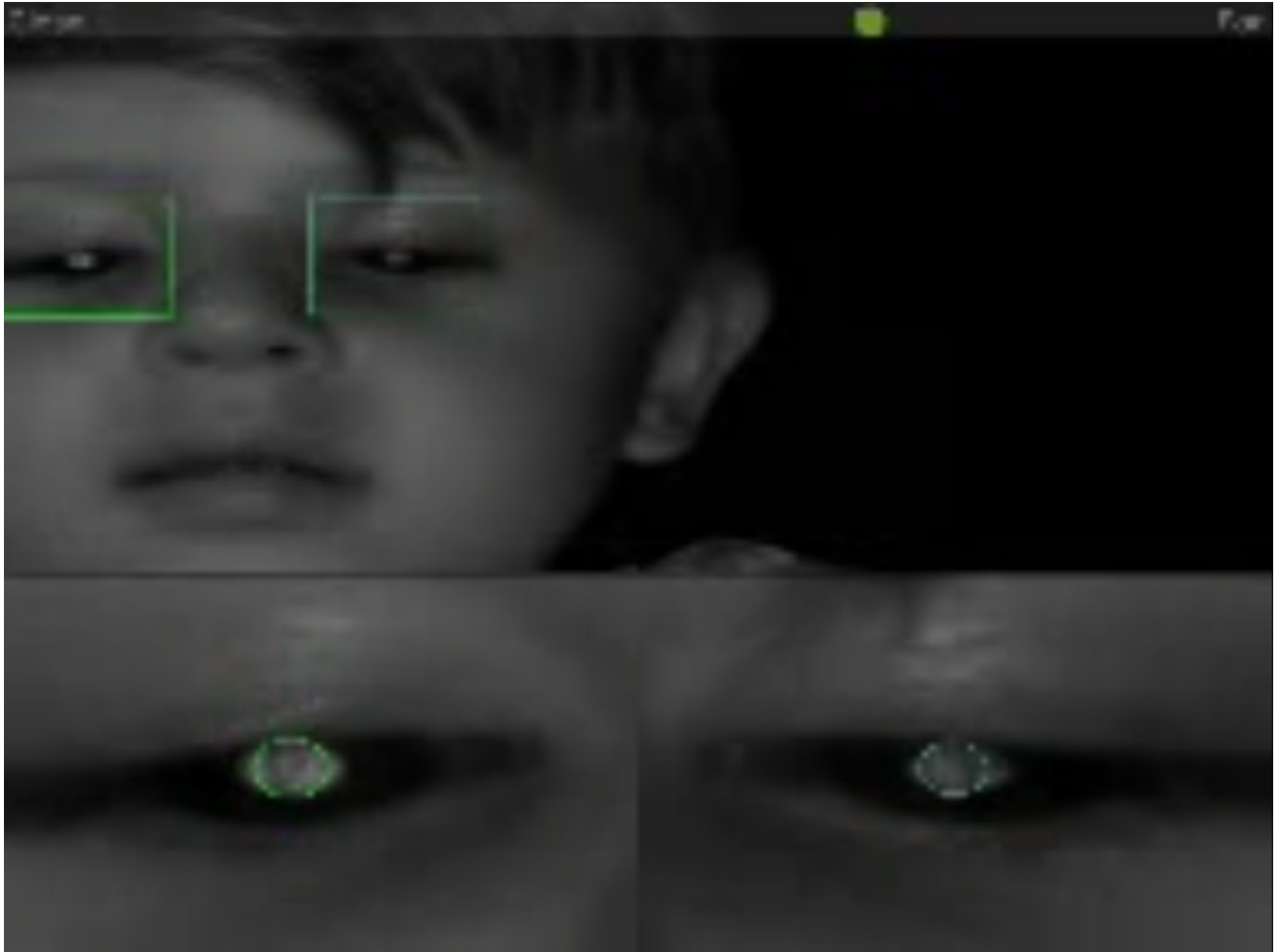
Code	FAILED	DETECTED	FIXATION
MAAP-C08-S09-20201001	53.85	45.18	0.97

**Notes:**

- Child is moving while interacting with a robot.
- The child often closes his eyes.
- There is a hand of a therapist visible between a child and the eye-tracker.

**MAAP-C10-S03-20200917**

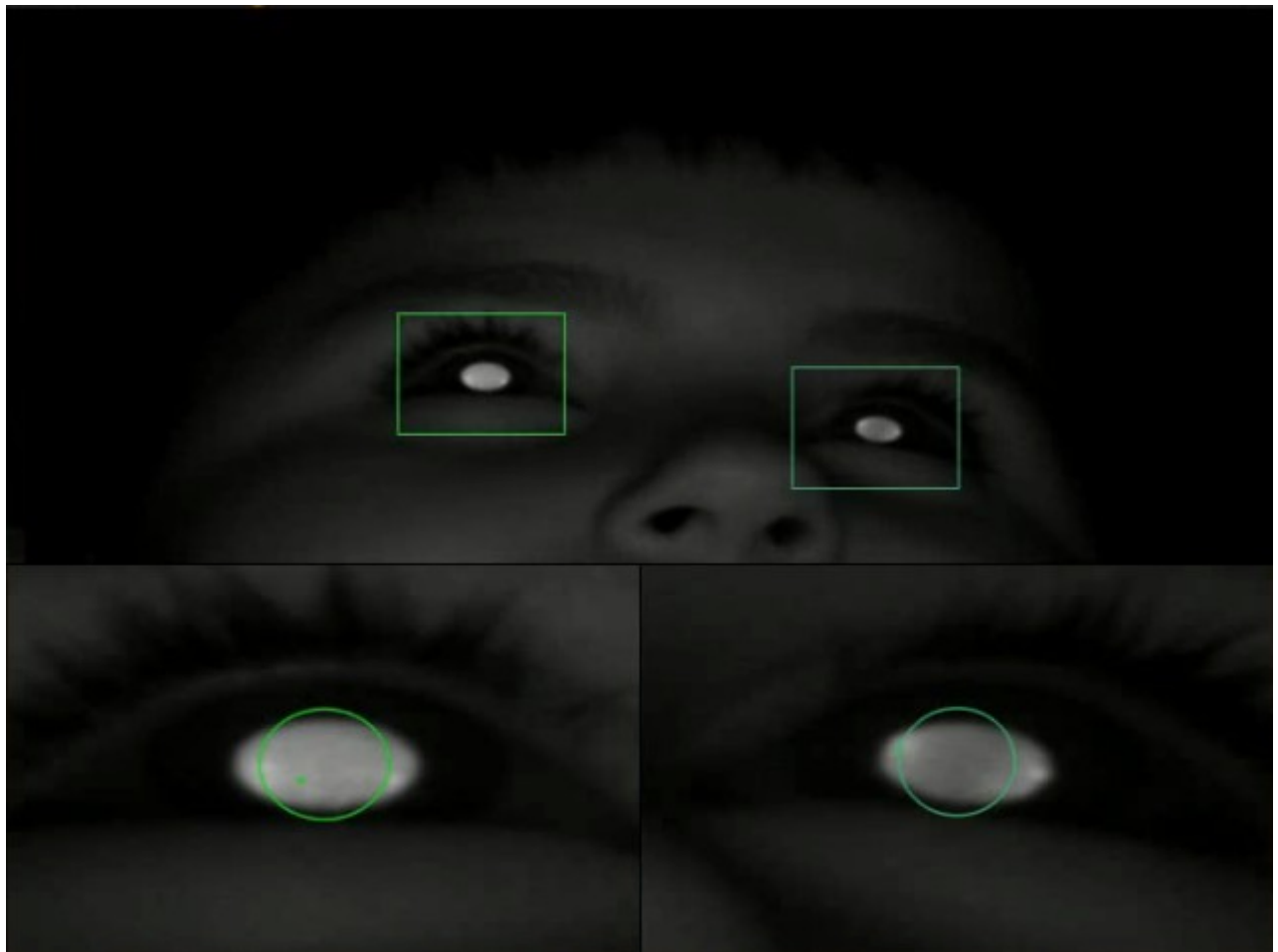
Code	FAILED	DETECTED	FIXATION
MAAP-C10-S03-20200917	54.46	45.25	0.29

**Notes:**

- Child is moving while interacting with a robot.
- Child hides behind his hands (part of a task).
- Child plays with a toy which hides his face.
- Eye-tracker finds a fixation point while the child is moving his eye gazes not his head.

**ITU-C10-S01-20210810**

Code	FAILED	DETECTED	FIXATION
ITU-C10-S01-20210810	54.78	<del>45.22</del> 43,33	<del>0.00</del> 1.89



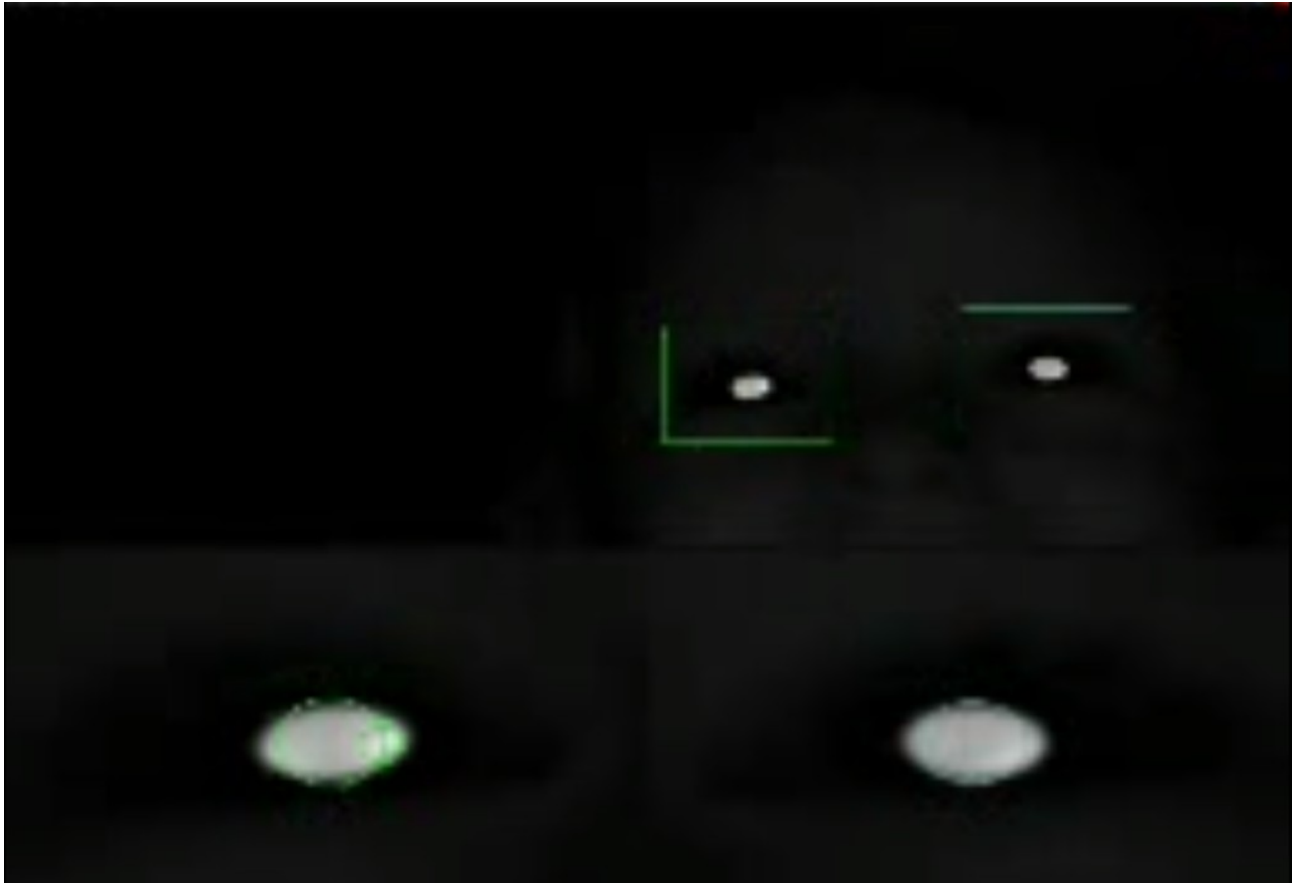
## Notes:

- Child is moving while interacting with a robot.
- File with fixations has wrong name.



MAAP-C08-S06-20200921

Code	FAILED	DETECTED	FIXATION
MAAP-C08-S06-20200921	55.68	43.80	0.52



Notes:

- Child is moving while interacting with a robot.
- Child is too far from the eye-tracker.
- Child is changing his positiona and getting out of the frame.

MAAP-C09-S06-20200921

Code	FAILED	DETECTED	FIXATION
MAAP-C09-S06-20200921	55.83	43.43	0.74



Notes:

- Child is moving while interacting with a robot.
- Child is too far from the eye-tracker.
- Child is changing his positiona and getting out of the frame.
- There is a hand of a therapist visible between a child and the eye-tracker.
- Child has closed eyes for some time.

MAAP-C08-S07-20200924

Code	FAILED	DETECTED	FIXATION
MAAP-C08-S07-20200924	56.03	43.67	0.29

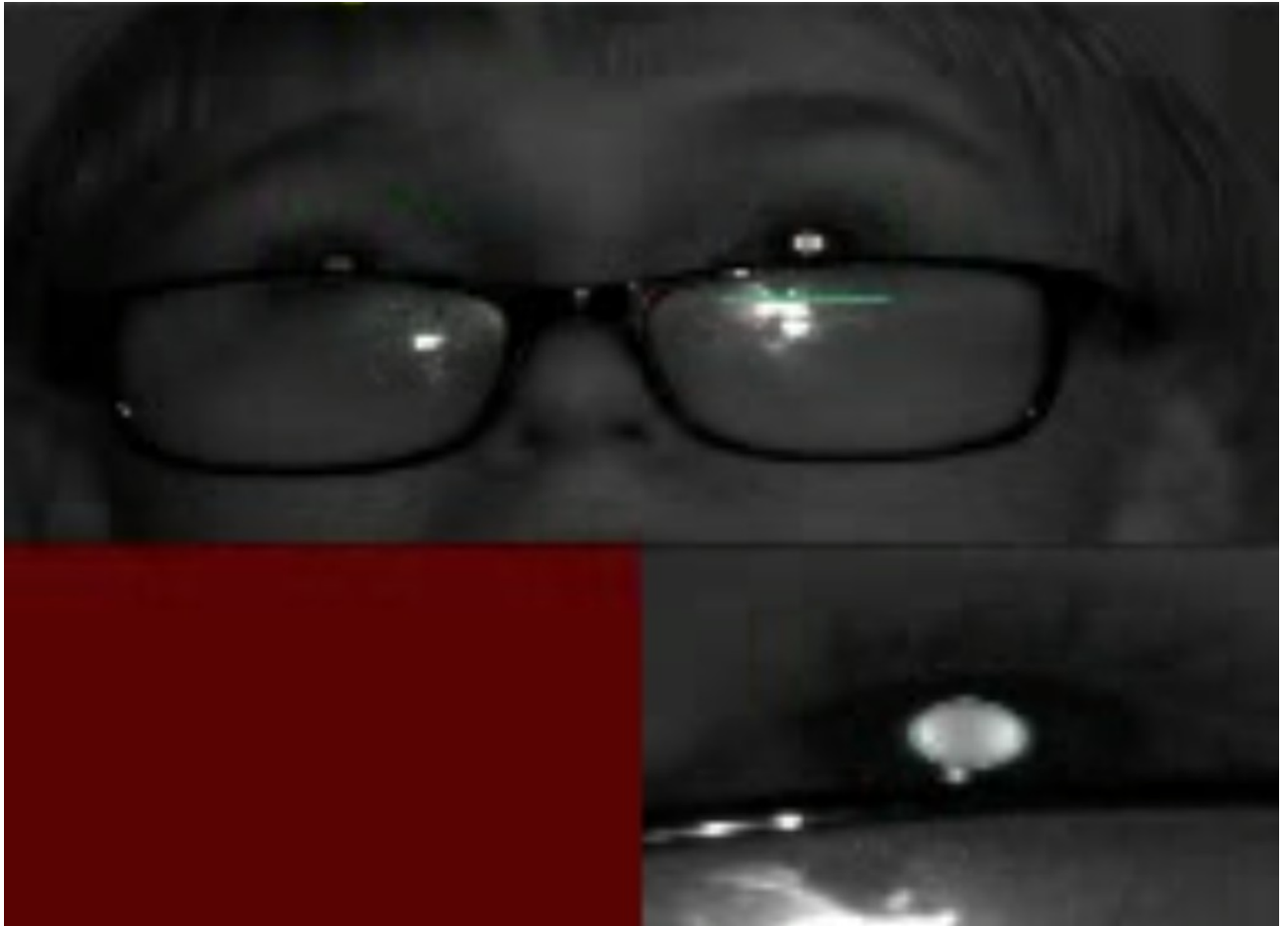


Notes:

- Child is moving while interacting with a robot.
- Light conditions in the room or a position of a child relative to the eye-tracker (a child is too far).
- Child is changing his position and getting out of the frame.
- There is a hand of a therapist visible between a child and the eye-tracker.
- Child plays with a toy which hides his face.

UH-C06-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C06-S01-20210624	56.89	41.39	1.72



Notes:

- Child is moving while interacting with a robot.
- Child wears too big glasses.
- Child is changing his positiona and getting out of the frame.
- The eye-tracker is not centered on the child.
- Eye-tracker finds a fixation point while the child is moving his eye gazes not his head.

UH-C03-S03-20210630

Code	FAILED	DETECTED	FIXATION
UH-C03-S03-20210630	56.95	41.41	1.64



Notes:

- Child is moving while interacting with a robot.
- The eye-tracker is not centered on the child.
- Child is changing his position and getting out of the frame.
- Eye-tracker finds a fixation point while the child is moving his eye gazes not his head.

**MAAP-C09-S07-20200924**

Code	FAILED	DETECTED	FIXATION
MAAP-C09-S07-20200924	69.27	30.45	0.28

**Notes:**

- Child is moving while interacting with a robot.
- Light conditions in the room or a position of a child relative to the eye-tracker (a child is too far).
- There is a hand of a therapist visible between a child and the eye-tracker.
- Child plays with a toy which hides his face.
- Child has closed eyes for some time.

**MAAP-C11-S02-20201013**

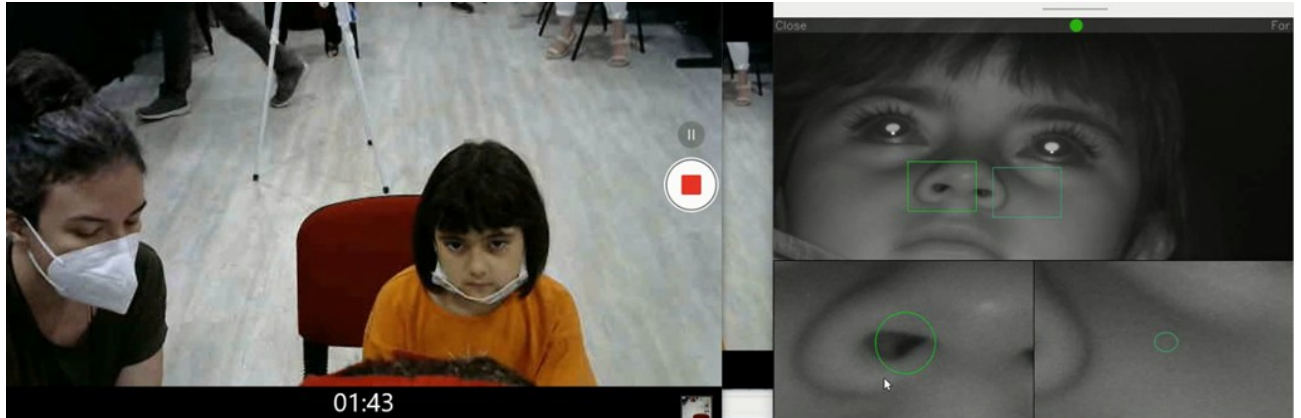
Code	FAILED	DETECTED	FIXATION
MAAP-C11-S02-20201013	80.08	19.92	0.01

**Notes:**

- Child is moving while interacting with a robot.
- There is a hand of a therapist visible between a child and the eye-tracker.
- Child plays with a toy which hides his face.
- A child is crying during the session.

**ITU-C12-S01-20210810**

Code	FAILED	DETECTED	FIXATION
ITU-C12-S01-20210810	88.94	10.65	0.40

**Notes:**

- Child is moving while interacting with a robot.
- The eye-tracker is placed too low or the shape of the child eyes is not standard.
- Child is changing his position and getting out of the frame.



# MAAP-C05-S02-20200924

Code	FAILED	DETECTED	FIXATION
MAAP-C05-S02-20200924	90.54	9.40	0.06

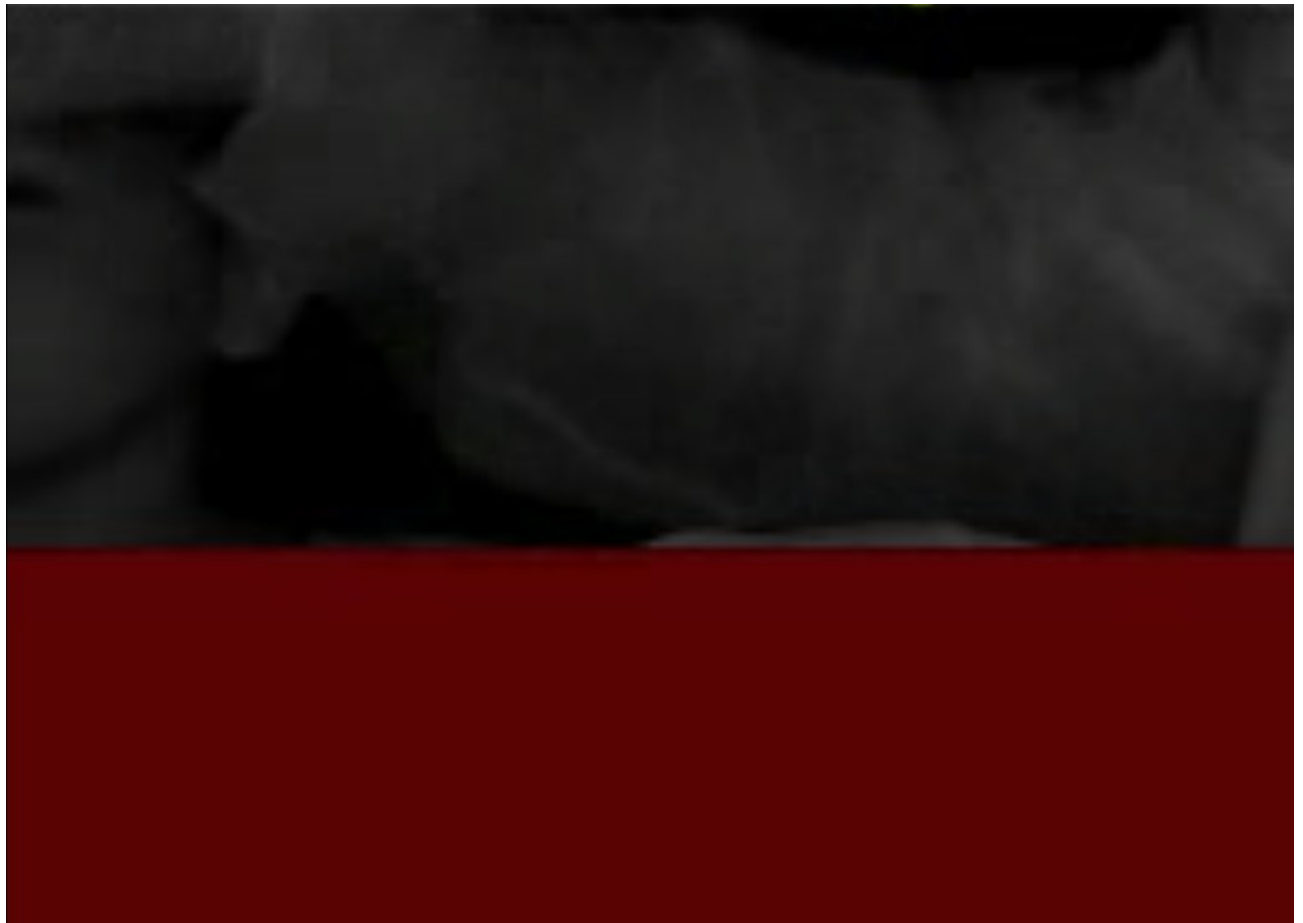


## Notes:

- There occurred some technical issue with the eye-tracker (it seems like it was freezing).

**MAAP-C10-S02-20200915**

Code	FAILED	DETECTED	FIXATION
MAAP-C10-S02-20200915	96.08	3.92	0.00



## Notes:

- Child is moving while interacting with a robot.
- Light conditions in the room or a position of a child relative to the eye-tracker (a child is too far).
- There is a hand of a therapist visible between a child and the eye-tracker.
- The eye-tracker is incorrectly positioned (the child is too far and the angle is wrong).

UH-C01-S02-20210625

Code	FAILED	DETECTED	FIXATION
UH-C01-S02-20210625	97.61	2.35	0.04



Notes:

- Child is moving while interacting with a robot.
- The eye-tracker is incorrectly positioned (the child is too near and the angle is wrong - for the most of time only child's hair are visible).

**MAAP-C06-S03-20200928**

Code	FAILED	DETECTED	FIXATION
MAAP-C06-S03-20200928	99.82	0.18	0.00



## Notes:

- The eye-tracker is incorrectly positioned (for the most of time only child's hair are visible).

**GUT-C01-S02-20210621**

<b>Code</b>	<b>FAILED</b>	<b>DETECTED</b>	<b>FIXATION</b>
GUT-C01-S02-20210621	99.93	0.07	0.00

Notes:

- No video with a child face is available.

**MAAP-C03-S07-20200929**

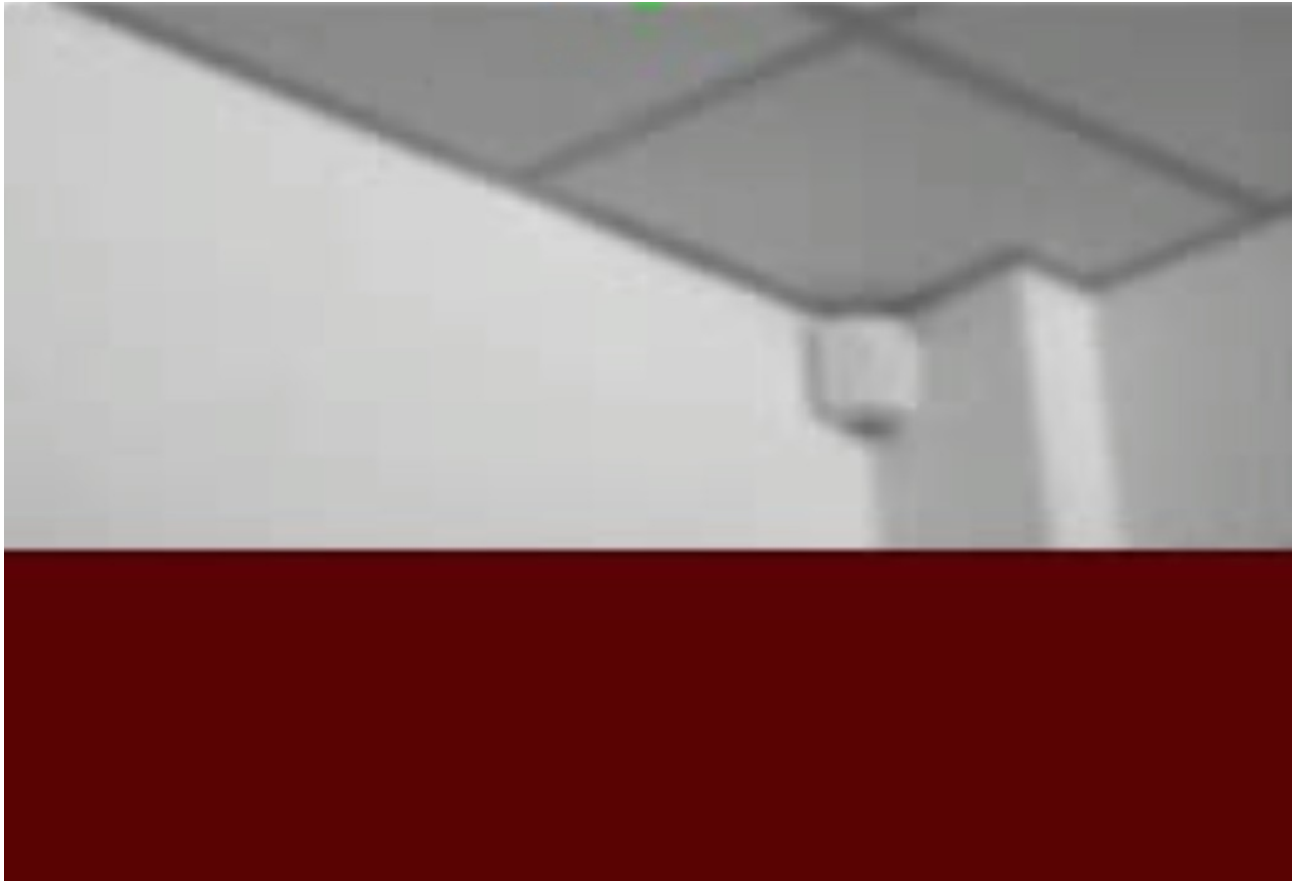
Code	FAILED	DETECTED	FIXATION
MAAP-C03-S07-20200929	100.00	0.00	0.00

**Notes:**

- The eye-tracker is incorrectly positioned (for the most of time only child's hair are visible).

UH-C01-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C01-S01-20210624	100.00	0.00	0.00

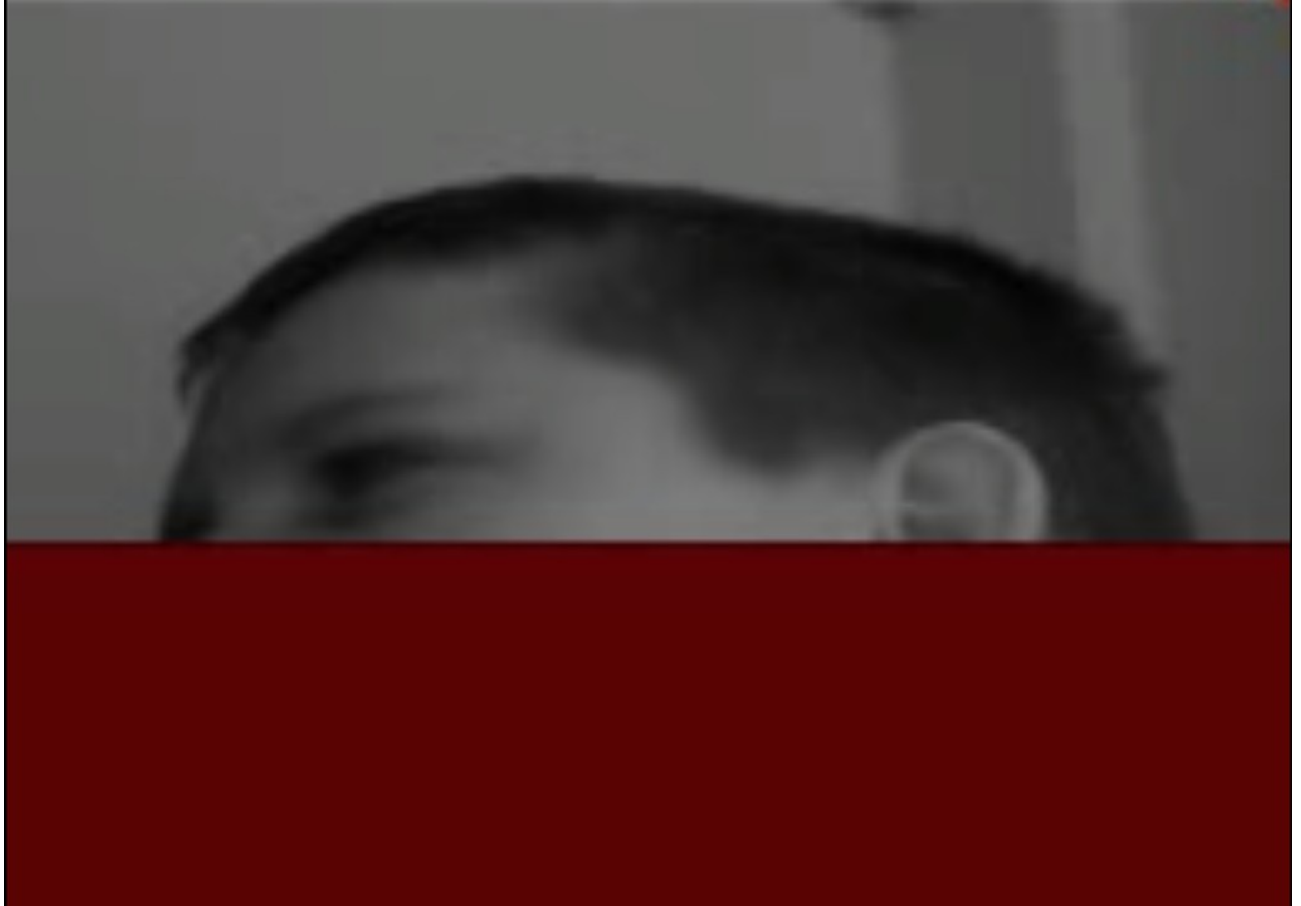


Notes:

- The eye-tracker is incorrectly positioned.

UH-C02-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C02-S01-20210624	100.00	0.00	0.00



Notes:

- The eye-tracker is incorrectly positioned.



UH-C03-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C03-S01-20210624	100.00	0.00	0.00

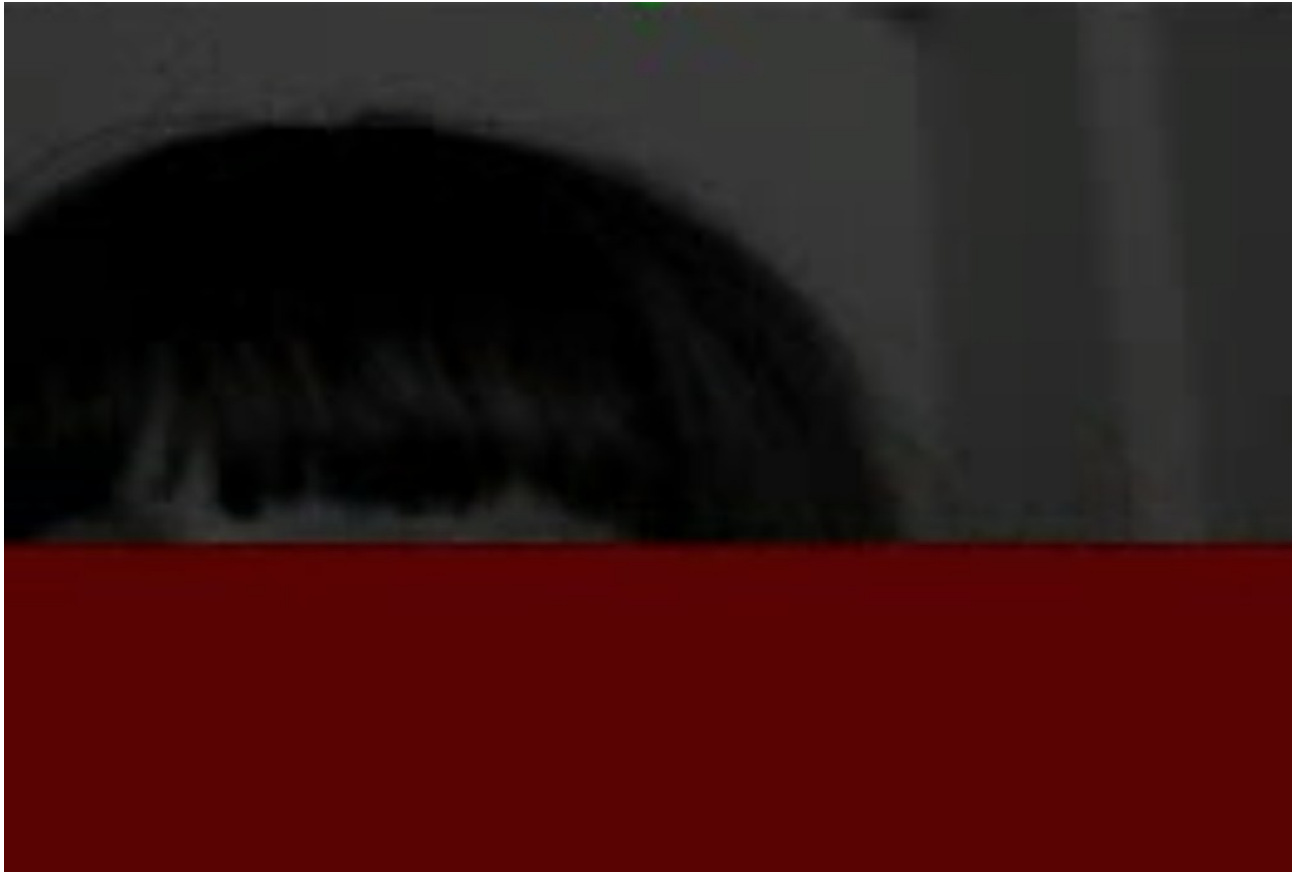


Notes:

- The eye-tracker is incorrectly positioned (for the most of time only child's hair are visible).

UH-C04-S01-20210624

Code	FAILED	DETECTED	FIXATION
UH-C04-S01-20210624	100.00	0.00	0.00



Notes:

- The eye-tracker is incorrectly positioned (for the most of time only child's hair are visible).

UH-C04-S02-20210625

Code	FAILED	DETECTED	FIXATION
UH-C04-S02-20210625	100.00	0.00	0.00



Notes:

- The eye-tracker is incorrectly positioned.

UH-C06-S02-20210629

Code	FAILED	DETECTED	FIXATION
UH-C06-S02-20210629	100.00	0.00	0.00



Notes:

- The eye-tracker is incorrectly positioned (the child is too far and the angle is wrong - only a ear of the child is visible and only for a moment).