

Automated Child Social Attention Evaluation

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Abstract

Providing proper care for children with attention difficulty disorder is crucial, one way to ensure this is early identification of these disorders. In Sri Lanka, a developing country, it is difficult to find resources such as clinics, clinical expertise, and other resources which are essential for diagnosis. The absence of these apparatuses risks the mental well-being of the child as well as access to help. Hence a need arises to develop an automated social attention evaluation system. This will serve as the first line of diagnosis and help the parents/guardians secure the help required from an early age for the child. To the best of the authors knowledge, no solution of this nature is readily available for the Sri Lankan community so far. Keeping the low-income bracket of the country in mind, we propose a solution that can be easily deployed even on a cheap mobile/tablet-like device. It is difficult to perform these evaluations for children in similar settings as adults, as they are easily distracted. Therefore, care must be taken to grab the child's attention throughout the evaluation process. In this research, we developed applications for children at different levels and each level assesses child attention between social objects and non-social objects through a child-friendly game, as they have sufficient visual stimuli to hold the child's attention. In this study we investigated the screen time spent by the child, the attention of the child on different categories of images (High Autism Interested or Low Autism Interested images), and the switching patterns of the attention between these images. Only typical children were evaluated for this research due to the pandemic situation as well as other internal problems in the country. This system will test and evaluate typical children in our future work.

Keywords

Attention, Disorders, Gaze Tracking, Webcam, Gaze Coordinates, Sri Lanka, Calibrate