Noldus

Baby FaceReader

To research changes and stabilities in infants' facial expressions, as well as responses to audio, taste, odor, visual, and other sensory stimuli, Baby FaceReader is ideally suited. Moreover, it can help analyze cognitive information processing, as well as expressive behavior occurring in naturalistic and experimental situations.

Since young infants are unable to provide verbal feedback, their facial expressions can give extra insights that help to understand their emotional reactions. Baby FaceReader can automatcally measure Action Units, valence, and arousal in infants ranging in age from 6 to 24 months old, and will help you:

- Analyze infant responses to audio, taste, odor, visual, and other sensory stimuli
- Identify gaze direction
- Detect the expressive behaviors that occur during parent-child interactions
- Examine how the cognitive information processing of infants works
- Address questions in developmental psychology related to affect and developmental disorders

Baby FaceReader is the first and only software tool that offers these possibilities!

BABY FACS

Baby FaceReader uses Baby FACS to describe specific movements of an infant's face. Baby FACS has been developed by Professor Oster, since infant faces are different from adult faces. Their faces are smaller, rounder, have a considerable amount of subcutaneous fat, elastic skin and often have little to no eyebrows.

Baby FaceReader automatically classifies Action Units associated to typical expressions (e.g. smiling - AU6+12, crying - AU20). Based on Action Units, arousal, and valence are calculated and your own custom expressions can be created. Baby FaceReader also detects head orientation and gaze direction.

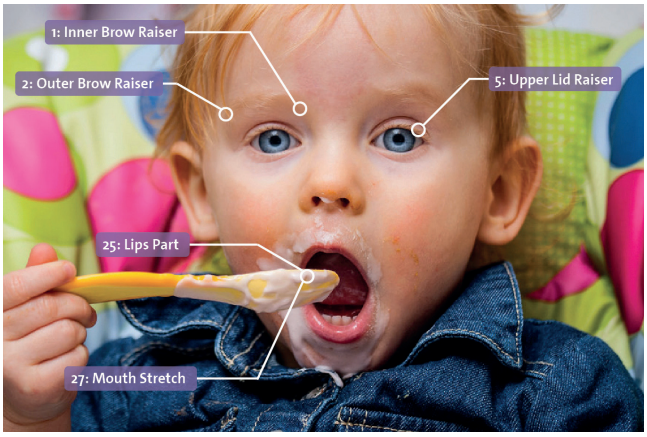
Since a large labelled dataset of basic expressions is missing for infants, Baby FaceReader does not classify basic emotions.

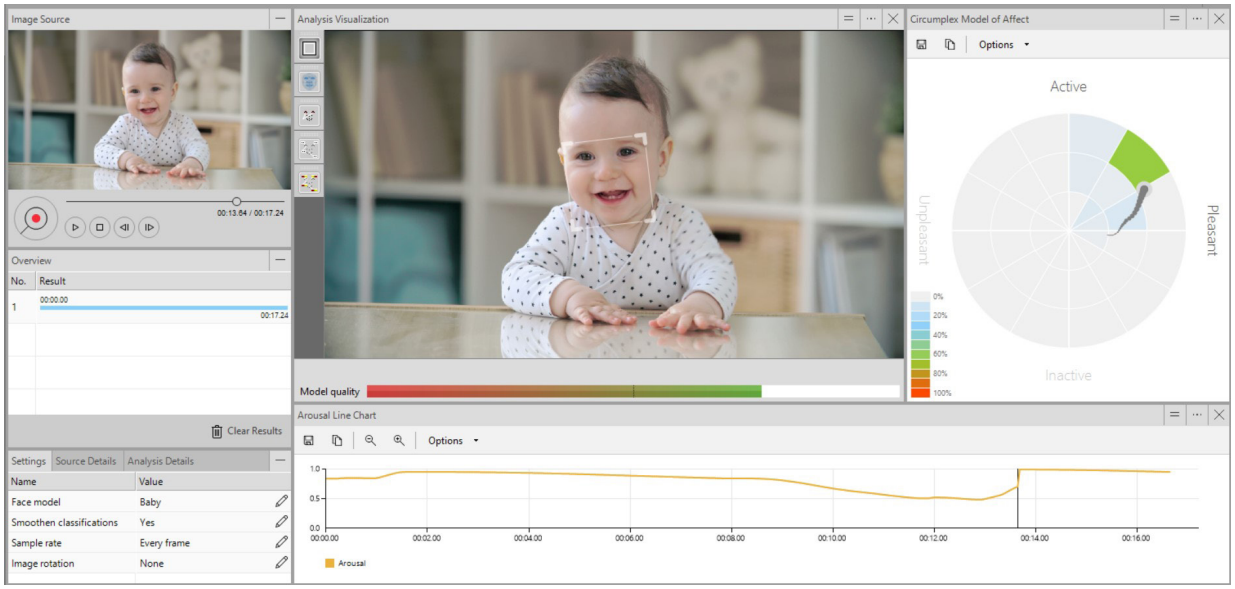
DETECTING RISK FOR DEVELOPMENTAL DISORDERS

Baby FaceReader is a state of the art system to automatically detect infant facial expressions in order to help address questions in developmental psychology related to affect and developmental disorders such as Autism Spectrum Disorder (ASD) and attention-deficit hyperactivity disorder (ADHD). Quantifying infants' facial expressions can assist studies in parent-child interaction and shed light on how we can possibly achieve early detection of these developmental disorders.

INFANT RESPONSES TO FOOD

Is your infant's food sweet or sour? Baby FaceReader has the answer - it makes it possible to identify infants' responses to tastes. For example, the taste of something sweet will result in a facial relaxation, indicating that the infant experienced the sweet taste as pleasant.





In contrast, a non-sweet taste will involve certain facial muscle actions indicating an unpleasant experience.

MEASURE GAZE BEHAVIOR

Baby FaceReader allows researchers to closely follow gaze behavior of infants with eye parameters such as gaze direction, gaze angle, and facial states (e.g. eyes open or closed). Moreover, the measurement of head orientation and head position are useful metrics for details on gaze behavior.

Besides, using the Action Unit Module of Baby FaceReader together with the above mentioned metrics will offer you extended information on eye/head-related behaviors.

UNOBTRUSIVE OBSERVATIONS

Measuring infant facial expressions using Baby FaceReader is unobtrusive and will capture a positive or negative valence, arousal, a set of Action Units, gaze direction, and head orientation. Using the Project Analysis Module in Baby FaceReader, advanced analysis of facial expression data is possible. To obtain an indication of the infant's heart rate, the Remote Photoplethysmography (RPPG) module is available as an add-on as well.

Baby FaceReader is available as stand-alone product or in combination with the standard FaceReader.

Would you like to learn more about Baby FaceReader, discuss further applications, or get our most up-to-date information on the software? Please contact us!

REFERENCES

- Maroulis, A.; Theuws, J.J.M. & Noldus, L.P.J.J. (2019). *Validating Baby FaceReader to Analyze Infant Affective and Cognitive Responses.* Poster Presentation AIMS-2-TRIALS Annual Meeting, 11-13 June 2019.
- Maroulis, A.; Spink, A.J.; Theuws, J.J.M.; Oster, H. & Buitelaar, J. (2017). *Sweet or sour. Validating Baby FaceReader to analyse infant responses to food.* Poster presentation 12th Pangborn Sensory Science Symposium, 20-24 August, 2017.
- Oster, H. (2005). The repertoire of infant facial expressions: An ontogenetic perspective. *Emotional development*, 261-292.
- Oster, H. (2016). *Baby FACS: Facial Action Coding System for infants and young children.* Unpublished monograph and coding manual. New York University.

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