

The human face provides a number of signals essential for interpersonal communication. It is one of our most direct means of communication and allows us to recognize someone's affective state and intentions. Annotating facial expressions objectively however can be a real challenge. FaceReader™ is the revolutionary tool that is capable of automatically analyzing facial expressions, providing users with an objective assessment of a person's emotion.

BENEFITS

- Save time and resources.
- Increase accuracy and reliability.
- Introduce objectivity in observations.
- No calibration required.
- Integrated solution with The Observer® for analysis and visualization.
- Real-time access to collected data allows other software to respond to emotions.

FEATURES

FaceReader is the first truly automated system for the recognition of a number of specific properties in facial images, including the following expressions:

- happy
- sad
- angry
- surprised
- scared
- disgusted
- 'neutral' state

Facial expressions are represented both as bar graphs and as a continuous signal. An additional gauge display summarizes the negativity or positivity of the emotion (valence). In addition to analyzing expressions, FaceReader can classify faces on the following properties: gender, age, ethnicity, and facial hair (beard and/or moustache). FaceReader also includes a basic person recognition algorithm, allowing subjects to be recognized after prior input of the original facial image.

FaceReader can be used for the analysis of video files or live with the use of a webcam. If you have lots of material and a long series of events, you can quickly detect interesting episodes. Instead of you spending time annotating facial expressions, the computer does the work for you! When analyzing from video, you can choose an accurate frame-by-frame mode or high-speed real-time mode. FaceReader can also analyze still images.

The best results are achieved with diffuse frontal lighting on the test participant; Noldus provides illumination for optimization of your set-up. FaceReader can be used with test persons aged twelve and older. The orientation, movements, and rotation of the test person should be within certain limits. Currently the best performance is achieved on non-Asian test participants; the test database is still being expanded. Glasses might interfere with the analysis process.

USING FACEREADER WITH THE OBSERVER XT

Data acquired with FaceReader can be easily imported into The Observer XT, our software package for collection, analysis, and presentation of observational data. This offers a unique solution for synchronization, integration, and analysis of FaceReader data with other data, such as manually logged events, physiological data,



The FaceReader interface, showing the test person's face, the facial expressions, and a number of other properties.

keystrokes, mouse clicks, video and screen captures, eye tracking data, etc. This compatibility enables you to analyze the full context: what user interface is the test participant looking at or which image is triggering an emotion? Classifications can be exported to analytical and database programs such as Microsoft Access and Excel or (in plain text format) to any other preferred package.

REAL-TIME ACCESS

Facial expressions detected by FaceReader can be accessed in real-time by other applications, making the program an ideal tool for research on affective computing and the design of adaptive interfaces. In other words, it allows other software programs to respond instantaneously to the emotional state of the user.

RESEARCH AREAS

- *Psychology:* How do people respond to particular stimuli, e.g. in fear research?

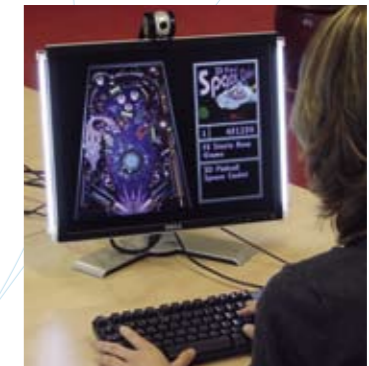
COMPATIBLE PRODUCTS

- The Observer XT
- Theme

ADDITIONAL DOCUMENTATION

- Technical specifications

- *Education:* Observing students' facial expressions can support the development of educational tools.
- *Human-computer interaction:* Facial expressions can provide valuable information about user experience.
- *Usability testing:* Emotional expressions can indicate the ease of use and efficiency of user interfaces.
- *Market research:* How do people respond to a commercial's new design?
- *Consumer behavior:* How do participants in a sensory panel react to a stimulus?

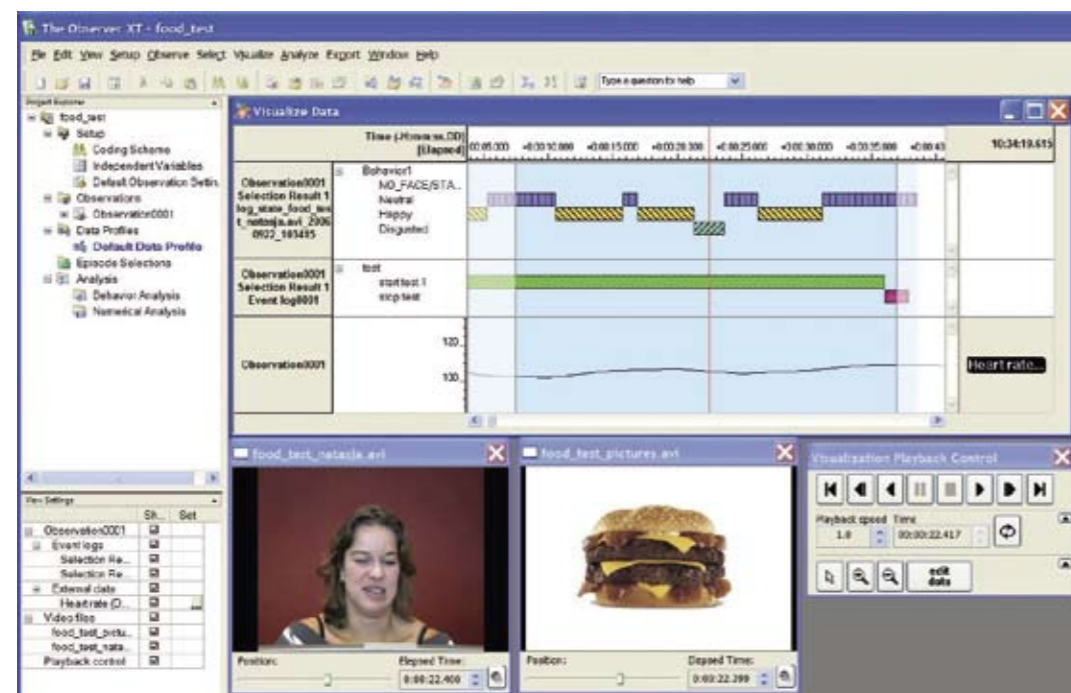


FaceReader set-up with LED illumination and web cam.

COMPONENTS

FaceReader is a turnkey system that consists of the following components:

- FaceReader 1.0 software
- Webcam
- Illumination
- Computer



FaceReader data can easily be imported into The Observer. Here you can combine the video recording of the participant with the stimuli, physiological data, manually scored events, and other data.

PRODUCT NUMBER

- FaceReader (software) FRSW-0001
- FaceReader (hardware) FRHW-0001