The SHORE™ software of Fraunhofer IIS allows for the quick detection of faces and objects as well as for the analysis of faces in image sequences, videos and single frames. It can estimate gender, age, facial expressions, facial features and more. The software runs in real time and is able to detect faces down to a minimum size of 8 x 8 pixels. The technology also offers short term memory for the recognition of faces that works fully anonymously: persons, who were out of the camera’s field of vision short term, can be recognized and recollected. The data collected can be summarized and assessed.

Key Features

- Arbitrary number of faces
- Position of the face, the eyes, nose and mouth
- Gender classification
- Age estimation in years
- Recognition of facial expressions ("Happy", "Surprised", "Angry" and "Sad")
- Flexible adaptation to customer requirements
- Impartial data collection
- Quantitative and qualitative data analysis
- Protocol and documentation functionality
- Stand-alone software or software component for existing tools
- Low hardware requirements
- User friendly
- Runs on standard platforms as well as mobile devices
- Various interfaces: C++, TCP/IP and text logfiles
Technical Data

– In-plane rotation tolerance (tilting): ca. ±60˚
– Out-of-plane rotation tolerance: ca. ±90˚ (full profile)
– Face detection rate: 91.5% on CMU+MIT dataset
– Gender classification rate: 94.3% on BioID dataset
– Processing speed*: frontal face detection: 107.5 fps
– Processing speed*: full analysis including facial expressions: 45.5 fps
  * (Intel Core 2 Duo 6420, 1 core used, BioID dataset, 384 x 286 pixels)

Applications

Advertising and Market Research
Whether billboard, window display, product packaging or commercials - how effective is advertising and how its effectiveness can be increased are the key concerns of marketing and advertising research. SHORE™ can measure the time of visual attention and fixation as well as recognize changes in reaction or emotion corresponding to the presented content. The optimal conception and positioning of advertising or products can be analyzed quickly and objectively. SHORE™ is therefore suitable for qualitative and quantitative market research projects.

Telepresence and Teleconferencing
Telepresence and Teleconferencing systems can be enriched with face detection and analysis in various ways. SHORE™ can help identify a speaker on a large discussion panel or improve speech recognition by aiding lip reading.

Virtual Actors and Intelligent Agents
In-depth facial expression analysis can transfer a person’s facial expressions to an animated character and so helps to achieve lifelike quality. Non-verbal communication between humans and animated characters becomes possible.

Further Application Areas

Driver assistance systems, vehicle detection and classification, medical engineering and assisted living, image editing, or interactive games are further application areas.

Research Areas

New methods for in-depth face analysis based on muscular activity make it possible to detect and track muscle movements in human faces. The methods under development involve matching faces in images against a parameterizable 3D model. Besides individual facial movements, the position and orientation of faces can also be identified and tracked. Experiments involving other types of objects, for instance human hands and road vehicles show promising results and can now serve as a basis for custom adaptations and client-specific solutions.

Download the free trial version of SHORE™:
WWW.IIS.FRAUNHOFER.DE/SHORE

The software can be licensed based on individual or bulk license contracts. We gladly develop software extensions and adaptations as per your requirements.