



# Fraunhofer

IIS

FRAUNHOFER INSTITUTE FOR  
INTEGRATED CIRCUITS IIS

## SHORE™ – PIONEERING FACIAL ANALYSIS





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 and facial expressions in real time. The software runs on standard platforms as well as on mobile devices.

## **APPLICATION AREAS**

### **ADVERTISING AND MARKET RESEARCH**

Whether billboards, window displays, retail analytics or commercials - how effective is advertising and how its effectiveness can be increased? SHORE™ can measure the time of visual attention and fixation as well as recognize changes in reaction or emotion corresponding to the presented content. Thus, the optimal perception and positioning of advertising or products can be analyzed quickly and objectively.

Do you want to understand your shoppers and your target groups? AVARD (Anonymous Video Analytics for Retail and Digital Signage) – the smart video analytics tool will convince you! It is designed for analyzing customer behavior and can be used in retail stores and with digital advertising platforms.



The system sends only anonymous metadata.

For more information please follow:

[www.iis.fraunhofer.de/avard](http://www.iis.fraunhofer.de/avard)

## DRIVER ASSISTANCE SYSTEMS

With state-of-the-art driver assistance and entertainment systems, recognizing a driver's mood is of great importance. Implemented into on-board cameras, SHORE™ determines the position of occupants, estimates their age and sex, and assesses their mental condition (tired, stressed, etc.).

SHORE™ employs this information to minimize the risk of accidents by detecting when the driver is distracted or sleepy. All captured data is anonymized.

## HEALTH SUPPORT

### Pain Recognition for Patients:

Based on SHORE™, we are developing an automatic video-based pain recognition system. Detecting signs of pain in facial expressions it can help persons unable to perform reliable self-reporting, e.g. due to dementia.



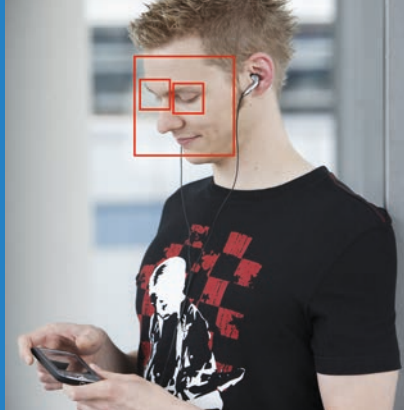
## **Assisted Living:**

As long as older people stay healthy, they can continue living independently at home and won't need much care. But what if living on your own is getting more and more difficult? Integrated into an AAL system our software solution SHORE™ can help elderly people receiving faster assistance and support in serious situations. Furthermore, medical staff can provide remote care without requiring that people give up their familiar private surroundings.

## **Download SHORE™ demo**

Get an impression of the possibilities SHORE™ offers you and let yourself be inspired on how you can apply our solution: Feel free to contact us in order to get your own SHORE™ demo version!

**[www.iis.fraunhofer.de/shore/download](http://www.iis.fraunhofer.de/shore/download)**



## TECHNICAL DATA

- In-plane rotation tolerance (tilting): ca.  $\pm 60^\circ$
- Out-of-plane rotation tolerance: ca.  $\pm 90^\circ$  (full profile)
- Face detection rate: 91.5% on CMU+MIT dataset
- Gender classification rate: 94.3% on BioID dataset
- Real-time processing speed even on low-power hardware (e.g. Raspberry Pi)

## KEY FEATURES

- Arbitrary number of faces and facial parts
- Gender and age estimation
- Recognition of facial expressions
- Runs on standard platforms as well as mobile devices

**[www.iis.fraunhofer.de/shore](http://www.iis.fraunhofer.de/shore)**

**Fraunhofer Institute  
for Integrated Circuits IIS**

Management of the institute  
Prof. Dr.-Ing. Albert Heuberger  
(executive)  
Dr.-Ing. Bernhard Grill

Am Wolfsmantel 33  
91058 Erlangen, Germany

Contact:  
Dr. Jens Garbas  
Phone +49 9131 776-5160  
[jens.garbas@iis.fraunhofer.de](mailto:jens.garbas@iis.fraunhofer.de)

[www.iis.fraunhofer.de](http://www.iis.fraunhofer.de)