# PRESS RELEASE

## An anniversary upgrade for SHORE® facial analysis with artificial intelligence

**Developed at the Fraunhofer Institute for Integrated Circuits IIS and used around the world, the SHORE® facial detection and emotion analysis software library is turning 15 years old. Fraunhofer IIS is marking the occasion by releasing a new version with additional features. SHORE® uses highly efficient AI algorithms that enable image-based analysis of human expressions in line with German and EU data protection standards. The technology has a wide range of applications, including gaining insights into psychological disorders and researching the effects of advertising.**

Sad? Angry? Anxious? SHORE® determines what emotional state people's faces are expressing in real time. The software is also very fast when it comes to determining a person's age and gender. Available now, the new version enables recognition of additional emotional states such as "frightened," "disgusted" and "neutral," and helps attain even more accurate results in detecting subtle emotions. This is made possible by the use of deep neural networks and other deep learning methods.

### Use in market research and in the treatment of autism

SHORE® is being used both in public projects and in customer-specific, engineer-to-order contracts for companies. For instance, market research company GfK's EMO Scan automatic expression analysis software makes it possible to capture emotional responses in real time without having to wire up the human subjects. This makes EMO Scan an efficient addition to traditional surveys: it even enables the detection of fleeting facial expressions, known as microexpressions, which last for only a fraction of a second and are not verbalized. Here, emotion recognition allows for a nuanced, quantitative and objective assessment.

Another application is the social robot named "Pepper". Pepper can recognize the emotions experienced by autistic children by analyzing their expressions, speech and pulse rate. The robot uses its camera to gently scan the child's face and then evaluates the data using AI algorithms featured in the SHORE® facial detection software. Pepper then feeds the insights back in real time, which the children's therapists can incorporate into their treatment plan.

**Head of Corporate Communications**
**Thoralf Dietz** | Phone +49 9131 776-1630 | thoralf.dietz@iis.fraunhofer.de | Fraunhofer Institute for Integrated Circuits IIS | Am Wolfsmantel 33 | 91058 Erlangen, Germany | www.iis.fraunhofer.de

**Editorial notes**
**Syndia Ioannidou** | Phone +49 9131 776-4403 | syndia.ioannidou@iis.fraunhofer.de | Fraunhofer Institute for Integrated Circuits IIS | www.iis.fraunhofer.de

## Web-enabled technology that complies with the EU General Data Protection Regulation

SHORE® facial detection software is extremely powerful: in addition to being able to detect basic emotions and infer negative or positive connotations as well as gender and age, it can be used in conjunction with low-power hardware and does not require a cloud service or an Internet connection. It is available for all established platforms and operating systems. Moreover, a WebAssembly version of SHORE® is also available for web applications. The library can be used directly in the browser and is suitable for on-the-fly analysis. It is easy to integrate into existing websites and dashboards, thus ensuring independence from the given operating system. SHORE® is certified by ePrivacy GmbH. Correctly implemented, the software operates with full anonymity, safeguards personal rights by deleting image data as soon as the analysis is complete and thus complies with the EU's strict General Data Protection Regulation (EU GDPR).

## SHORE® is people-centric

What really motivates group manager Dr. Dominik Seuß and his team of developers to enhance the technology is its usefulness to people. Their work is guided by a code of moral responsibility and data protection. This precludes using SHORE® for applications such as personal identification because these "are extremely prone to misuse." "We first request information on how exactly the technology is to be applied," Seuß explains. Only then will work commence on tailoring the facial detection software to customer requirements. The members of the SHORE® research team all agree: "We've been working on this software for the past 15 years, and we're convinced that SHORE® will continue to help improve products and services in the future and bring empathy to technology."

The Fraunhofer-Gesellschaft, headquartered in Germany, is the world's leading applied research organization. Its research activities are conducted by 76 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of more than 30,000, who work with an annual research budget totaling more than 2.9 billion euros.

The **Fraunhofer Institute for Integrated Circuits IIS**, headquartered in Erlangen, Germany, conducts world-class research on microelectronic and IT system solutions and services. Today, it is the largest institute of the Fraunhofer-Gesellschaft. Research at Fraunhofer IIS revolves around two guiding topics:

In the area of **"Audio and Media Technologies"**, the institute has been shaping the digitalization of media for more than 30 years now. Fraunhofer IIS was instrumental in the development of mp3 and AAC and played a significant role in the digitalization of the cinema. Current developments are opening up whole new sound worlds and are being used in virtual reality, automotive sound systems, mobile telephony, streaming and broadcasting.

In the context of **"cognitive sensor technologies"**, the institute researches technologies for sensor technology, data transmission technology, data analysis methods and the exploitation of data as part of data-driven services and their accompanying business models. This adds a cognitive component to the function of the conventional "smart" sensor.

More than 1100 employees conduct contract research for industry, the service sector and public authorities. Founded in 1985 in Erlangen, Fraunhofer IIS has now 14 locations in 10 cities: Erlangen (headquarters), Nuremberg, Fürth, Dresden, further in Ilmenau, Bamberg, Waischenfeld, Würzburg, Deggendorf and Passau. 75 percent of the budget of 191 million euros a year is financed by contract research projects. Approximately 25 percent is subsidized by federal and state funds as well as internal projects of the Fraunhofer-Gesellschaft. Detailed information on: www.iis.fraunhofer.de/en