



PRESS RELEASE

PRESS RELEASE

November 9, 2017 || Page 1 | 6

MEDICA 2017: Focus on people

Individual health is not only a lead topic at the Fraunhofer Institute for Computer Graphics Research IGD but also a hot topic at MEDICA 2017. It encompasses subjects such as medical data acquisition, preparation and analysis or navigation assistance for surgery.

(Darmstadt/Rostock, Germany) Patient data analysis forms the basis of personalized medicine. The researchers at Fraunhofer IGD have created solutions for such analysis in Health@Hand and VA4Radiomics. The former comprises a visual control center which automatically combines and analyses data and presents them in a visual format. The latter consists of a system which merges doctors' experiences, image data, and general patient data for decision-making purposes. The Fraunhofer researchers are also showcasing an augmented reality (AR) system at this year's MEDICA – 3D-ARILE, which provides navigation assistance to doctors during operations.

Health@Hand – acquire patient data at a glance

Time is being called on long searches. Digital patient records are set to contain all patient data in the future. Doctors, nurses, and care home staff will simply look at a tablet or a central multi-touch table to view all patient data at a glance. Health@Hand integrates all different systems for the first time, merging all data and presenting them in easy-to-understand visual formats. Staff will thus be able to view treatment appointments, drug administration, cleaning intervals, and bed occupancy capacities together in a clearly arranged visual format.

VA4Radiomics – learning from patient data

As many similar treatment cases as possible are needed to best evaluate how a patient's particular illness can be treated to an optimum extent. VA4Radiomics does exactly this by collecting information from radiological image data and linking it to the corresponding patient data. This enables the creation of patient groups and the visualization of individual patient



PRESS RELEASE

features. These in turn can be compared by medical staff for diagnoses, therapies and treatment outcomes. Doctors can also include patients that they would never personally meet in the comparison, such as those suffering from very rare illnesses. Visual analytics methods will help doctors to present clinical, radiological and pathological data in a meaningful manner.

PRESS RELEASE

November 9, 2017 || Page 2 | 6

3D-ARILE – AR glasses used to assist in tumor operations

During surgery, it is difficult to spot the exact location of sentinel nodes – lymph nodes where a malignant tumor drains to first – or know whether an affected lymph node has been completely removed. One help in removing such nodes is 3D-ARILE, a system which uses AR glasses to overlay the exact position of the lymph node as a virtual mark. It creates marks to assist doctors in locating affected nodes. Firstly, the patient is injected with a fluorescent dye in the immediate vicinity of the tumor. This dye then spreads throughout the lymphatic channels and gathers in the sentinel lymph nodes. Infrared cameras capture the fluorescence and reconstruct the affected lymph node in 3D. The AR glasses then overlay its exact position for the doctor in real time.

The Fraunhofer researchers will be showing how they present health data in visual format and what possibilities augmented reality presents for operation theaters at Booth G05 in Hall 10 at MEDICA 2017 in Düsseldorf between 13 and 16 November.

PRESS RELEASE



PRESS RELEASE

November 9, 2017 || Page 3 | 6

Photo: Health@Hand unites all data on patients in a clearly arranged visual format.
(©BillionPhotos-Fotolia / Rights of use: Fraunhofer IGD)

PRESS RELEASE

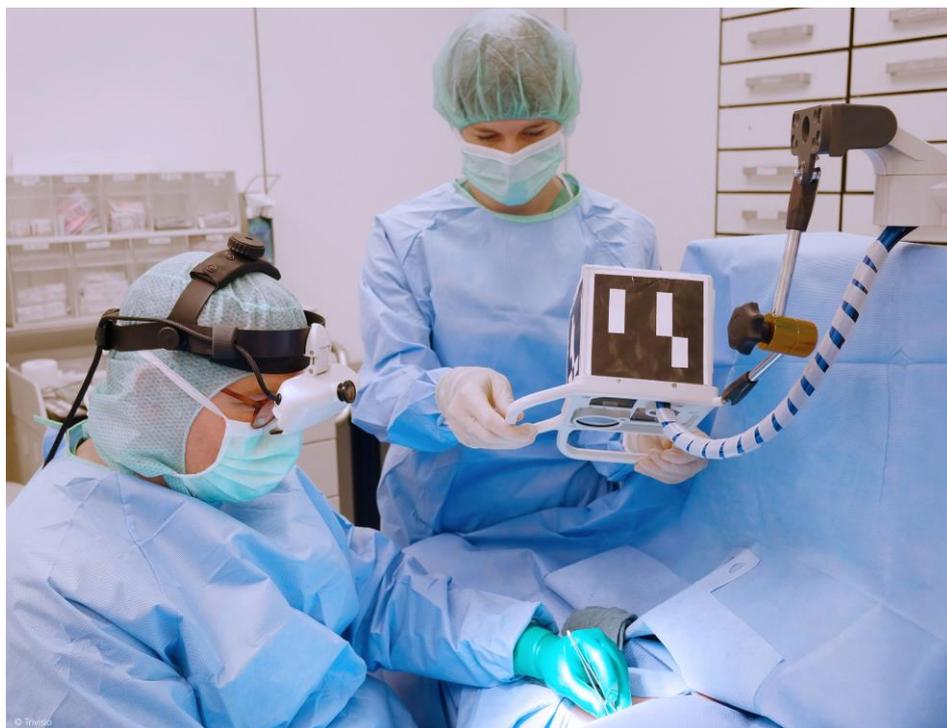


PRESS RELEASE

November 9, 2017 || Page 4 | 6

Photo: VA4Radiomics allows doctors to create patient cohorts and visualize individual patient characteristics. (Rights of use: Fraunhofer IGD)

PRESS RELEASE



PRESS RELEASE

November 9, 2017 || Page 5 | 6

Photo: The affected lymph node is reconstructed in 3D using the camera built into the cube and the doctor's glasses then display its position in real time. (©Trivisio / Rights of use: Fraunhofer IGD)



PRESS RELEASE

Institute profile

Founded 30 years ago, Fraunhofer IGD has become the world's leading institution for applied research in the field of visual computing. Visual computing means image and model-based IT. In simple terms, it describes the capability of transforming information into images (computer graphics) and extracting information from images (computer vision). The numerous application scenarios include human/machine interaction, interactive simulation, and modeling situations.

Our developers at the sites in Darmstadt, Rostock, Graz, and Singapore develop new technical solutions and prototypes all the way up to the market readiness stage. In collaboration with our partners, this results in application solutions that are custom-tailored to customer requirements.

Our approaches facilitate the work with computers and are efficiently used in the industry, in everyday life, and in the healthcare sector. Our research highlights includes assisting people in the Industry 4.0, the development of key technologies for the Smart City, and the use of digital solutions in the field of Individual Health.

Through applied research, we support the strategic development of the industry and economy. Especially small and medium-sized enterprises as well as service centers can benefit from this and be successful on the market with the help of our leading technologies.

PRESS RELEASE

November 9, 2017 || Page 6 | 6
