

# PRESS RELEASE

OCEANOLOGY INTERNATIONAL 2020

## Machine learning improves underwater visibility in real time

**Fraunhofer IGD is developing special image processing methods based on artificial intelligence to instantly improve visibility under water.**

(Rostock/London) New AI-supported image enhancement by Fraunhofer IGD processes underwater video in real time, making underwater activities faster and more effective. Underwater technology providers can license the solution for embedded systems in smart cameras or on underwater vehicles. One other advantage is that this smart image processing system requires little power to operate. At Oceanology International in London, anyone who is interested can find out more about this new technology and discuss it with experts.

### Real-time video processing through artificial intelligence

The Fraunhofer Institute for Computer Graphics Research IGD has years of experience in the field of underwater image enhancement. One of the latest developments is the use of artificial intelligence in the form of what are called “autoencoders” and “generative adversarial networks” in enhancing images and video. An artificial neural network automatically detects the parameters of an underwater recording that require enhancement and makes the necessary adjustments, specifically color correction, noise reduction and sharpening. A second network is responsible for training the first by generating artificial training data, since this is sparse in the specific case of underwater recordings. By integrating AI, parameters no longer need to be manually set as before—the networks continue to learn and grow by themselves and deliver better and better results.

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**Fraunhofer IGD at  
Oceanology International**

London, Excel

Mar. 17–19, 2020  
Northern Germany  
Joint Stand F200

FRAUNHOFER INSTITUTE FOR COMPUTER GRAPHICS RESEARCH IGD

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## Also at Oceanology International:

“Acoustic Eye” acoustic 3D imaging and surveying system (funded by the German Federal Ministry for Economic Affairs and Energy)

[www.igd.fraunhofer.de/en/projects/acoustic-eye-innovative-3d-imaging-and-surveying-system-using-bionic-principles](http://www.igd.fraunhofer.de/en/projects/acoustic-eye-innovative-3d-imaging-and-surveying-system-using-bionic-principles)

## More information:

Subsea@Fraunhofer at Oceanology International 2020:

[www.igd.fraunhofer.de/en/veranstaltungen/oceanology-international-2020](http://www.igd.fraunhofer.de/en/veranstaltungen/oceanology-international-2020)

Fraunhofer IGD technology for processing and enhancing underwater photos and video:

[www.igd.fraunhofer.de/en/competences/technologies/underwater-vision](http://www.igd.fraunhofer.de/en/competences/technologies/underwater-vision)

Fraunhofer IGD’s expertise in underwater research:

<https://www.igd.fraunhofer.de/en/underwater-research>

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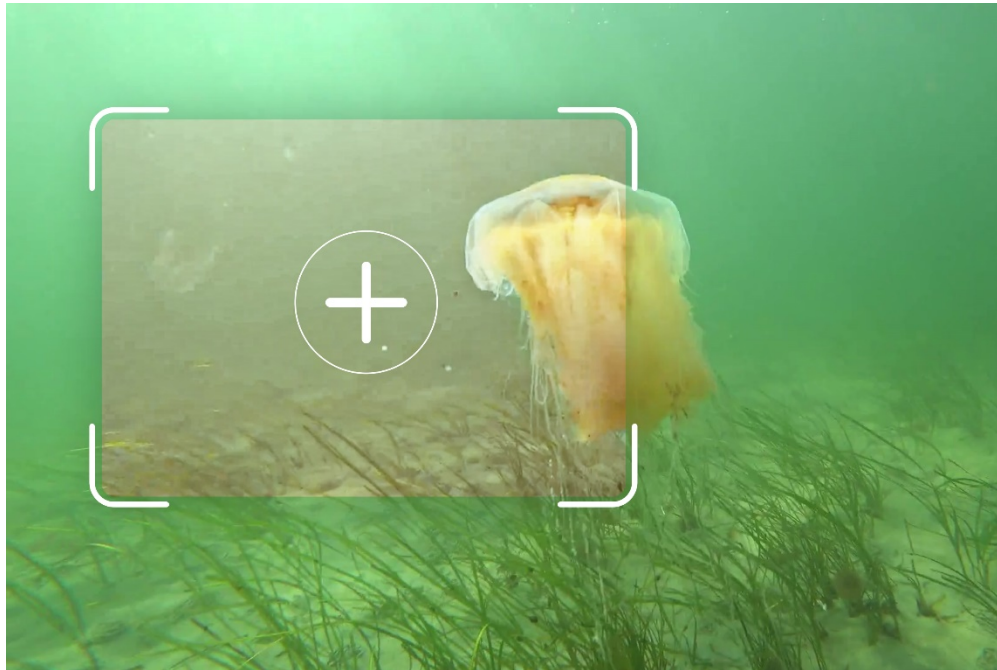
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Photo: Fraunhofer IGD is developing underwater image enhancement methods based on artificial intelligence. (© Fraunhofer IGD)

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## Institute profile

Founded more than 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, Kiel, 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.

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