FOR IMMEDIATE RELEASE

Kitware Awarded DARPA Contract to Improve Vision and Perception for Underwater Robotic Systems
Algorithms Developed by Kitware will Enable Autonomous Operation in Degraded Undersea Environments

---

Clifton Park, N.Y. (October 8, 2020) - Kitware Inc. has been awarded a contract by the Defense Advanced Research Project Agency (DARPA) in support of its Angler program. Angler aims to pioneer the next generation of autonomous underwater robotic systems capable of navigating the deep sea while surveying large areas and physically manipulating objects on the seafloor. Under this program, Kitware is developing a system called Aqua Learned Enhancement through Neural Strategies (AquaLENS) that seeks to improve visual perception systems for autonomous navigation and the detection and grasping of underwater objects in degraded undersea environments.

According to DARPA, developing technologies and capabilities that allow autonomous navigation of underwater robotic systems is vital to providing infrastructure resilience and maintenance across our oceans. It is also important that these technological innovations are modular and extensible to a variety of larger-scale Unmanned Undersea Vehicles (UUVs) in order to maximize their impact. This will require using advanced perception software to improve underwater camera-based vision under challenging conditions. Kitware's extensive expertise in image quality enhancement, 3D reconstruction, marine video analysis, and building field-testable vision systems will be leveraged to address these needs.

"We plan to utilize our expertise to advance state-of-the-art computer vision and sensor processing for the entire Angler mission profile under AquaLENS," said Kitware's Assistant Director of Computer Vision, Keith Fieldhouse. "Kitware's algorithms will enable UUVs to operate without human control, using advanced perception software and camera-based vision."

The AquaLENS algorithms will leverage Kitware's open source marine video analytics framework, [Video and Imagery Analytics for the Marine Environment (VIAME)](#), for low-cost, seamless integration into DARPA's systems. Sponsored by NOAA, VIAME has been under development for the past four years and is being used to support population estimation for a variety of marine animal species.

"The value of what we are creating will be a robust capability that can solve current issues related to underwater autonomous operations. By making it available through open source with unlimited rights to the government, it can evolve as new technologies and needs arise within the government and other industries," said Fieldhouse.

Learn more about Kitware's computer vision expertise and how to leverage it to benefit your research by emailing us at kitware@kitware.com or visiting kitware.com/cv.

About Kitware Inc.

Since 1998, Kitware Inc. has focused on advancing the frontiers of understanding by developing innovative open source software platforms and integrating them into research, processes, and products. With a wide range of capabilities, Kitware powers computer vision, data and analytics, scientific computing, medical computing, and software process implementation/management. Kitware provides expertise in these areas through customization services, support, collaborative research and development, training, and books. For additional information on Kitware, please visit kitware.com.

# # #