

THORNTON LAB.

[Ocean technology bringing our frontiers closer]



Center for Integrated Underwater Observation Technology

Underwater Photonics

Graduate School of Frontier Sciences

Department of Ocean Technology, Policy and Environment

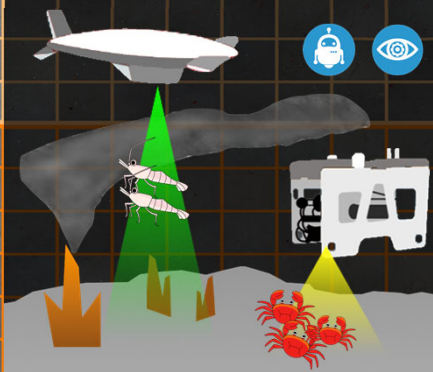
<http://ocean.iis.u-tokyo.ac.jp>

Marine Robotics

We develop the robotic sensing and intelligence needed to observe and build insight about the ocean at scale. Our focus is on bridging the practical and theoretical state of the art in real-world robotics.

0.005%

Wireless data transfer in water is ~0.005% of the speed on land. Robots cannot rely on humans to help interpret what they see.



Seeing to perceiving

To be effective in unknown environments, robots need to make sense of what they see.

The background shows interpretation of seafloor images, where similar scenes have been grouped and representative images have been identified (right) automatically without any human input.



Predicting in unseen areas

The ocean is vast, and only a small proportion of it has been observed. The ability to predict in areas that haven't been observed is important for human understanding and robotic planning.

The figure to the right shows predictions made based on inferred relationships from observed regions onto wider area seafloor terrain that the robot has not observed.

