**Implementation of Image Recognition for**

**Human detection in Underwater Images**

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**ABSTRACT**

Recent advances in deep learning have resolved the challenges of underwater object detection. Specialized techniques have been developed as a result of the particular characteristics of small, fuzzy objects and heterogeneous noise. The Sample-Weighted hyper Network (SWIPENet) for small object recognition is one of them, as are frameworks with feature enhancement and anchor refining. Additionally, upgraded versions of the attention processes and YOLOv7 have been released. These advancements help with tracking the effects of clean energy technologies, developing accurate and reliable underwater object detection systems, bridging the communication gap between the deaf and hearing-impaired, and automating the analysis of underwater imagery for the extraction of ecological data.

**Keywords—Underwater object detection, Fish recognition, Region-based object detectors, Composite connection backbone, Speed, Seagrass detection, Positional Encoding.**