Exploring Deep Learning for Depth Estimation: Challenges in the Underwater World

This project invites you to dive into the fascinating intersection of computer vision and marine exploration. It aims to evaluate cutting-edge **deep learning algorithms** for **depth estimation**, designed to generate depth maps from a single image. While these models were originally trained on terrestrial or aerial datasets, we want you to test their **performance** on **underwater imagery** — a complex and less explored environment.

Your mission will involve **analyzing** the raw outputs of these algorithms (without additional retraining) and **comparing** them with depth maps produced by traditional stereo image processing techniques. To deepen the analysis, you'll reproject the depth maps into **3D point clouds** and **assess** their accuracy and applicability in underwater scenarios.

This project offers the opportunity to engage with key topics in **AI**, **computer vision**, and **marine technology** while addressing the challenges of adapting state-of-the-art models to a domain with growing environmental and technological relevance.

Original images (left) and corresponding depth maps (right)