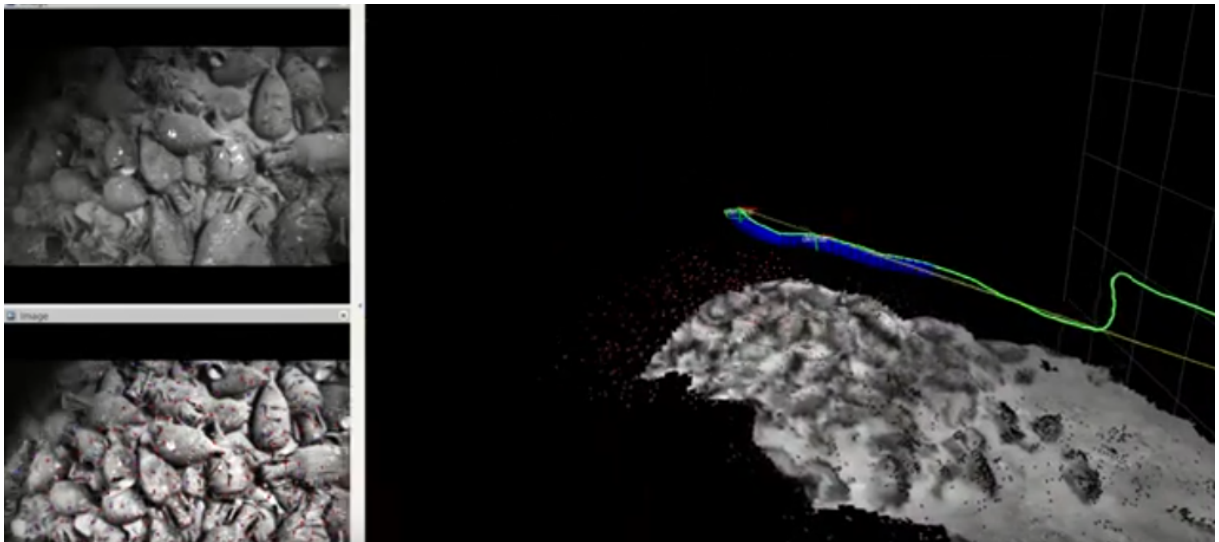


# State-of-the-Art Visual SLAM: Exploring Camera-Based and Inertial Solutions in Underwater Environments

This project invites you to step into the world of **autonomous robotics** and cutting-edge mapping technologies! It focuses on evaluating state-of-the-art **Visual SLAM** (Simultaneous Localization and Mapping) algorithms, both monocular and binocular, that can optionally incorporate **inertial data** to improve accuracy. SLAM plays a pivotal role in robotics, enabling the creation of **maps of unknown environments** while **simultaneously** using those maps for **precise self-localization**.

Your mission will involve **identifying** and **testing** the most promising Visual SLAM algorithms on **underwater datasets**, a challenging and dynamic environment where conventional methods are often pushed to their limits. You will **analyze** their ability to **minimize accumulated errors** over time by comparing the results with **photogrammetric maps**. You will also **compare** their **computing performance**.



Example of an underwater SLAM on a roman shipwreck (source AQUALOC dataset)