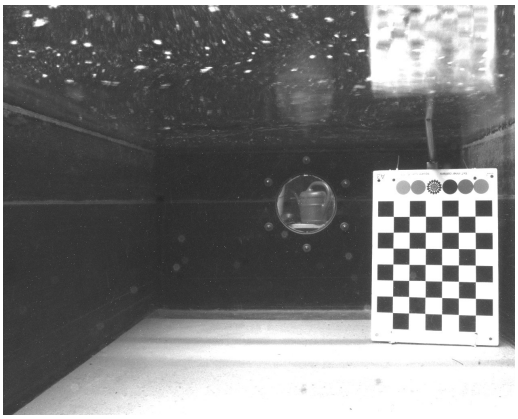
Oceanic Machine Vision

GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

The Oceanic Machine Vision Group at the GEOMAR works on the topic of optical underwater surveys employing AI and classical computer vision approaches and offers the following topic for a

– Master Thesis –

Setup and Verification of a HTC-VIVE tracking system



Experiment in Water Tank

HTC Vive Tracking System

We operate a test-water tank, which enables us to record underwater-imagery under controlled conditions. They can be used to test and verify computer-vision approaches which are under development. This tank could be improved with an additional Vive-based external tracking system to enable tracking of underwater objects, lights or cameras. Initially, a mechanical setup has to be build and geometrically modeled. In a second step this model can be used in a tracking algorithm to enable recordings of trajectories of underwater objects. The latter can serve as external references in experiments and / or evaluations.

Hence, this topic is an interesting blend of two main tasks, within the interesting area of optical deep sea sensing:

(I) modeling and actual mechanical setup of the system
(II) application in an accompanying tracking software-package

Prerequisites: Python and/or, C++, ideally interested in 3D scene geometry in combination with "hands on" hardware experience.

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