Section Sciences et Ingénierie de l'environnement
Design Project 2023 (semestre de printemps)

Proposition n°10

Use of stereoscopic cameras to extract information on individual fish and populations

Partenaire externe ou laboratoire IIE
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Encadrant EPFL (proposition facultative qui sera validée par la Section)

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Descriptif du projet

Explore the use of stereoscopic cameras to get informations on fish population.
It is important for fish stock assessments but also biodiversity metrics to understand what are the sizes of fish on a reef. As an example, for many fish species, the size of the female is exponentially related to their productions of eggs. Therefore, knowing the average size of these females on the reef can help us understand how the population may change over the next few years.

Objectif et buts
The objective is to understand how to process stereoscopic camera images to extract useful information on the reef. Some of the goals would be to:
1) *Understand the challenges and strength of working with this type of images on moving objects (Fish)*
2) *Understand how to extract information from these images*
3) *Assess the computing power needed for this task*

Descriptif tâches

-Literature review on the topic
-Design and setup and experiment
-Work with output from experiment to make a pipeline of how to process these data.
- Report on methodology, results and strength and weaknesses of this method.

Divers
The student will have to come to Zurich a few times. We provide the cameras if it is not possible to borrow/rent it somewhere.
This design project should be written in English.

Prerequisite: Due to the required competences the students have to follow concurrently the master course ENV-408: “Sensing and spatial modeling for earth observation”