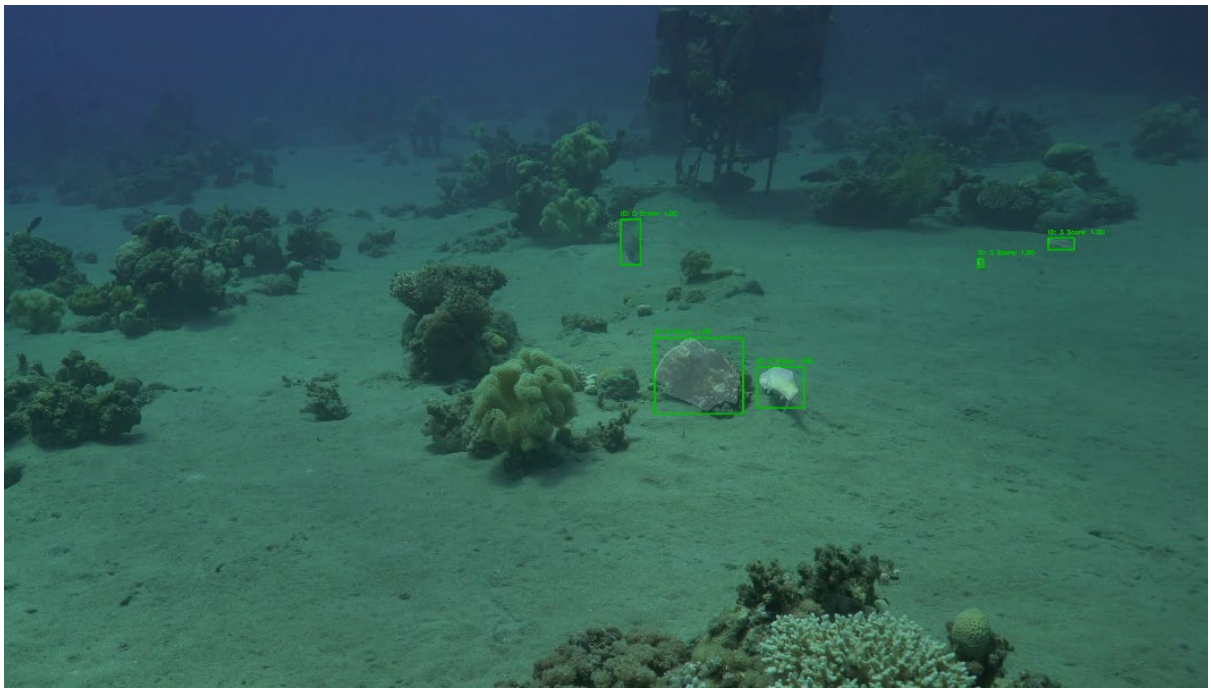
Universität Konstanz

Centre for the Advanced Study of Collective Behaviour

MAX PLANCK INSTITUTE OF ANIMAL BEHAVIOR

OCTOFISH HiWi Position

A Hiwi position is available in Prof. Dr. Couzin's group. The position involves annotating (and possibly processing) video data, which consists of underwater videos of octopus and fish groups hunting together. The aim is having not only 3D reconstructions of the environment, but also kinematics of the animals exploring said environment and quantifying meaningful social interactions and group behavior[1,2]. The project can be continued as a Bachelor's or Master's thesis (see below). Therefore, the position can also entail co-authoring papers if the Hiwi contributes significantly.



Task: First, the Hiwi will segment animals in selections of frames as training data, and if capable, use computer vision to train deep learning algorithms to identify and track different animals over the video datasets. Afterwards, studies can be conducted to analyze different facets of these multispecies groups, such as: signalling and communication, frequency-dependent physical properties of the group, game theoretical modelling, the interplay between group and the 3D structure of the environment, etc.

Requirements: Interests in any of the following disciplines: biological or computational physics, movement ecology, animal behaviour, mathematical biology, behavioural ecology, and computer vision. A preliminary understanding of Python programming and computer vision, or modelling of 3D kinematics, is beneficial (particularly if intending to pursue a thesis on the topic), but not mandatory.

When: The position starts in October for an initial period of 1 month with the possibility of extension. Please reply ASAP.

Scope: 40 h/month

Contact: esampaio@ab.mpg.de

1. *Sampaio, E., Seco, M. C., Rosa, R. & Gingins, S. Octopuses punch fishes during collaborative interspecific hunting events.* ***Ecology*** *102, e03266 (2021).*

2. *E. Sampaio, VH Sridhar, FA Francisco, M Nagy, Ada Sacchi (****previous Hiwi****), A Strandburg-Peshkin, P Nührenberg, R Rosa, ID Couzin†, Simon Ginginst. Multidimensional social influence drives leadership and composition-dependent success in octopus-fish hunting groups.* ***Nature Ecology & Evolution*** *(in press)*