Using SLEAP AI To Quantify Octopus Eating Habits

Yang, Desiree (School: Staten Island Technical High School)
Ghoniem, Tasnim (School: Staten Island Technical High School)
Silber, Mariel (School: Staten Island Technical High School)

Little is known about octopuses, though their complex neural systems and full motion capability make them model organisms for soft robotics. However, due to the independent behavior of each octopus arm, it can be difficult to account for the movement of the whole animal all at once. Animal pose estimation has been gaining interest as species can be studied without wildlife interference while still preserving their physical appearance. In this study, researchers studied how SLEAP, a multi-animal tracking system, can analyze the movement of each arm while an octopus eats shrimp, a sessile prey. Using instances of seven nodes for each arm, two SLEAP models were trained: one on two videos of Octopus insularis and one on Octopus vulgaris. The models were given pretracked video frames to learn from, which is then visualized as frame predictions. This process was repeated until there were few mistakes on the predictions and the whole video could be tracked accurately. The tracking data was then quantified through Python. Researchers found that both octopuses displayed an adjacent arm preference while eating, though not for the same arms. It is also noted that the Octopus vulgaris did not appear to have a preference for the same arms in its videos. This data can be used to conclude that the recruitment rule of neighborliness holds true. Future studies can be done to better generalize the SLEAP models on octopus tracking as well as quantify octopus eating habits with different prey.

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