

Detecting, Tracking and Classifying Animals in Underwater Observatory Video

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Abstract – For oceanographic research, remotely operated underwater vehicles (ROVs) and underwater observatories routinely record several hours of video material every day. Manual processing of such large amounts of video has become a major bottleneck for scientific research based on this data. We have developed an automated system that detects, tracks, and classifies objects that are of potential interest for human video annotators. By pre-selecting salient targets for track initiation using a selective attention algorithm, we reduce the complexity of multi-target tracking. Then, if an object is tracked for several frames, a visual event is created and passed to a Bayesian classifier utilizing a Gaussian mixture model to determine the object class of the detected event.

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