

# Chelonia mydas detection and image extraction from field recordings

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## ABSTRACT

Wildlife videography is an essential data collection method for conducting. The video recording process of an animal like the *Chelonia mydas* sea turtles in its habitat requires setting up special camera or by performing complex camera movement whilst the camera operator maneuvers over its complicated habitat. The result is hours of footage that contains only some good data that can be used for further animal research but still requires human input in filtering it out. This presents a problem that artificial intelligence models can assist, especially to automate extracting any good data. This paper proposes usage of machine learning models to crop images of endangered *Chelonia mydas* turtles to help prune through hundreds and thousands of frames from several video footages. By human supervision, we extracted and curated a dataset of 1,426 good data from our video dataset and used it to perform transfer learning on a you only look once (YOLO)v7 pre-trained model. Our paper shows that the retrained YOLOv7 model when run through our remaining video dataset with various confidence scores can crop images in the field video recordings of *Chelonia mydas* turtles with up to 99.89% of output correctly cropped thus automating the data extraction process.

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## 1. INTRODUCTION

*Chelonia mydas* are one of the animals that have been significantly impacted by global warming, a side effect from humanities production of unnatural greenhouse gases such as chlorofluorocarbons, chlorine, and bromine which has caused our climate to change with an increase in global temperature [1], and rising sea levels [2]. Unlike some species of animals that are able to migrate to newer habitats with more tolerable temperatures to survive [3]; the endangered *Chelonia mydas* sea turtles depend exclusively on their specific nesting beach habitats that cannot be moved and is being threatened with loss due to rising sea levels [4]. Therefore, it is important for wildlife researchers to monitor these animals to obtain relevant data that can be used to assist in the conservation efforts of the species. The monitoring process for wildlife surveying may involve gathering data such as live sampling by methods such as bait and trapping or via non-trapping wildlife videography techniques such as installing automatic camera traps [5].

Wildlife videography is a complicated and arduous task. As such, analyzing and extracting usable data from amateur recordings of wildlife videography is a labor-intensive process that requires human experts