

# 3rd Workshop on Automated Analysis of Video Data for Wildlife Surveillance

## 30th March 2016, Santa Rosa, California, USA

In Conjunction with the [IEEE Winter Conference on Applications of Computer Vision](#)

### Motivation

The [National Marine Fisheries Service](#) (NMFS) of the United States [National Oceanic and Atmospheric Administration](#) (NOAA), the [Department of Fisheries of Western Australia](#), the [Australia Institute of Marine Science](#), the [European Union](#) and many NGOs, private conservation groups, and large-scale aquaculture operations are increasingly using optical data streams to augment traditional terrestrial, marine, and aquatic wildlife surveys. A [report](#) by the US National Task Force for Improving Stock Assessment found the greatest impediment to producing accurate, precise, and credible stock assessments was the lack of adequate input data. If properly employed, camera-based surveys can reduce sampling error, increase sampling intensity and increase the spatio-temporal area or number of species surveyed.

However, data volume quickly exceeds human processing capabilities. To date, this has been mitigated by subsampling available data, by using analysis methods that may not accurately characterize wildlife assemblages, and initial efforts at automating image and video analysis. Automated wildlife classifiers—similar to those that have been developed for human surveillance and biomedical applications—must be developed to effectively make use of available data. To this end, NOAA Fisheries has initiated a [Strategic Initiative on Automated Image Analysis](#) to develop guidelines, set priorities, and fund projects to develop broad-scale, standardized, and efficient automated tools for the analysis of optical data for use in stock assessment. Operating underwater; classifying cryptic, camouflaged, or morphologically similar individuals generates significant challenges not unlike those faced by aerial human surveillance. Lately, there has been a significant increase in vision algorithm development for wildlife video of animals including birds, bats, bees, flies, fish, large terrestrial mammals, and so on.

### Workshop Format

The workshop will include a combination of invited speakers selected by the organizing committee and the presentation of contributed

### Participating Institutions



papers. Approximately one third to one half of the oral presentations will be invited speakers, including researchers and domain experts in wildlife surveillance. If a large number of submissions are received, a poster session will be added.

## Call for Papers

The goal of this workshop is to bring together wildlife management and computer vision communities to catalyze development of automated classification and enumeration algorithms that can provide species-specific, size-structured abundance estimates for key terrestrial and marine wildlife species. Topics of interest include, but are not limited to:

- Animal segmentation and detection in still images
- Animal detection and tracking in video data
- Animal behavior analysis and classification in video data
- Size estimation from stereo-video
- 3D reconstruction and volumetric assessment of animals
- Animal species classification through supervised and unsupervised clustering
- Normalcy modeling and anomaly detection in wildlife video
- Image and video enhancement in wildlife imaging
- Interactive methods for wildlife analysis

Submissions are encouraged from all forms of wildlife surveillance including birds, bats, fish, crustaceans, large mammals, marine mammals, reptiles and so on.

## Prior Workshops

- 2015: [1st Workshop on Automated Analysis of Video Data for Wildlife Surveillance](#)

9th January 2015, Waikaloa Beach, Hawaii, USA

- 2016: [2nd Workshop on Automated Analysis of Video Data for Wildlife Surveillance](#)

10th March 2015, Lake Placid, NY, USA