



Thesis Defense

Computer Science Master's Program

“Seal Counting On Our Plages (SCOOP)”

By Kaanan Kharwa

Abstract:

Dr. Heather Liwanag and her team at the Vertebrate Integrative Physiology lab monitor the population of endangered northern elephant seals at the largest breeding colony located at Piedras Blancas. This work is vital as it ensures the elephant seal population gets the resources it needs to recover. Currently, Dr. Liwanag and her team fly a drone over the beaches, capture an image, and manually count the seals which takes around 14 to 21 hours per survey. Machine learning methods such as Convolutional Neural Networks (CNN) and Region-based Convolutional Neural Networks (RCNN) have been shown to quickly and accurately determine the count, but require lots of data which is not feasible for this task due to the 79 available beach images. By dividing larger beach images into smaller sub-images, it is possible to generate more data, facilitating the use of deep learning techniques. This thesis outlines a pipeline to use these sub-images and determine the seal count of a beach image.

Date: Friday, May 10th, 2024

Time: 10:10 AM – 12:00 PM

Location: 14-232b

Zoom: <https://calpoly.zoom.us/j/81062155822?pwd=OXRuNitNZ3I4cUtiTVVwb0pOZnNUQT09>

Committee: Dr. Dekhtyar, Dr. Ventura, and Dr. Liwanag

