Sea Turtle Image Recognition Using Deep Learning

SenSIP Algorithms and Devices REU

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ABSTRACT

- Deep learning and convolutional neural networks make image recognition possible
- A set of images train a model by extracting common features
- The model is used to classify new images

MOTIVATION

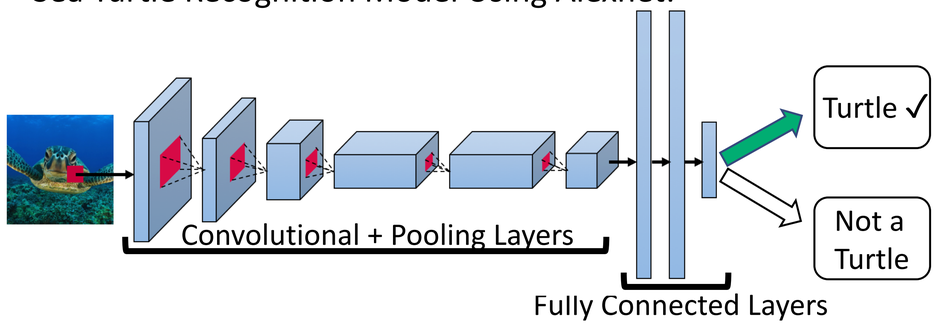
- Hundreds of thousands of sea turtles are killed by fishing gear every year
- Small scale net fisheries have high bycatch rates
- Few bycatch solutions are available to small scale fishermen
- Acoustic and light stimuli have been shown to reduce bycatch

PROBLEM STATEMENT

- Data needs to be collected to find the optimal bycatch deterrent
- Develop a sea turtle recognition model using Caffe
- Optimize the network to recognize images with the limited dataset available
  - 260 training images
  - 54 validation images

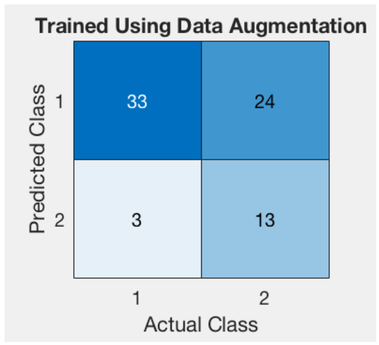
EXPERIMENTAL METHODS:

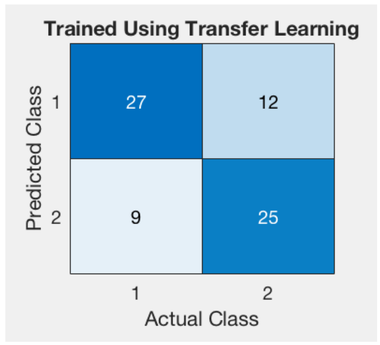
Sea Turtle Recognition Model Using Alexnet:

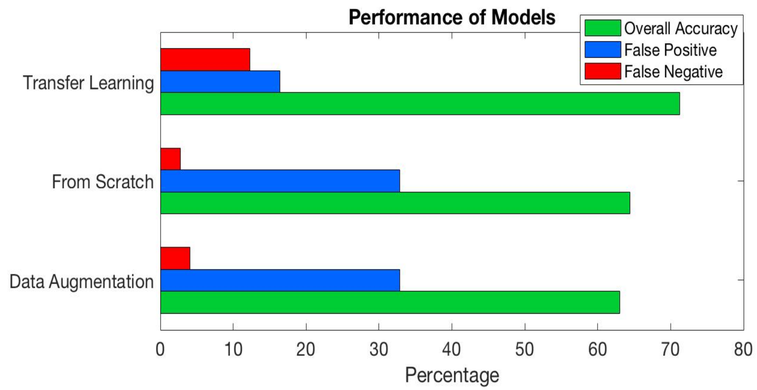


RESULTS:

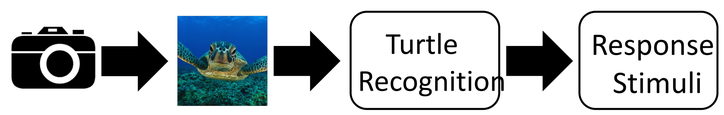
- Trained 3 different models
  1. Trained from scratch
  2. Trained using data augmentation
  3. Trained using transfer learning
- (1=Turtle, 2=Non-Turtle)
- 73 testing images







APPLICATIONS:



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ACKNOWLEDGEMENT

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