STAT 946 Deep Learning

Project Title: Right Whale Recognition

Project Number: 2

Group Members:

Surname, First Name	Student ID	Your Department
Christopher Choi	c33choi	Mechanical and Mechatronics Engineering
Deepak Rishi	drishi	Computer Science
Fatemeh Karimi	f3karimi	Systems Design Engineering
Xinran Liu	x435liu	Systems Design Engineering

One of our group members is taking STAT 841 (Classification)?

- ■ No

Your project falls into one of the following categories. Check the boxes which describe your project the best.

1. ■ **Kaggle project.** Our project is a Kaggle competition.
   - Our rank in the competition is 169
   - The best Kaggle score in this competition is 2.64, and our score is 25.8.
2. □ **New algorithm.** We developed a new algorithm and demonstrated (theoretically and/or empirically) why our technique is better (or worse) than other algorithms. (Note: A negative result does not lose marks, as long as you followed proper theoretical and/or experimental techniques).
3. □ **Application.** We applied known algorithm(s) to some domain.
   - □ We applied the algorithm(s) to our own research problem.
     - □ We used an existing implementation of the algorithm(s).
     - □ We implemented the algorithm(s) ourself.
   - □ We tried to reproduce results of someone else's paper.
     - □ We used an existing implementation of the algorithm(s).
     - □ We implemented the algorithm(s) ourself.

Our most significant contributions are (List at most three):

(a) We employed Genetic Algorithm to Tune Deep Neural Architectures

(b) We investigated and used MLP, CNN, Autoencoders to classify whale images. Results of these methods are provided and compared.

(c) We tried different image pre-processing methods to extract the head patterns of Right Whale. Four datasets were generated and tested.