Kaggle Competition: Airbus Ship Detection Challenge

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OBJECTIVE

The Airbus Ship Detection Challenge is a Kaggle competition about detecting airbus ships in satellite images of seas. That makes the dataset a set of images and the task, one of semantic image segmentation. For this competition, the submissions were judged on both accuracy and speed. Although, the competition is closed now and the prize money long gone, the task does present with a real world problem - as the problem page[1] says, *"Airbus offers comprehensive maritime … A lot of work has been done over the last 10 years to automatically extract objects from satellite images with significative results but no effective operational effects. Now Airbus is turning to Kagglers to increase the accuracy and speed of automatic ship detection."*.

PLAN

The plan, broadly, is to take two fundamentally different approaches to solve the problem. One would be to attempt to devise an effective conventional image processing based algorithm to segment the ships and the other - the more recent take on such tasks - to train a Convolutional Neural Network for the purpose.

TOOLS & TECHNOLOGIES

The programming will be done in python and a GitHub repo will be maintained for the project. Use of popular Neural Network and ML libraries like Keras and Tensorflow is anticipated for training CNNs and also, keeping in mind the size of the dataset, Google Cloud Platform would probably be used for computational purposes. Also, numpy and matplotlib would come in handy for matrix manipulation and creating visuals.

EVALUATION

There's no scientific question, per se, being answered here and the idea is just to find a good solution to the problem. 'Goodness' will be judged by Kaggle and this particular competition was judged on both accuracy and speed.

REFERENCE

[1] Kaggle competition page: https://www.kaggle.com/c/airbus-ship-detection