SPECEFICATIONS BOOK

NATEG

Technology Camp

A SHIP OR AN ICEBERG , CAN YOU DECIDE FROM SPACE ?

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BACKGROUND

The remote sensing systems used to detect icebergs are housed on satellites over 600 kilometers above the Earth. The Sentinel-1 satellite constellation is used to monitor Land and Ocean. Orbiting 14 times a day, the satellite captures images of the Earth's surface at a given location, at a given instant in time. The C-Band radar operates at a frequency that "sees" through darkness, rain, cloud and even fog. Since it emits it's own energy source it can capture images day or night.
Satellite radar works in much the same way as blips on a ship or aircraft radar. It bounces a signal off an object and records the echo, then that data is translated into an image. An object will appear as a bright spot because it reflects more radar energy than its surroundings, but strong echoes can come from anything solid - land, islands, sea ice, as well as icebergs and ships. The energy reflected back to the radar is referred to as backscatter.

Here we see challenging objects to classify. We have given you the answer, but can you automate the answer to the question .... Is it a Ship or is it an Iceberg?

DESCRIPTION

Drifting icebergs present threats to navigation and activities in areas such as offshore of the East Coast of Canada.

Currently, many institutions and companies use aerial reconnaissance and shore-based support to monitor environmental conditions and assess risks from icebergs. However, in remote areas with particularly harsh weather, these methods are not feasible, and the only viable monitoring option is via satellite.

Statoil, an international energy company operating worldwide, has worked closely with companies like C-CORE. C-CORE have been using satellite data for over 30 years and have built a computer vision based surveillance system. To keep operations safe and efficient, Statoil is interested in getting a fresh new perspective on how to use machine learning to more accurately detect and discriminate against threatening icebergs as early as possible.

In this competition, you're challenged to build an algorithm that automatically identifies if a remotely sensed target is a ship or iceberg. Improvements made will help drive the costs down for maintaining safe working conditions.

EVALUATION

Submissions are evaluated based on the accuracy of the trained model,

The code (written on google collab) should contain a function that prints this result.

exemple : pred = model.predict_proba(X_test)

DATASET

This competition, you will predict whether an image contains a ship or an iceberg. The labels are provided by human experts and geographic knowledge on the target. All the images are 75x75 images with two bands.