API SPERCIFICATION AND EXAMPLE Document

Airbus Detection API Function

Team 1 API

User Guide

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Contact Information

Team member 1:

Name: Adina Nibijiang

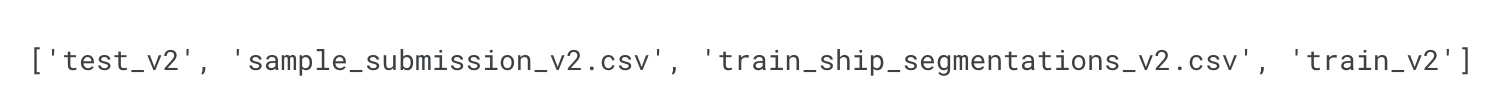
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TeAM MEMBER 2:

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Dataset Insights

There’re 2 CVSs and 2 folders. But we will be mainly focusing on tran\_ship\_segmentation\_v2.csv and tran\_v2 folder. 

In tran\_ship\_segmentation\_v2.csv there’re 2 columns, one is image id and the other one is Encoded Pixels.

Graphical user interface, text, application, email

Description automatically generated

Total records in the train set: 231723

No. of images with no ships: 42556

No. of images with ships: 150000

train\_ship\_segmentation\_csv insights Bar Plot :

Chart, bar chart, box and whisker chart

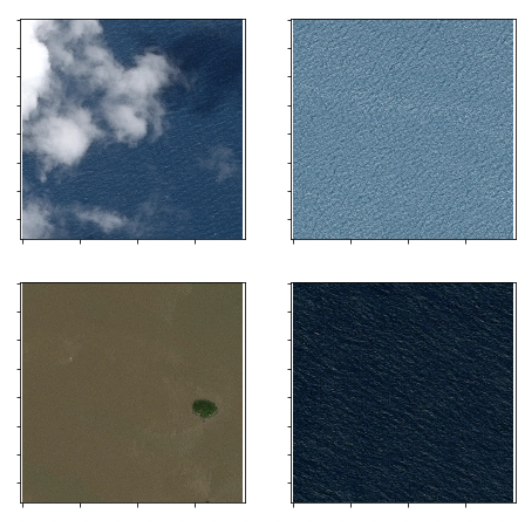
Description automatically generated

In tran\_v2 folder, there’re 27GB JPGs.

Sample Images with ships



Sample Images without ships



API FUNCTIONS：

Function 1: Get Image and Masks

File Name: findMasks

Function Name: img\_and\_masks

**Description:**

|  |  |
| --- | --- |
| Input | IMAGEID:  A string that contains the file name of the image in dataset;  ImgShape was set to default as 768 by 768 |
| OUTPUT | A NumPy array represents the original image, all\_masks: a numpy array represents the mask of the image |
| Error Handeling | If the name of the iamge file is invalid, return "No such key! Please enter a valid image name!" |

**Example:**

Input: 000155de5.jpg

Output:

Graphical user interface, application

Description automatically generated

Input: 123

Output:

Graphical user interface, application

Description automatically generated

API FUNCTIONS：

Function 2: Get Run Length Decode

File Name: decode

Function Name: rle\_decode

**Description:**

|  |  |
| --- | --- |
| Input | mask\_rle: run-length as string formated (start length)  shape was set to default as 768 by 768 |
| OUTPUT | numpy array, 1 - mask, 0 - background |
| Error Handeling | "Error Messages: ": "The input run-length string cannot be decode" |

Example:

Input: 477152 1 477919 3 478686 5 479453 7 480222 7 480991 7 481760 7 482530 6 483299 4 484068 3 484837 1

Output:

Graphical user interface, application

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Input: abc

Output:

Graphical user interface, application

Description automatically generated

API FUNCTIONS：

Function 3: Get ship and non-ship image

**Description:**

|  |  |
| --- | --- |
| Input | A string 'ship' or 'noship' |
| OUTPUT | One of the images' name with ship(s) or noship in our dataset if input is 'ship' or 'noship', respectively. |
| Error Handeling | "Error Messages: ": "No such key! Please enter a valid image name!" |

**Example**

Input: ship

Output:

Graphical user interface, application

Description automatically generated

Input: 123

Output:

Graphical user interface, application

Description automatically generated

API FUNCTIONS：

Function 4: Get the Number of images that has certain number of ships

File Name: image\_number\_of\_ship

Function Name: image\_num\_ships

**Description:**

|  |  |
| --- | --- |
| Input | An integer: number of ships in an image |
| OUTPUT | How many images in our dataset with this certain number of ships |
| Error Handeling | "Error Messages: ": "Error! " + str(num) + " is not an integer between 0-" + str(m) + "." |

**Example:**

Input: 6

Output:

Graphical user interface

Description automatically generated with medium confidence

Input: 25

Output:

Graphical user interface, application

Description automatically generated with medium confidence

API FUNCTIONS：

Function 5: Get Image Directly from S3

File Name: readImageFromS3

Function Name: readImage\_S3

**Description:**

|  |  |
| --- | --- |
| Input | Any image file name in the dataset |
| OUTPUT | The numpy array of the image pixles |
| Error Handeling | "Error Messages: ": "No such key! Please enter a valid image name!" |

**Example:**

Input: 0a0eeaaf7.jpg

Output:

Graphical user interface, application

Description automatically generated

Input: abc123

Output:

Graphical user interface, application

Description automatically generated

API FUNCTIONS：

Function 6: Get the number of ships in a certain image

File Name: num\_ship\_image

Function Name: num\_ship\_in\_image

**Description:**

|  |  |
| --- | --- |
| Input | A string that contains the image file name in the image in dataset. |
| OUTPUT | An integer represents how many ships are there in this image. |
| Error Handeling | "Error Messages: ": "No such key! Please enter a valid image name!" |

**Example:**

Input: 0a2e15e29.jpg

Output:

Graphical user interface, application

Description automatically generated

Input: 123

Output:

Graphical user interface, application

Description automatically generated