

## Deep learning Camp Training Plan for University students Three Days Training

### Course Pre-Requisites

- (1) Basic understanding of remote sensing principles and image processing
- (2) Good understanding of python programming language
- (3) Basic understanding of machine learning

### Learning Outcomes

- (1) Familiarize with deep learning and artificial intelligence concepts.
- (2) Learn how to use satellite images.
- (3) Learn to label, train and detect from satellite images dataset.

### Training Plan

Time	Duration	Topic	Theory / Practical
<b>Day 1 – Saturday, 10<sup>th</sup> September</b>			
09:00 – 09:30	30 min	Introduction and welcoming Overview about the summer camp and its activities	-
09:30 – 11:30	2 hours	Deep learning Overview Mask RCNN	T
11:30 – 11:45	15 min	<b>Break</b>	
11:45 – 1:00	1.25 hours	Image labelling with VGG Image Annotator tool: - Choose object of interest - Label object from google earth images - Repeat for 300 labels	P
Hackathon Homework: presentation part 1 : What is deep learning and its applications in satellite imagery. What object you have			
<b>Day 2 – Sunday, 11<sup>th</sup> September</b>			
09:00 – 09:30	30 min	Setting up Google Collab	P
09:30 – 09:45	15 min	Creating training and validation datasets	P
09:45 – 10:00	15 min	<b>Break</b>	
10:00 – 1:00	1-3 hours	Training dataset with Mask RCNN pre-trained model Object detection with generated training model	P
Hackathon Homework: presentation part 2 : What type of GPU have been used for the training and how GPU impact training speed comparing to CPU and. Show case sample of your training.			
<b>Day 3 – Saturday, 17<sup>th</sup> September</b>			
09:00 – 09:30	30 min	Review	P
09:30 – 1:00	3.5 hours	Results discussion and hackathon presentation - Deep learning and satellite applications - Deep learning and your object detection (collecting data, data splitting, object complexity) - Training evaluation (mAP results, training graph, explain your graph to the ideal case) - GPU impact on deep learning - Your work flow. - Inference Results over 5 testing images.	T
1:00 – 1:10	10 min	Exit Survey	-