CCD - CLOUD COVERAGE DETERMINATION

INTRODUCTION

Clouds hold imminence importance as they affect both weather and climate. They can control the precipitation in a region. They can also influence the temperature in a region. Apart from natural causes, cloud coverage is also important in various human-related needs such as solar energy generation. Therefore, forecasting cloud coverage over a region well in advance can make a lot of day-to-day tasks easier.

Prof. S.P. Pradhan
Faculty Co-ordinator
Cognizance, IIT Roorkee

Prof. M. K. Barua
Dean of Students' Welfare
IIT Roorkee

Anekant Jain
Overall Co-ordinator
Cognizance, IIT Roorkee

info@cognizance.org.in
www.cognizance.org.in
+91 80851 57036
Cognizance Office, MAC, IIT Roorkee

PROBLEM STATEMENT

The challenge aims to forecast the cloud coverage percentage of open sky in 4 intervals of 30, 60, 90, and 120 minutes, from a historical window of 6 hours. Cloud coverage is dependent on various parameters like wind speed, humidity, temperature, and other weather-related parameters. In this challenge, we have provided sky camera images along with weather data to forecast cloud coverage.

Data has been provided in the following way:

Train data contains:

1) 1-year raw sky images at a frequency of 10 minutes

2) 1-year weather data at 1-minute frequency

During testing, we will input sky images from the same set of cameras at intervals of 10 minutes over 6 hours along with Weather information at a 1-minute frequency, covering the same 6-hour window. The expected output is cloud coverage percentage after 30, 60, 90, and 120 minutes.

info@cognizance.org.in
www.cognizance.org.in
+91 80851 57036
Cognizance Office, MAC, IIT Roorkee

ROUND-1 (CODE SUBMISSION)

The problem sets (training dataset) will be provided on **10th March 2023** through Email.

Participants have to submit the code in a python notebook by **17th March 2023**.

Format of the file: Python notebook with extension (.ipynb)

Submission should be done on our website

ROUND-2 (OFFLINE TESTING)

- This round will be held in offline mode at **IIT Roorkee** from **24-26 March 2023**.
- The participants will be given the test datasets on **24 March 2023** and need to process the output by running the already submitted code at the time of the event.
- The participants have to build an illustrated blog of code, i.e., it should be a python notebook with code and an explanation of the method. Also, it should contain prediction pipelines.

info@cognizance.org.in
www.cognizance.org.in
+91 80851 57036
Cognizance Office, MAC, IIT Roorkee

ABOUT THE DATA

The data will be stored in the train directory with each sub-folder containing the images for the date indicated by the folder name and the CSV file will be placed in the train directory itself.

The test data will be placed in the test_data directory with each subfolder containing the images for that day and the corresponding CSV file is present in test_data only. **Test dataset will be made available to participants during the main fest at IIT Roorkee (24 March - 26 March 2023)**

There are some missing values of labels in the train and data indicated by large negative numbers that must be filtered out by the participants as a data processing step and the label value '-1' indicates no cloud cover.

GUIDELINES

- **Eligibility:** Students pursuing Undergraduate/Master's Degrees in any discipline.
- A team can have a minimum of 2 and a maximum of 5 members. However, **Individuals are also allowed to take part in this event.**
- A team **must have a minimum of one member**, from the undergraduate first/second/third year.

info@cognizance.org.in
www.cognizance.org.in
+91 80851 57036
Cognizance Office, MAC, IIT Roorkee

- If any individual is taking part in this event (not in any team) , then he/she must be an Undergraduate student in the first/second/third year.
- **No Double Troubles:** Only one entry will be accepted. In case of multiple entries, the latest one would be considered for evaluation.
- **Zero Plagiarism:** The documents will be tested via special software for plagiarism. If some duplication is found, the entire work will be rejected from the competition.
- The winners of this event will receive fellowships from iHUB DivyaSampark.

REGISTRATION PROCEDURE

- The registration shall be done through the Cognizance website.
- The Participant needs to register on the website. This will generate a unique Cognizance Id, after email verification.
- After logging in to his Cogni ID, the participant needs to select CCD from the dashboard in order to participate in this particular event.
- This will generate your Team Id and a mail shall be sent to the mail id of the participant about the registration.

info@cognizance.org.in
www.cognizance.org.in
+91 80851 57036
Cognizance Office, MAC, IIT Roorkee

- The Team Details include the following details:

Name: **City:**

Branch: **E-mail:**

Institute Name: **Contact No.:**

QUERIES:

For any query, you can contact:

Riyanshi | +91 7737417787

Ashish | +91 77638 83270

Or mail your queries with the Subject “Query | EVENT NAME | Cogni ID | Team Name” to events@cognizance.org.in