

TECHFEST 2021-22

VISION BEYOND LIMITS

TASK

You must implement a multi-class classification model that categorizes the given post disaster imagery upon the basis of damage.

PROBLEM STATEMENT

Participating teams are invited to propose and implement a multi-class classification approach for disaster assessment from the given data set of post earthquake satellite imagery. We expect a well structured report detailing the approach used for object detection and its implementation.

Participating teams would be provided with a post earthquake satellite imagery dataset for classification. They would also be provided with the training data set to be used. Teams are expected to brainstorm, ideate, experiment and code to get the best classification results for post earthquake satellite imagery. The goal of this challenge is to create awareness about the research problem of satellite image classification among the student community and provide them a platform to showcase their ideas and innovations.

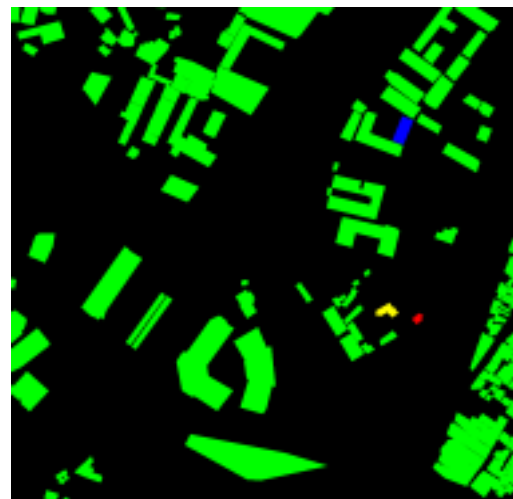


Fig. Example of Multi-Class Classification in Post Earthquake Satellite Imagery of Mexico

Training dataset is made available [here](#). It consists of satellite images and its corresponding annotated labels.

GENERAL RULES

- Every team has to **register online** on the Techfest [website](#) for the competition. A **Team ID** will be allocated to the team on registration which shall be used for future references.
- A team can register at any point of time before **24th October 2021** and submit the final abstract and video (as mentioned in the structure).
- The decision of the organisers and/or judges shall be treated as final and binding on all. Techfest has all the rights to verify the identity and accuracy of the details provided by the participants.
- Techfest, IIT Bombay will hold no responsibility for any late, lost or misdirected entries.
- The idea presented by the teams should be original (not protected by patent/copyright/technical publication by anyone else).
- Note that at any point in time the latest information will be that which is on the [website](#).
- All modes of official communication will be through the **Techfest e-mail**.

REGISTRATION AND SUBMISSION

The Participants have to register on the official Techfest Website and fill all the necessary details: www.techfest.org -> Competitions -> Vision Beyond Limits -> Explore More -> Register

STRUCTURE

ROUND 1: ABSTRACT SUBMISSION

Teams will be required to submit a report to vbl@techfest.org. This must contain a working plan of their tentative plan of action and proposed methodology.

Submission format:

The project report along with the domain name should be emailed to the following address, vbl@techfest.org with the subject:

VBL Report: Team Id (For example: VBL Report: VB211003).

Teams must follow the following details for the submission:

1. The abstract must be submitted in pdf format only
2. Font: Arial
3. Size: 11
4. Spacing between two lines: 6 pts
5. Spacing between two paragraphs: 10 pts
6. Bottom margin: 1 inch

ROUND 2: FINAL SUBMISSION

Teams must submit their code and complete report according to the submission guidelines given to vbl@techfest.org, with the subject:

VBL Final Submission: Team Id (For example: VBL Final Submission: VB211003).

Submission instructions

1. Participating teams are expected to use any of the following programming languages for implementation:
 - a. Python
 - b. Java
 - c. Matlab
 - d. C
 - e. C++
 - f. R
2. Participating Team may use machine learning frameworks such as TensorFlow, Caffe, Theano, Keras, PyTorch, etc
3. The source code should be appropriately commented and must be accompanied by a 'Read-Me' file containing instructions to run the code. Please provide the link to download the same
4. Participating Teams are expected to split the provided Training Data appropriately into Training and Validation sets. Evaluation metrics are then to be computed on the Validation set.
5. Participating Teams are expected to submit a single .zip file containing the following:
 - a. Source Code Files
 - b. Read Me File
 - c. Output Classified Images from the provided Test Dataset (.jpg/.png)
 - d. Report (.pdf)
6. Naming: .zip file must have the same name as your <Team ID>.zip.
7. The report is expected to follow the given format:
 - a. Team Details- Names and Contact details of the participants
 - b. Introduction- Describe the problem statement and need for a satellite image classifier.
 - c. Classification Approach
 - i. Motivation
 - ii. Methodology
 - iii. Implementation
 - d. Results and Evaluation Metrics
 - i. Accuracy
 - ii. IoU
 - iii. Precision
 - iv. Recall
 - e. Conclusion

TIMELINE

Last date of registration	10 October
Abstract submission deadline	31 October
Final submission deadline	28 November
Declaration of results	12 December

JUDGING CRITERIA

- Initial screening - Thought process and understanding of the problem statement.
- Post initial screening -
 - a. 60% weightage is assigned to Evaluation Metrics - Accuracy, IoU, Precision and Recall - Computed at our end for the Test Dataset.
 - b. 30% weightage will be assigned to the quality of research, novelty and innovation in the classification technique used would be other parameters for evaluation.
 - c. 10% weightage is assigned to the presentation, demo and the knowledge of the teams in the subject in addition to the above mentioned parameters.

TEAM SPECIFICATIONS

- A team may consist of a maximum of 4 members.
- Students from different educational institutes can form a team.

Eligibility: All students with a valid identity card of their respective educational institutes are eligible to participate. Students who have worked as interns with Tata Communications or any of its subsidiaries in the past 12 months would need clearance from the organisers before registration.

PRIZE

The prize money will be awarded to top 3 winners via **NEFT** and will be processed within 30 working days after receiving the prize money from sponsors. Top 10 teams will get a **certificate of excellence**. Winners have to mail their bank details (immediately after the announcement of results).



Format of Mail

Subject: VBL, Team Id, Position (example - VBL, VB211003, 1st Position)

Body of mail

1. Account Holder's Name
2. Account Number
3. Bank name and Branch name
4. IFSC Code
5. Photograph of Bank Passbook as a proof