

AHMEDABAD UNIVERSITY  
SCHOOL OF ENGINEERING AND APPLIED SCIENCE  
Winter Semester 2024  
CSE-541 Computer Vision

**Team Number: 3**

**Members:**

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**Project 6: Explore oriented object detection (OOD) models. Create our own AU drone dataset for such a model and then test/validate trained models.**

**WEEKLY REPORT**

(Week 1 )

(01/02/2024 - 04/02/2024)

**Tasks Completed:**

- **Understanding Oriented Object Detection (OOD):** Explored the concept of oriented rectangular bounding boxes and their importance in scenarios where the direction of moving objects is significant.
- **Bounding Boxes:** In object detection tasks, bounding boxes are used to delineate the location and extent of objects within an image. Conventionally, bounding boxes are axis-aligned rectangles specified by their top-left and bottom-right coordinates.
- **Oriented Rectangular Bounding Boxes:** Unlike traditional bounding boxes, oriented rectangular bounding boxes are aligned with the orientation of the object they encapsulate. These bounding boxes are defined by their center coordinates, width, height, and rotation angle relative to a reference axis.
- **Familiarization with OOD Models:** Researched state-of-the-art (SOTA) OOD models, with a focus on YOLOv8.1, to understand their architecture and implementation.
- **Dataset Exploration:** Investigated available datasets suitable for training an AU drone oriented object detection model, including DOTAv1 and DOTAv2.

**Next Steps:**

- **Model Implementation:** Begin implementing the chosen OOD model, YOLOv8.1, using TensorFlow or PyTorch, adapting it to our specific dataset and requirements.
- **Training and Evaluation:** Train the model on our dataset and evaluate its performance in terms of mean Average Precision (mAP) and loss values for each epoch. Save these metrics in TFrecord files for analysis.