

**CSE541**

**Computer Vision**



**Ahmedabad  
University**

# **Project 1: Object detection techniques (in case of small objects) on AU Drone dataset**

**Group: 11**

**AU2140122 - Kushalkumar Suthar**

**AU2140023 - Rohit Rathi**

**AU2140064 - Dhruvin Prajapati**

**AU2140039 - Nish Parikh**

# QueryDet Model Analysis

- > QueryDet model is basically an approach for object detection, which focuses on improving the efficiency and performance of detecting small objects.
- > Two Step-Pipeline process.
- > Why we chose QueryDet Model for first analysis?
  - As it specially designed for addresses the same challenge, and it involves using the Visdrone 2019 dataset for training. The pipeline approach it is using, improves its efficiency.

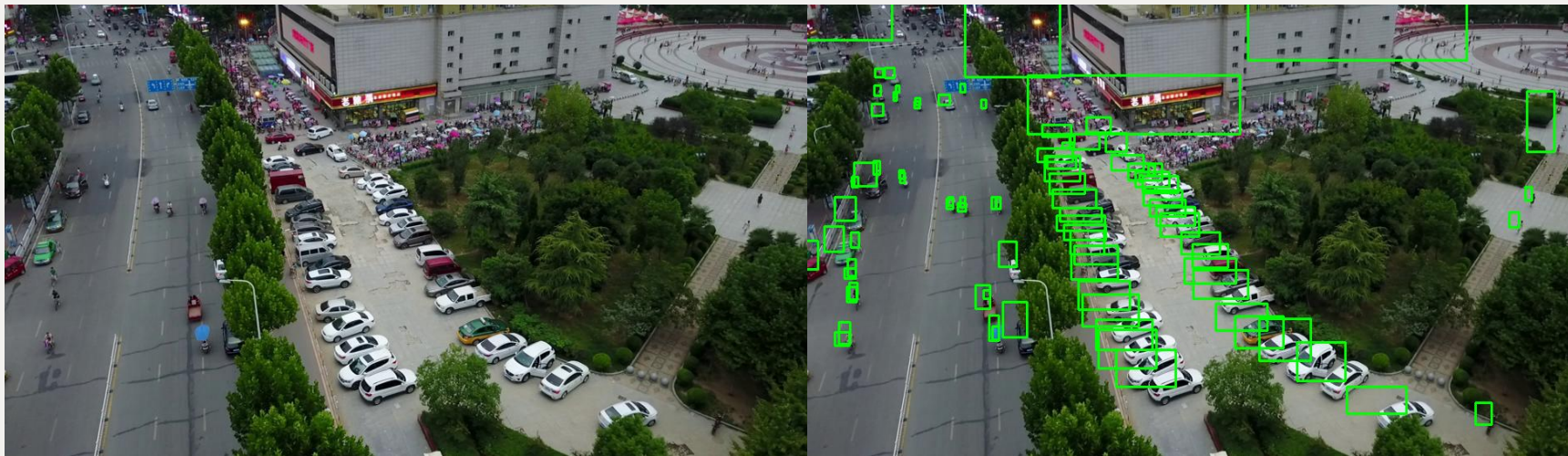
# Data Set Explanation: Visdrone2019

There are seven entities:

1.  $X_c$
2.  $Y_c$
3.  $W$
4.  $H$
5. Score
6. Object category ID
7. Truncation
8. Occlusion

# Data Set Explanation: Visdrone2019

Xc	Yc	W	H	Score	Object ID	Truncation	Occlusion
684	8	273	116	0	0	0	0



# Future work

- Apply QueryDet Model on the VisDrone Dataset.
- Find and improve Performance metrics.
- Refining the outputs of the model by improving the score.
  - > Target to improve the bounding box accuracy.
- Lastly compare Results of QueryDet with other models like HoughNet, RetinaNet and EfficientDet.

# References

Wikimedia Foundation. (2024, January 2). *Small object detection*. Wikipedia.  
[https://en.wikipedia.org/wiki/Small\\_object\\_detection](https://en.wikipedia.org/wiki/Small_object_detection)

Yang, C., Huang, Z., & Wang, N. (2022, March 24). Querydet: Cascaded sparse query for accelerating high-resolution small object detection. arXiv.org. <https://arxiv.org/abs/2103.09136>

VisDrone. (n.d.-a). VisDrone/Visdrone-Dataset: The dataset for drone based detection and tracking is released, including both image/video, and annotations. Retrieved from <https://github.com/VisDrone/VisDrone-Dataset>

# Thank you