Project 7 – Drone inspection images of wind turbine

Drone images offer a unique aerial perspective of wind turbines, allowing for a comprehensive view of the entire structure, including the blades, nacelle, and tower. This perspective is crucial for inspecting and evaluating the overall condition of the turbine. Routine drone inspections are an integral part of wind turbine maintenance. These images help maintenance teams identify issues like blade erosion, lightning strikes, or structural damage that may require immediate attention.

Consider images from the following dataset:
https://data.mendeley.com/datasets/hd96prn3nc/2

Annotations: https://github.com/imadgohar/DTU-annotations

1) Enhance an AI-model that detects the defects of wind turbines from visual images.
2) Describe data augmentation techniques that were used.
3) Compare the results of your AI-model with at least two existing model (e.g., YOLO's family, Faster R-CNN, DETR, etc).
4) Use appropriate metrics to assess the quality of your implementation.
5) Discuss the results, taking into consideration the following paper: https://www.sciencedirect.com/science/article/pii/S2352484721005102 or Machines | Free Full-Text | Slice-Aided Defect Detection in Ultra High-Resolution Wind Turbine Blade Images (mdpi.com)