

# Progress Report: YOLOv8 Model Training on VisDrone Dataset

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## I. PROGRESS SUMMARY

This week, we created a ReID-based tracking system for UAV video analysis. The system overcomes tracking difficulties through feature evolution so that robust identity retention is facilitated even when detections are lost or objects have appearance variations.

We embedded a ResNet50-based feature extractor to create normalized feature vectors for every object detected. They are updated temporally with a weighted averaging mechanism, allowing the tracker to keep up with progressive visual changes. A distance-based matching scheme provides objects with consistent matching between frames.

The tracking pipeline involves frame-by-frame processing, matching detection-to-tracks, and automatic track handling (initiation and termination). Tracking accuracy and identity consistency evaluation metrics like MOTA and IDF1 were employed to measure the accuracy of tracking and consistency in identities.

Visualization tools were implemented to superimpose tracking outputs, such as colored bounding boxes and object IDs, on video frames. The output video ensures the effectiveness of the tracker in providing consistent IDs in difficult UAV scenarios.

Second, we intend to try out advanced ReID models, motion forecasting, and adaptive feature development to continue improving tracking stability and precision. The present structure offers a strong, modular foundation for further enhancement.

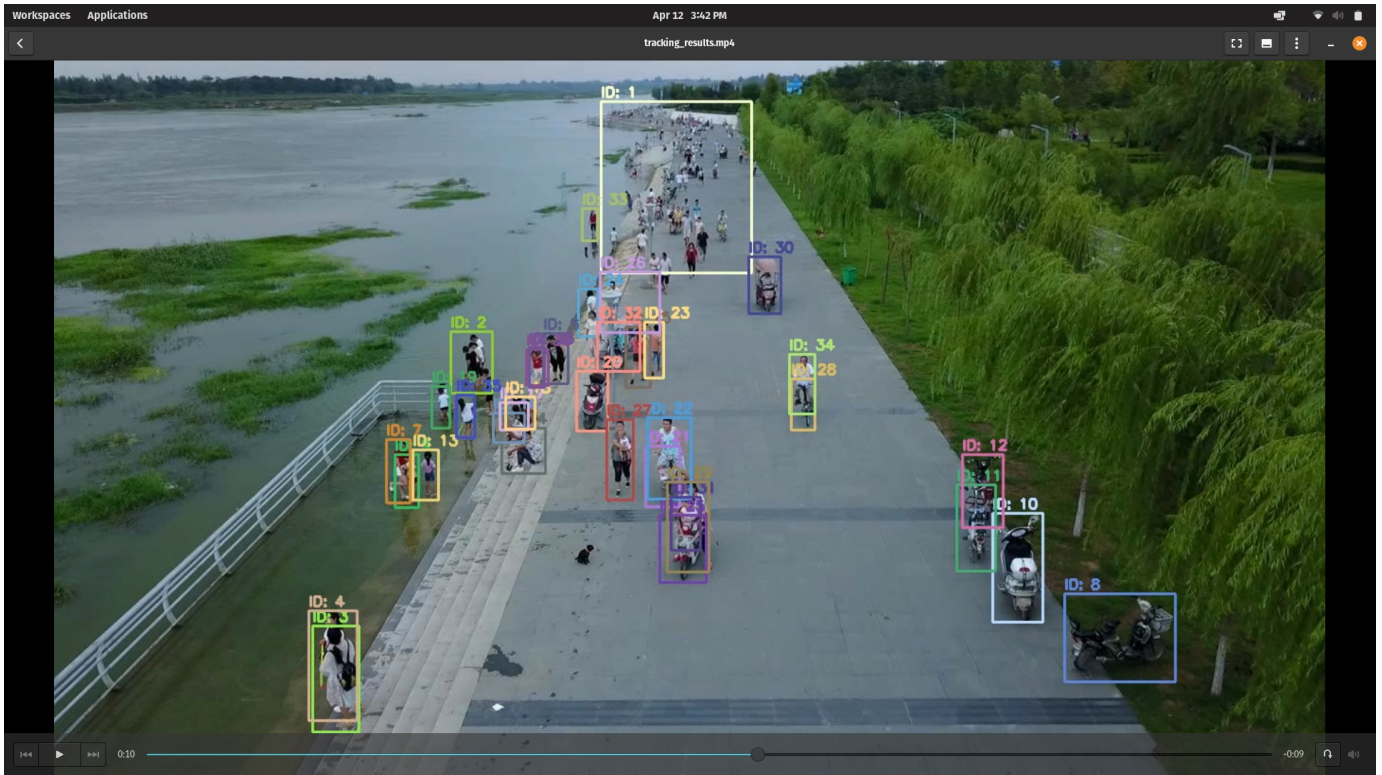


Fig. 1: REiD

## II. EXAMPLE