Erythroblast Cells: ML Models for Multiclass Classification in Single Image and Mixed Magnification.

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Overview

1. Task Overview

2. Findings and Results

3. Conclusion

4. Plan for This Week

Task Overview

- Train a model to classify individual blood cell images into a single class.
- Combine multiple images (each representing a different class) into a single composite image using OpenCV.
- Predict multiple classes from the single combined image using the trained model.
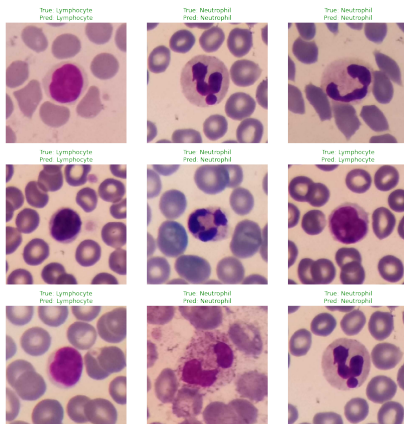
Findings and Results

Figure: Classification on Non-Combined Image
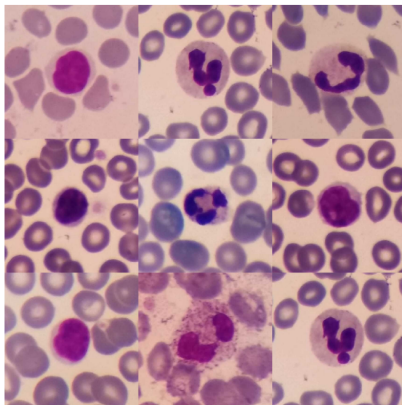
Findings and Results

Figure: Combined Image

Conclusion

- The model's prediction on multiple combined images failed to provide accurate results.
- The model predicted incorrect classes (e.g., Eosinophil, Lymphocyte) even when Eosinophil was not present in the combined image.
- This model, trained on individual class images, cannot be directly applied to multi-class predictions from a composite image.

Plan for This Week: Object Detection with YOLO

- Implement **YOLO** for detecting and classifying multiple blood cell types in a single image.
- **YOLO** will help locate cells and classify them, solving the issue of predicting from combined images.
- **Advantages**:
    - **Localization**: Detects both the type and position of cells.
    - **Multiple Classes**: Identifies various blood cell types simultaneously.
- Goal: Train YOLO on the blood cell dataset to predict and localize cell types in combined images.