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

Afnan Abdul Gafoor

Project Guide: Nirmal Punjabi, IIT Bombay DH 307: R & D Project Week 11

April 14, 2025

Overview

- Task Overview
- 2 Findings and Results
- Conclusion

Task Overview

- Randomly place the segments on a background
- Predict on the composed image

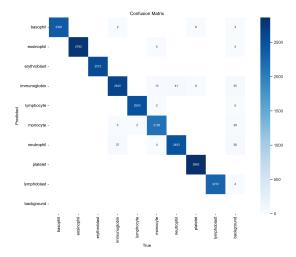


Figure: Confusion Matrix for Validation Images

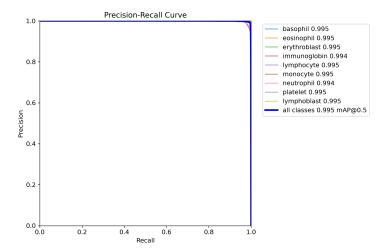


Figure: Precision-Recall Curve for Validation Images

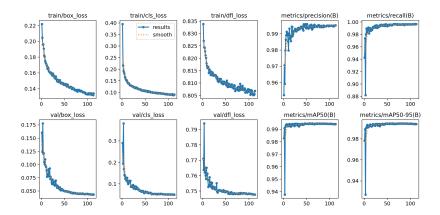


Figure: Train/Val losses

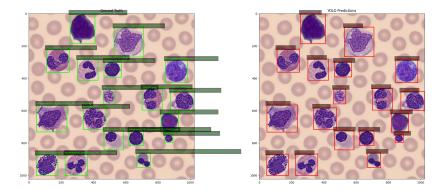


Figure: Detection on a composite image

Conclusion

- New segmentation logic implemented for immunoglobulin and neutrophils
- All incorrect or unsatisfactory segments were manually removed
- The model correctly predicted all classes