

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

Afnan Abdul Gafoor

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Overview

- 1 Task Overview
- 2 Findings and Results
- 3 Conclusion
- 4 Plan for This Week

Task Overview

- Generate composite images of sizes 1×1 , 2×2 , 3×3 , and 4×4 .
- Train a model on the generated dataset.

Findings and Results

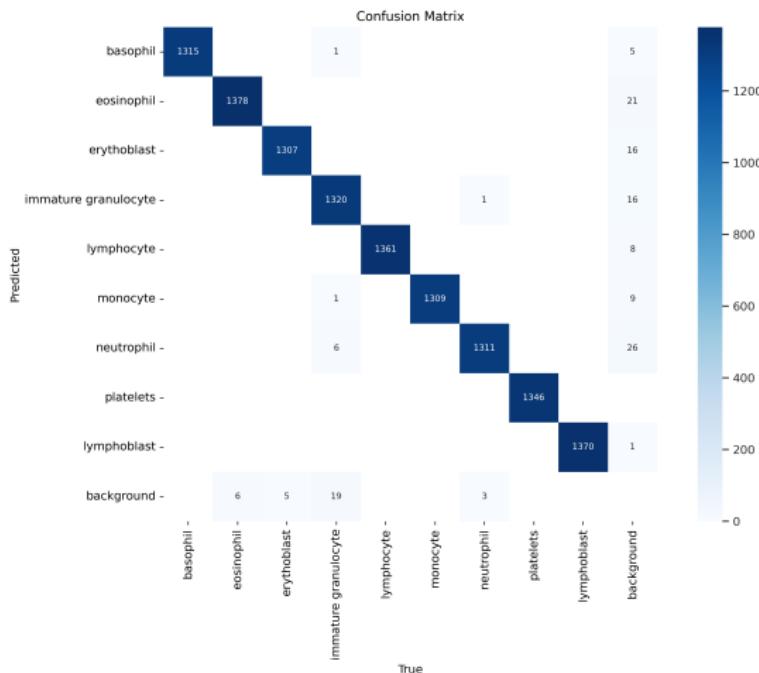


Figure: Confusion Matrix for Validation Images

Findings and Results

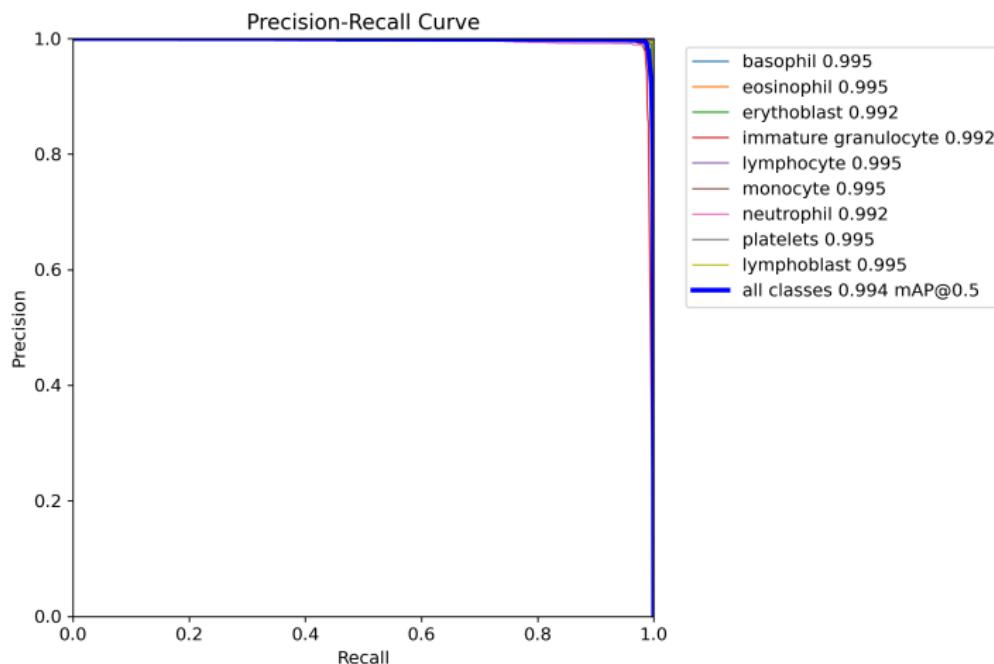


Figure: Precision-Recall Curve for Validation Images

Findings and Results

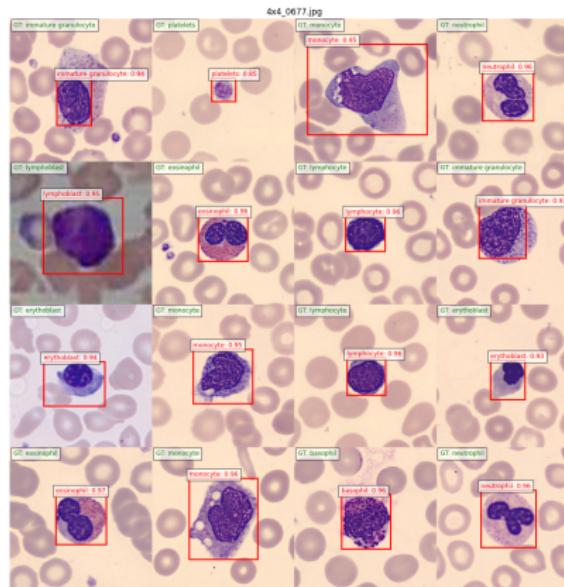


Figure: Detection on a 4×4 Image

Findings and Results

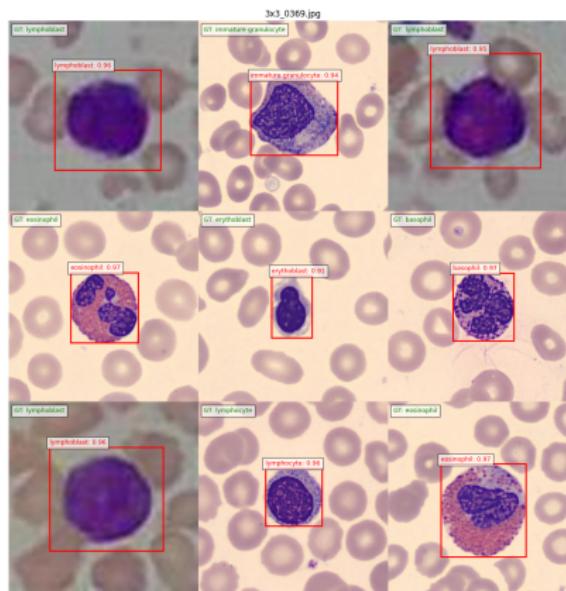


Figure: Detection on 3x3 Image

Findings and Results

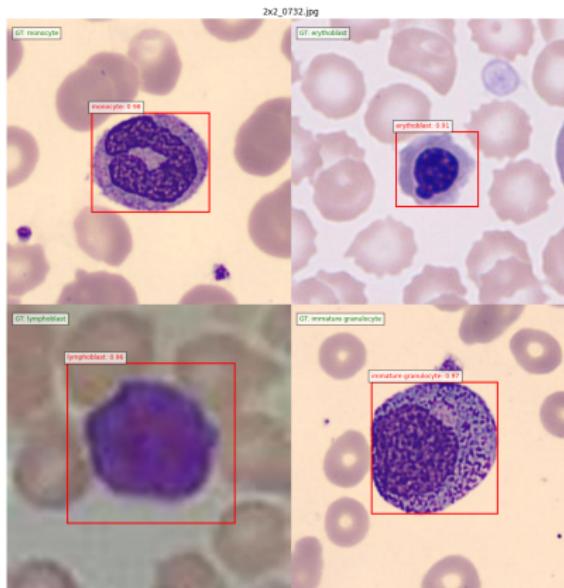


Figure: Detection on 2x2 Image

Findings and Results for Combined Images

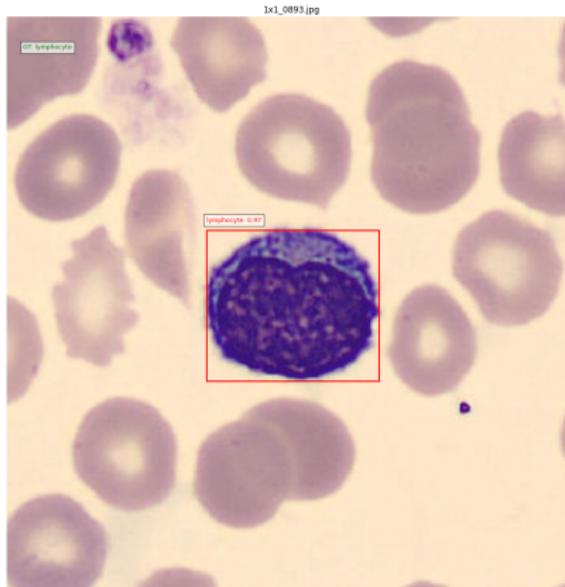


Figure: Detection on a 1x1 Image

Conclusion

- The model performs excellently on all grid sizes.
- The model is trained on `yolo11m.pt`.
- The dataset consists of 2000 images per grid size, sampled with replacement.
- There are chances for data leakage as images are randomly sampled from the dataset, but the performance metrics on the train and validation datasets of previous models were very similar.

Plan for This Week

- Refine this model further.
- Explore other augmentation techniques.