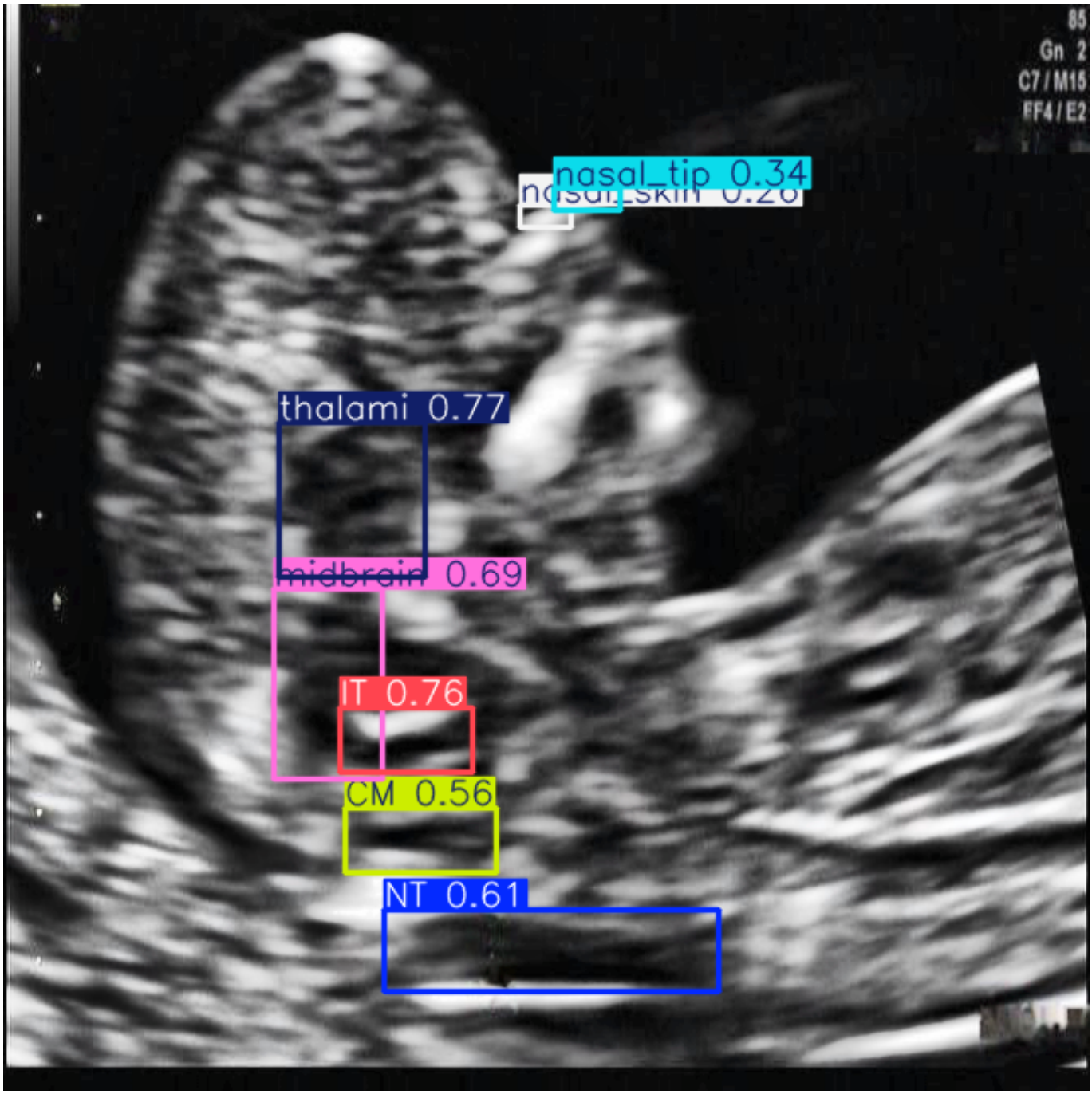
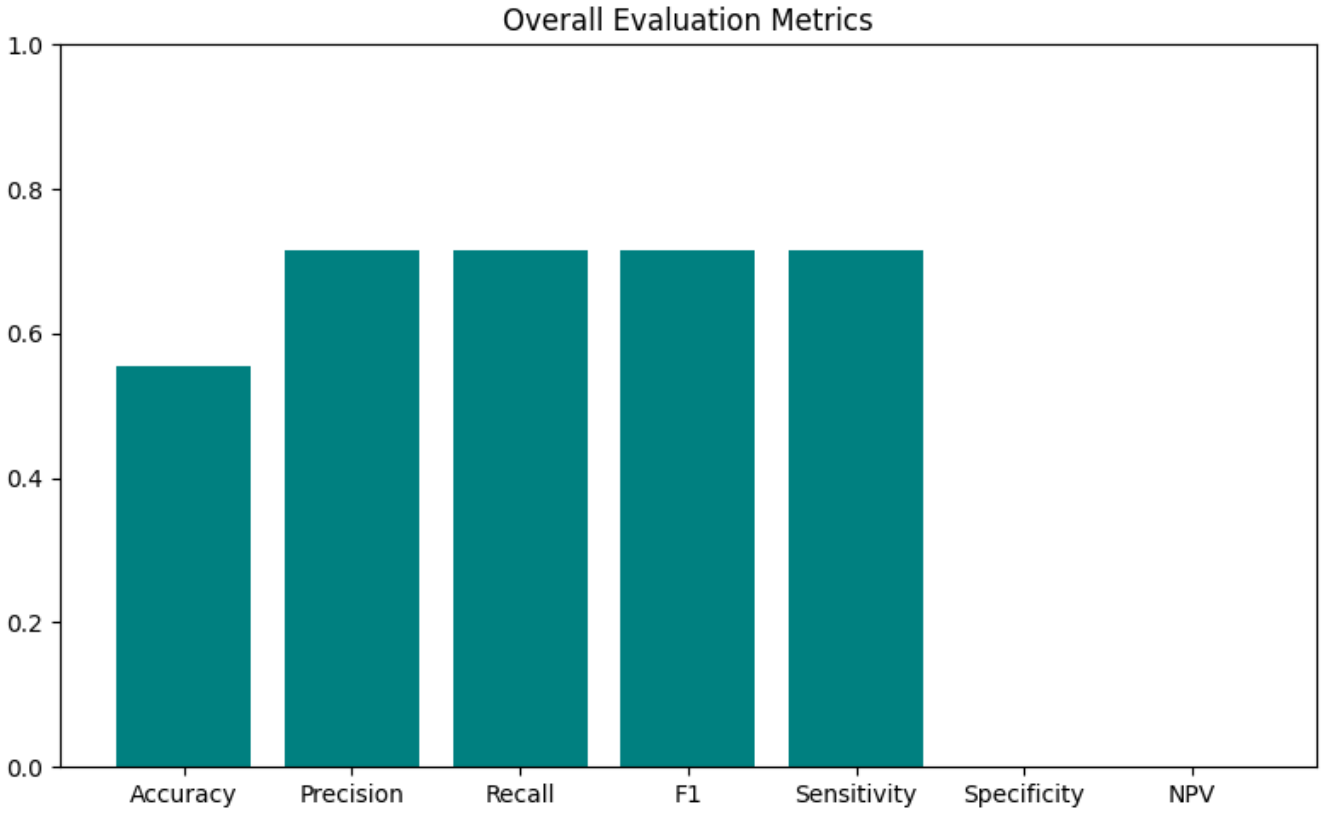
Fetal Ultrasound AI Evaluation Report

Generated on: 2025-06-28 10:40:21

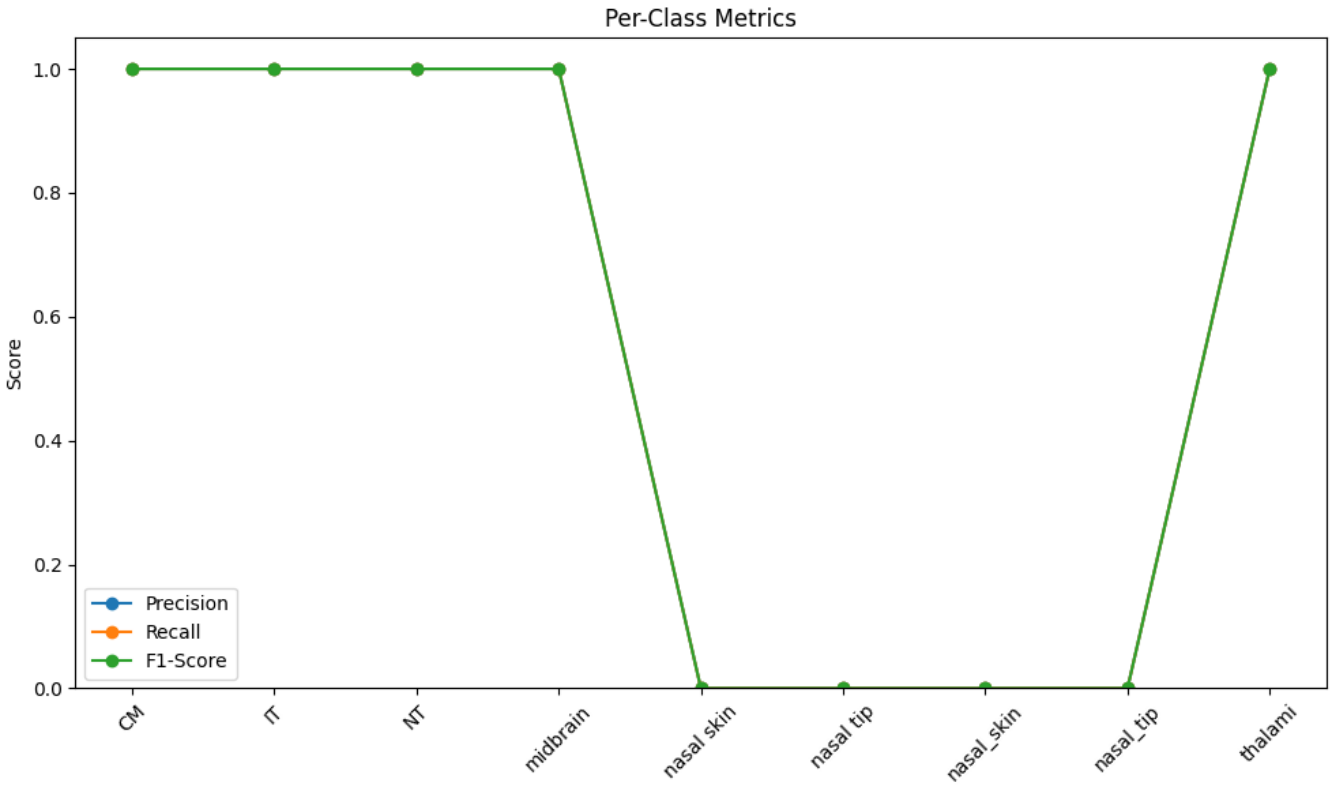
Detected Biomarkers



Overall Evaluation Metrics



Per-Class Performance



Heuristic vs ML-Based Risk Assessment

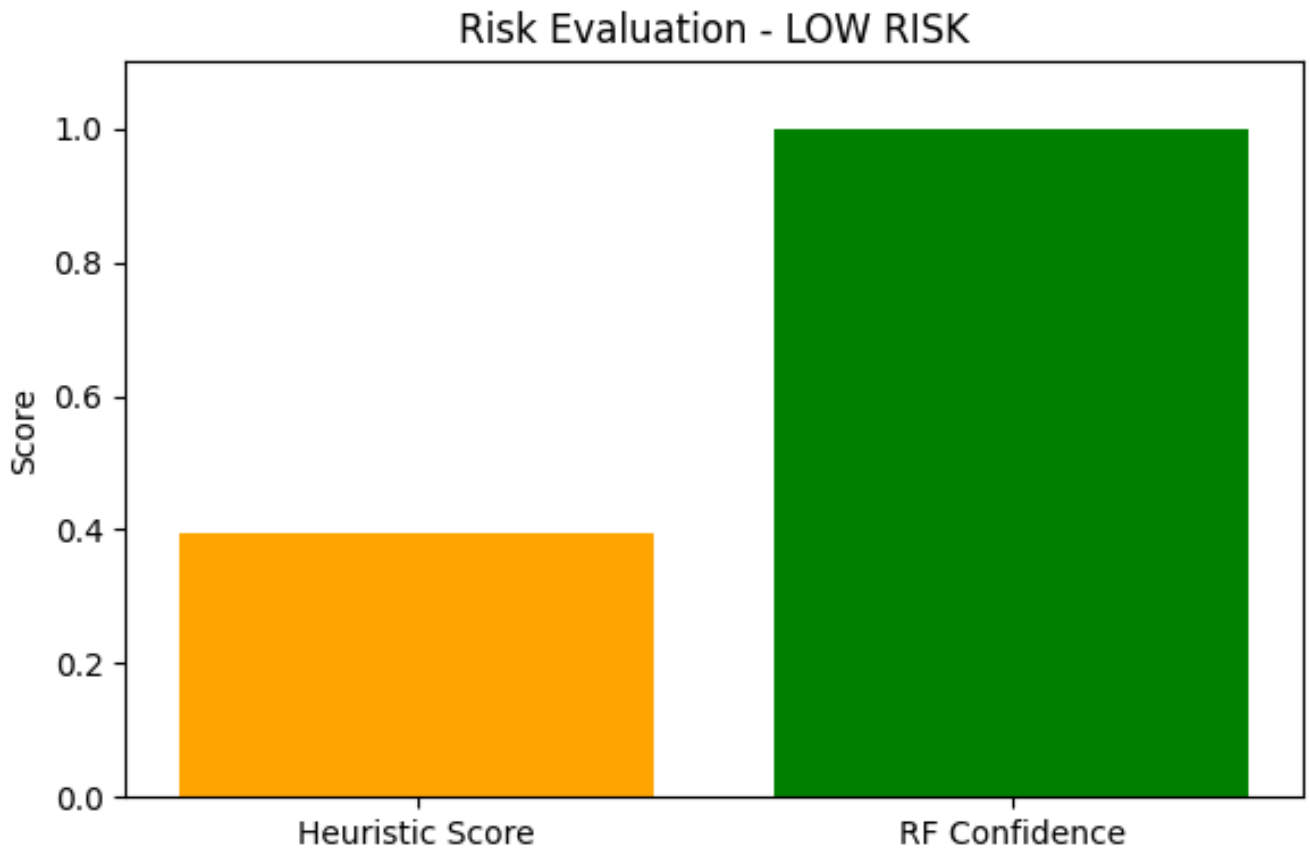
Risk Score: 0.4

Heuristic Label: LOW RISK

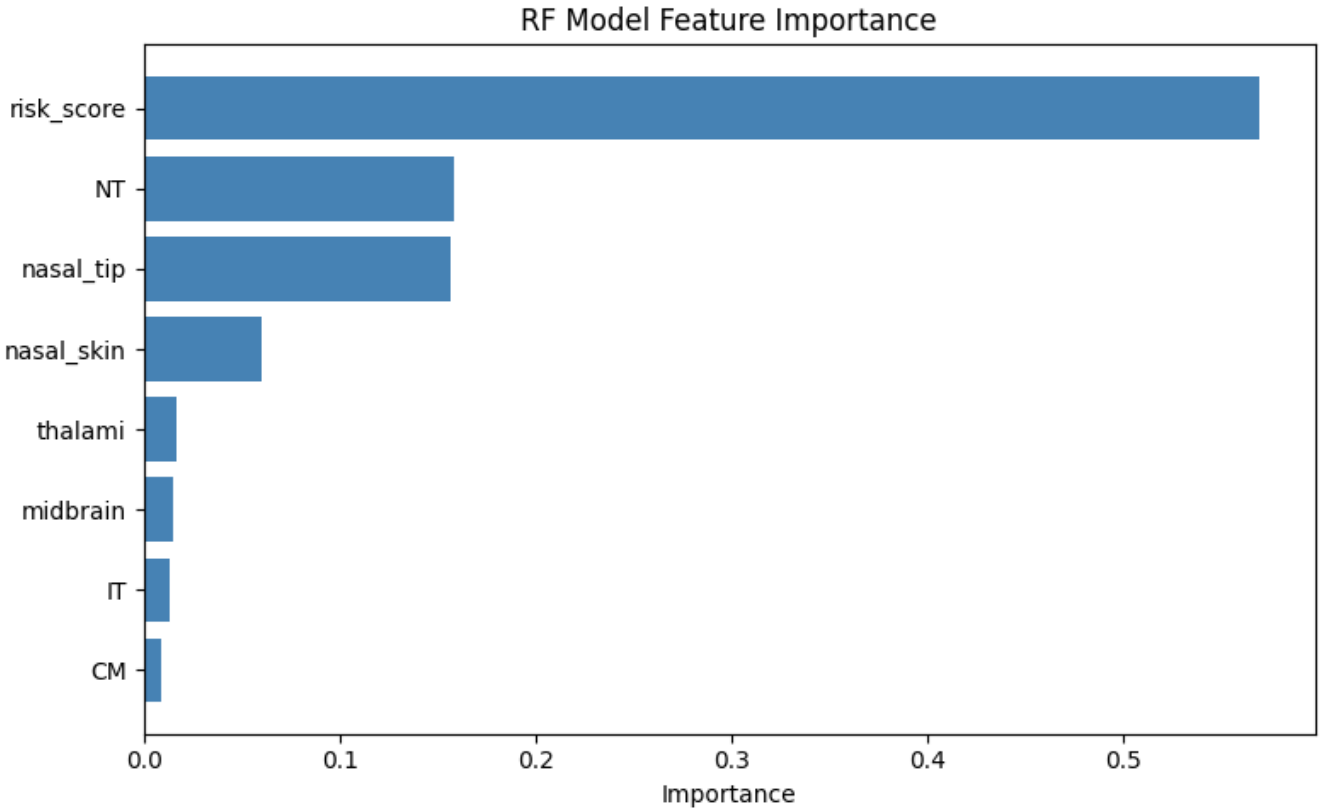
RF Label: LOW RISK

RF Confidence: N/A

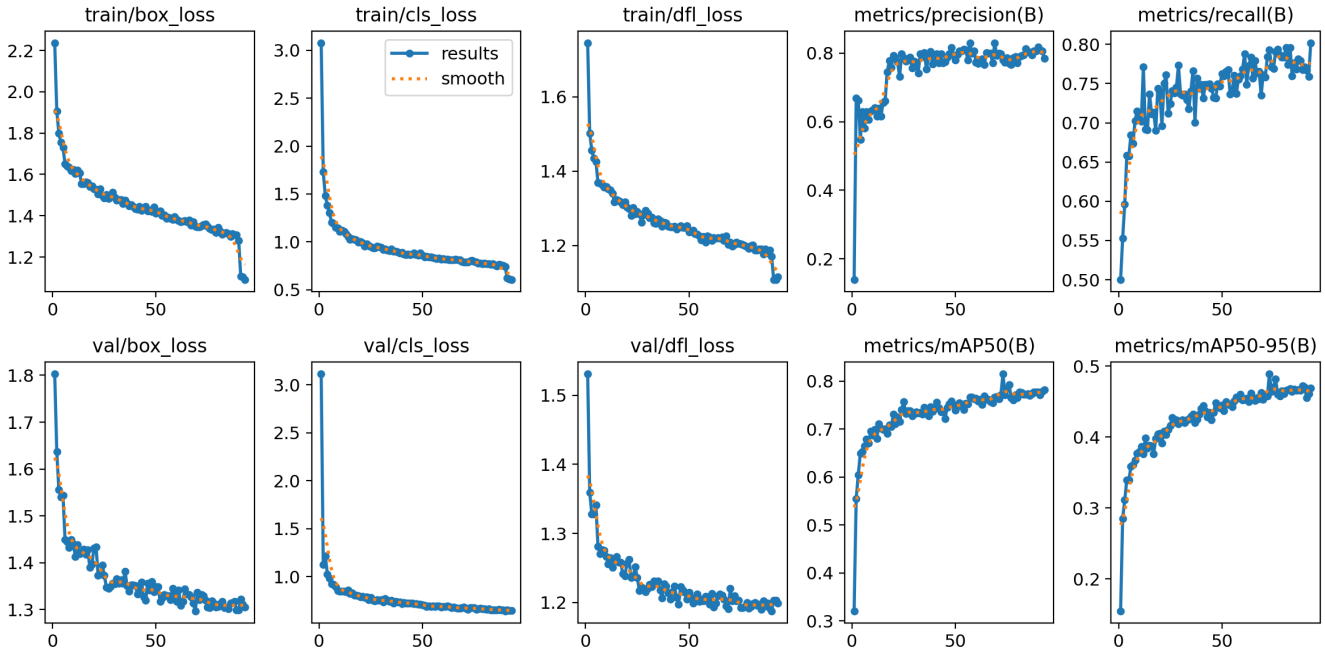
Comparison: Heuristic Risk vs ML Confidence



Random Forest Feature Importance



YOLOv8 Training Performance



- box_loss: Bounding box regression error (lower is better)

- cls_loss: Class misclassification loss (lower is better)

- dfl_loss: Distribution focal loss (lower is better)

- val_*: Same metrics on validation set

- precision(B): Correct positive detections (higher is better)

- recall(B): Actual positive coverage (higher is better)

- mAP50 / mAP50-95: Mean average precision at multiple thresholds (higher is better)

Summary:

- This report integrates object detection (YOLOv8) with biomarker risk analysis.

- Two approaches for Down Syndrome risk scoring are used:

  (a) Heuristic threshold-based rules

  (b) ML-based Random Forest prediction

- This dual-method analysis provides both interpretability and predictive power.

- Charts and model graphs support transparency and future clinical validation.