PancreScan Training Report

Date: 2026-02-09

Overview

This report summarizes the PancreScan training run using an ensemble of DenseNet121 and EfficientNet-B0 for binary classification of CT slices into Normal vs Tumor.

Dataset

- Train directory: DATASET/train/train
- Test directory: DATASET/test/test
- Class labels: normal, pancreatic_tumor
- Validation split: 0.20

Training Configuration

- Image size: 224 x 224
- Batch size: 16
- Epochs: 20
- Learning rate: 0.0003
- Optimizer: AdamW
- Seed: 42
- Device setting: auto
- Positive class index: 1 (pancreatic_tumor)
- Positive threshold: 0.40
- Ensemble weights (DenseNet121, EfficientNet-B0): 0.50, 0.50

Models

- DenseNet121 (ImageNet pre-trained, fine-tuned)
- EfficientNet-B0 (ImageNet pre-trained, fine-tuned)
- Ensemble: weighted average of logits

Test Results

All metrics are computed on the test set.

Model	Loss	Accuracy	Precision (macro)	Recall (macro)	F1 (macro)	Precision (tumor)	Recall (tumor)	F1 (tumor)
DenseNet121	0.000724	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
EfficientNet-B0	0.001321	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Ensemble	0.000744	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Notes

- Tumor recall is prioritized by using a positive threshold of 0.40.
- Checkpoints saved in outputs/ (efficientnet_b0_best.pt, densenet121_best.pt).
- Report generated from outputs/run_config.json and outputs/test_results.json.