

■ ResNet50 Evaluation Report

Liver Fibrosis Staging - CNN Model Performance

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■ Overall Performance Metrics

| Metric | Value |
|---------------------|--------|
| Accuracy | 91.30% |
| F1-Score (Macro) | 0.8766 |
| F1-Score (Weighted) | 0.9118 |
| Precision (Macro) | 0.8892 |
| Recall (Macro) | 0.8708 |
| Cohen's Kappa | 0.9751 |
| ROC-AUC (Macro) | 0.9889 |

■ Per-Class F1-Scores

| Class | F1-Score | Performance |
|------------------|----------|-------------|
| F0 (No Fibrosis) | 1.0000 | ■ Excellent |
| F1 (Mild) | 0.8545 | ✓ Good |
| F2 (Moderate) | 0.7751 | ■ Moderate |
| F3 (Severe) | 0.8039 | ✓ Good |
| F4 (Cirrhosis) | 0.9493 | ■ Excellent |

■ Per-Class Accuracy

| Class | Accuracy | Status |
|------------------|----------|---------------------|
| F0 (No Fibrosis) | 100.00% | ■ Perfect |
| F1 (Mild) | 81.98% | ✓ Good |
| F2 (Moderate) | 82.39% | ✓ Good |
| F3 (Severe) | 71.93% | ■ Needs Improvement |
| F4 (Cirrhosis) | 99.12% | ■ Excellent |

■ Key Findings

- Overall Accuracy of **91.30%** demonstrates strong model performance
- Cohen's Kappa of **0.9751** indicates near-perfect agreement beyond chance
- ROC-AUC of **0.9889** shows excellent discrimination capability
- **F0 and F4 classes** achieve near-perfect classification (100% and 99.12%)
- **F3 class at 71.93%** is the most challenging to classify correctly
- Model performs best on extreme stages (F0, F4) vs intermediate stages (F1-F3)

■ Model Information

| Parameter | Value |
|---------------------|--|
| Architecture | ResNet50 |
| Pre-trained Weights | ImageNet-1K |
| Checkpoint Location | D:\ALS\outputs\checkpoints\ |
| Evaluation Results | D:\ALS\outputs\metrics\cnn_evaluation\ |



Generated by Liver Fibrosis Staging Pipeline

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