

■ 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\

