LSTM + Wavelet Architecture (Best Model: 76% Accuracy)

EEG Input
(14 channels × 128 timepoints)

Wavelet Decomposition
(db4, 4 levels)

Reshape
(128 × 14)

Wavelet Features
(280 features)

Bidirectional LSTM
(64 units)

Dense Layer
(64 units, ReLU)

Output
(2 classes: 6, 9)

Attention Mechanism
(Temporal weighting)

Feature Fusion
(Concatenation)

Dense Layer
(32 units, ReLU)

Performance Metrics:
• Test Accuracy: 76.00%
• Sensitivity (Digit 6): 83.00%
• Specificity (Digit 9): 69.00%
• Training Time: ~5 minutes
• Parameters: ~50K