C:\ProgramData\anaconda3\python.exe D:\毕业设计\V2.0\_LNR\_WRND\_AdaBoost.py

Data loaded: 44 features.

Training set size: 186, Testing set size: 81

--------------------------------------------------

--- Calculating IBI^3 values to create cost factors ---

Calculated IBI^3 for 38 minority samples. Mean score: 0.2726

Cost factors created. Min factor: 1.000, Max factor: 1.322

--------------------------------------------------

--- Starting AdaBoost Training with IBI^3 Cost-Sensitive Update ---

Iteration 1/100: G-Mean=0.395, Flipped=0 samples

-> Generating visualization for iteration 1...

Iteration 2/100: G-Mean=0.395, Flipped=25 samples

Iteration 3/100: G-Mean=0.395, Flipped=27 samples

Iteration 4/100: G-Mean=0.395, Flipped=44 samples

Iteration 5/100: G-Mean=0.804, Flipped=32 samples

Iteration 6/100: G-Mean=0.790, Flipped=38 samples

Iteration 7/100: G-Mean=0.790, Flipped=52 samples

Iteration 8/100: G-Mean=0.790, Flipped=32 samples

Iteration 9/100: G-Mean=0.790, Flipped=37 samples

Iteration 10/100: G-Mean=0.790, Flipped=28 samples

Iteration 11/100: G-Mean=0.790, Flipped=44 samples

Iteration 12/100: G-Mean=0.790, Flipped=36 samples

Iteration 13/100: G-Mean=0.790, Flipped=37 samples

Iteration 14/100: G-Mean=0.790, Flipped=35 samples

Iteration 15/100: G-Mean=0.790, Flipped=33 samples

Iteration 16/100: G-Mean=0.790, Flipped=32 samples

Iteration 17/100: G-Mean=0.419, Flipped=42 samples

Iteration 18/100: G-Mean=0.790, Flipped=36 samples

Iteration 19/100: G-Mean=0.777, Flipped=35 samples

Iteration 20/100: G-Mean=0.745, Flipped=35 samples

-> Generating visualization for iteration 20...

Iteration 21/100: G-Mean=0.810, Flipped=35 samples

Iteration 22/100: G-Mean=0.827, Flipped=27 samples

Iteration 23/100: G-Mean=0.668, Flipped=31 samples

Iteration 24/100: G-Mean=0.769, Flipped=30 samples

Iteration 25/100: G-Mean=0.663, Flipped=31 samples

Iteration 26/100: G-Mean=0.680, Flipped=35 samples

Iteration 27/100: G-Mean=0.795, Flipped=23 samples

Iteration 28/100: G-Mean=0.795, Flipped=22 samples

Iteration 29/100: G-Mean=0.795, Flipped=33 samples

Iteration 30/100: G-Mean=0.763, Flipped=35 samples

Iteration 31/100: G-Mean=0.763, Flipped=30 samples

Iteration 32/100: G-Mean=0.769, Flipped=29 samples

Iteration 33/100: G-Mean=0.763, Flipped=28 samples

Iteration 34/100: G-Mean=0.763, Flipped=23 samples

Iteration 35/100: G-Mean=0.781, Flipped=37 samples

Iteration 36/100: G-Mean=0.769, Flipped=34 samples

Iteration 37/100: G-Mean=0.738, Flipped=27 samples

Iteration 38/100: G-Mean=0.729, Flipped=28 samples

Iteration 39/100: G-Mean=0.705, Flipped=27 samples

Iteration 40/100: G-Mean=0.757, Flipped=26 samples

-> Generating visualization for iteration 40...

Iteration 41/100: G-Mean=0.757, Flipped=28 samples

Iteration 42/100: G-Mean=0.742, Flipped=22 samples

Iteration 43/100: G-Mean=0.757, Flipped=25 samples

Iteration 44/100: G-Mean=0.757, Flipped=29 samples

Iteration 45/100: G-Mean=0.742, Flipped=33 samples

Iteration 46/100: G-Mean=0.705, Flipped=31 samples

Iteration 47/100: G-Mean=0.688, Flipped=29 samples

Iteration 48/100: G-Mean=0.760, Flipped=22 samples

Iteration 49/100: G-Mean=0.702, Flipped=30 samples

Iteration 50/100: G-Mean=0.713, Flipped=28 samples

Iteration 51/100: G-Mean=0.729, Flipped=27 samples

Iteration 52/100: G-Mean=0.707, Flipped=35 samples

Iteration 53/100: G-Mean=0.808, Flipped=24 samples

Iteration 54/100: G-Mean=0.760, Flipped=29 samples

Iteration 55/100: G-Mean=0.805, Flipped=28 samples

Iteration 56/100: G-Mean=0.778, Flipped=23 samples

Iteration 57/100: G-Mean=0.778, Flipped=28 samples

Iteration 58/100: G-Mean=0.778, Flipped=28 samples

Iteration 59/100: G-Mean=0.781, Flipped=21 samples

Iteration 60/100: G-Mean=0.781, Flipped=20 samples

-> Generating visualization for iteration 60...

Iteration 61/100: G-Mean=0.781, Flipped=26 samples

Iteration 62/100: G-Mean=0.790, Flipped=20 samples

Iteration 63/100: G-Mean=0.781, Flipped=23 samples

Iteration 64/100: G-Mean=0.753, Flipped=24 samples

Iteration 65/100: G-Mean=0.753, Flipped=24 samples

Iteration 66/100: G-Mean=0.781, Flipped=24 samples

Iteration 67/100: G-Mean=0.753, Flipped=28 samples

Iteration 68/100: G-Mean=0.801, Flipped=18 samples

Iteration 69/100: G-Mean=0.781, Flipped=25 samples

Iteration 70/100: G-Mean=0.793, Flipped=26 samples

Iteration 71/100: G-Mean=0.805, Flipped=17 samples

Iteration 72/100: G-Mean=0.793, Flipped=22 samples

Iteration 73/100: G-Mean=0.781, Flipped=16 samples

Iteration 74/100: G-Mean=0.796, Flipped=19 samples

Iteration 75/100: G-Mean=0.766, Flipped=29 samples

Iteration 76/100: G-Mean=0.766, Flipped=19 samples

Iteration 77/100: G-Mean=0.766, Flipped=20 samples

Iteration 78/100: G-Mean=0.781, Flipped=26 samples

Iteration 79/100: G-Mean=0.769, Flipped=25 samples

Iteration 80/100: G-Mean=0.753, Flipped=21 samples

-> Generating visualization for iteration 80...

Iteration 81/100: G-Mean=0.796, Flipped=17 samples

Iteration 82/100: G-Mean=0.796, Flipped=20 samples

Iteration 83/100: G-Mean=0.769, Flipped=20 samples

Iteration 84/100: G-Mean=0.796, Flipped=24 samples

Iteration 85/100: G-Mean=0.796, Flipped=28 samples

Iteration 86/100: G-Mean=0.781, Flipped=21 samples

Iteration 87/100: G-Mean=0.796, Flipped=19 samples

Iteration 88/100: G-Mean=0.796, Flipped=16 samples

Iteration 89/100: G-Mean=0.796, Flipped=18 samples

Iteration 90/100: G-Mean=0.796, Flipped=20 samples

Iteration 91/100: G-Mean=0.796, Flipped=22 samples

Iteration 92/100: G-Mean=0.781, Flipped=17 samples

Iteration 93/100: G-Mean=0.781, Flipped=20 samples

Iteration 94/100: G-Mean=0.781, Flipped=23 samples

Iteration 95/100: G-Mean=0.781, Flipped=24 samples

Iteration 96/100: G-Mean=0.781, Flipped=26 samples

Iteration 97/100: G-Mean=0.781, Flipped=19 samples

Iteration 98/100: G-Mean=0.781, Flipped=23 samples

Iteration 99/100: G-Mean=0.781, Flipped=26 samples

Iteration 100/100: G-Mean=0.781, Flipped=19 samples

-> Generating visualization for iteration 100...

--- Model Training Finished ---

--------------------------------------------------

--- Performance Metrics on Test Set ---

Accuracy: 0.840

Precision: 0.892

Recall: 0.906

F1-Score: 0.899

G-Mean: 0.730

AUC: 0.872