C:\ProgramData\anaconda3\python.exe D:\毕业设计\V1.0\_LNR\_WRND\_AdaBoost.py

Data loaded: 44 features.

Training set size: 186, Testing set size: 81

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--- Analyzing training data with Natural Neighbors to create cost factors ---

Identified 21 outlier/noise minority samples (cost suppressed to 0.2).

Identified 17 borderline/safe minority samples (cost amplified).

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--- Starting AdaBoost Training with Cost-Sensitive Weight Update ---

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

-> Generating visualization for iteration 1...

Iteration 2/100: G-Mean=0.395, Flipped=23 samples

Iteration 3/100: G-Mean=0.395, Flipped=36 samples

Iteration 4/100: G-Mean=0.395, Flipped=33 samples

Iteration 5/100: G-Mean=0.395, Flipped=41 samples

Iteration 6/100: G-Mean=0.454, Flipped=29 samples

Iteration 7/100: G-Mean=0.773, Flipped=33 samples

Iteration 8/100: G-Mean=0.451, Flipped=31 samples

Iteration 9/100: G-Mean=0.393, Flipped=31 samples

Iteration 10/100: G-Mean=0.393, Flipped=28 samples

Iteration 11/100: G-Mean=0.393, Flipped=33 samples

Iteration 12/100: G-Mean=0.393, Flipped=28 samples

Iteration 13/100: G-Mean=0.756, Flipped=31 samples

Iteration 14/100: G-Mean=0.756, Flipped=34 samples

Iteration 15/100: G-Mean=0.748, Flipped=34 samples

Iteration 16/100: G-Mean=0.748, Flipped=35 samples

Iteration 17/100: G-Mean=0.745, Flipped=34 samples

Iteration 18/100: G-Mean=0.748, Flipped=37 samples

Iteration 19/100: G-Mean=0.748, Flipped=34 samples

Iteration 20/100: G-Mean=0.748, Flipped=24 samples

-> Generating visualization for iteration 20...

Iteration 21/100: G-Mean=0.748, Flipped=30 samples

Iteration 22/100: G-Mean=0.748, Flipped=35 samples

Iteration 23/100: G-Mean=0.756, Flipped=36 samples

Iteration 24/100: G-Mean=0.751, Flipped=37 samples

Iteration 25/100: G-Mean=0.751, Flipped=27 samples

Iteration 26/100: G-Mean=0.751, Flipped=34 samples

Iteration 27/100: G-Mean=0.751, Flipped=33 samples

Iteration 28/100: G-Mean=0.751, Flipped=35 samples

Iteration 29/100: G-Mean=0.751, Flipped=35 samples

Iteration 30/100: G-Mean=0.751, Flipped=29 samples

Iteration 31/100: G-Mean=0.751, Flipped=33 samples

Iteration 32/100: G-Mean=0.733, Flipped=32 samples

Iteration 33/100: G-Mean=0.733, Flipped=30 samples

Iteration 34/100: G-Mean=0.733, Flipped=30 samples

Iteration 35/100: G-Mean=0.733, Flipped=37 samples

Iteration 36/100: G-Mean=0.733, Flipped=28 samples

Iteration 37/100: G-Mean=0.733, Flipped=30 samples

Iteration 38/100: G-Mean=0.745, Flipped=31 samples

Iteration 39/100: G-Mean=0.712, Flipped=33 samples

Iteration 40/100: G-Mean=0.712, Flipped=41 samples

-> Generating visualization for iteration 40...

Iteration 41/100: G-Mean=0.712, Flipped=32 samples

Iteration 42/100: G-Mean=0.712, Flipped=32 samples

Iteration 43/100: G-Mean=0.759, Flipped=24 samples

Iteration 44/100: G-Mean=0.739, Flipped=30 samples

Iteration 45/100: G-Mean=0.762, Flipped=34 samples

Iteration 46/100: G-Mean=0.759, Flipped=31 samples

Iteration 47/100: G-Mean=0.733, Flipped=31 samples

Iteration 48/100: G-Mean=0.739, Flipped=30 samples

Iteration 49/100: G-Mean=0.712, Flipped=34 samples

Iteration 50/100: G-Mean=0.712, Flipped=31 samples

Iteration 51/100: G-Mean=0.739, Flipped=34 samples

Iteration 52/100: G-Mean=0.739, Flipped=27 samples

Iteration 53/100: G-Mean=0.709, Flipped=29 samples

Iteration 54/100: G-Mean=0.724, Flipped=22 samples

Iteration 55/100: G-Mean=0.724, Flipped=29 samples

Iteration 56/100: G-Mean=0.724, Flipped=27 samples

Iteration 57/100: G-Mean=0.765, Flipped=22 samples

Iteration 58/100: G-Mean=0.757, Flipped=35 samples

Iteration 59/100: G-Mean=0.757, Flipped=28 samples

Iteration 60/100: G-Mean=0.768, Flipped=41 samples

-> Generating visualization for iteration 60...

Iteration 61/100: G-Mean=0.756, Flipped=26 samples

Iteration 62/100: G-Mean=0.751, Flipped=34 samples

Iteration 63/100: G-Mean=0.751, Flipped=29 samples

Iteration 64/100: G-Mean=0.751, Flipped=21 samples

Iteration 65/100: G-Mean=0.748, Flipped=25 samples

Iteration 66/100: G-Mean=0.751, Flipped=29 samples

Iteration 67/100: G-Mean=0.748, Flipped=33 samples

Iteration 68/100: G-Mean=0.748, Flipped=28 samples

Iteration 69/100: G-Mean=0.748, Flipped=28 samples

Iteration 70/100: G-Mean=0.748, Flipped=34 samples

Iteration 71/100: G-Mean=0.742, Flipped=36 samples

Iteration 72/100: G-Mean=0.769, Flipped=21 samples

Iteration 73/100: G-Mean=0.745, Flipped=31 samples

Iteration 74/100: G-Mean=0.748, Flipped=30 samples

Iteration 75/100: G-Mean=0.742, Flipped=20 samples

Iteration 76/100: G-Mean=0.745, Flipped=29 samples

Iteration 77/100: G-Mean=0.745, Flipped=25 samples

Iteration 78/100: G-Mean=0.775, Flipped=34 samples

Iteration 79/100: G-Mean=0.775, Flipped=24 samples

Iteration 80/100: G-Mean=0.775, Flipped=26 samples

-> Generating visualization for iteration 80...

Iteration 81/100: G-Mean=0.745, Flipped=31 samples

Iteration 82/100: G-Mean=0.745, Flipped=28 samples

Iteration 83/100: G-Mean=0.745, Flipped=27 samples

Iteration 84/100: G-Mean=0.751, Flipped=26 samples

Iteration 85/100: G-Mean=0.745, Flipped=30 samples

Iteration 86/100: G-Mean=0.745, Flipped=25 samples

Iteration 87/100: G-Mean=0.775, Flipped=22 samples

Iteration 88/100: G-Mean=0.769, Flipped=25 samples

Iteration 89/100: G-Mean=0.778, Flipped=22 samples

Iteration 90/100: G-Mean=0.778, Flipped=21 samples

Iteration 91/100: G-Mean=0.778, Flipped=25 samples

Iteration 92/100: G-Mean=0.778, Flipped=28 samples

Iteration 93/100: G-Mean=0.778, Flipped=26 samples

Iteration 94/100: G-Mean=0.778, Flipped=23 samples

Iteration 95/100: G-Mean=0.778, Flipped=30 samples

Iteration 96/100: G-Mean=0.778, Flipped=26 samples

Iteration 97/100: G-Mean=0.778, Flipped=37 samples

Iteration 98/100: G-Mean=0.778, Flipped=32 samples

Iteration 99/100: G-Mean=0.781, Flipped=24 samples

Iteration 100/100: G-Mean=0.778, Flipped=31 samples

-> Generating visualization for iteration 100...

--- Model Training Finished ---

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--- Performance Metrics on Test Set ---

Accuracy: 0.802

Precision: 0.853

Recall: 0.906

F1-Score: 0.879

G-Mean: 0.611

AUC: 0.819