

TABLE III  
MODEL EVALUATION RESULTS ON SMALL DATASETS

| Dataset | Model            | Method           | Ratio      |           |              |              |              |              |              |              |              |              |              |              | Avg. <i>F1</i> |
|---------|------------------|------------------|------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
|         |                  |                  | 0.0        |           | 0.5          |              | 0.6          |              | 0.7          |              | 0.8          |              | 0.9          |              |                |
|         |                  |                  | <i>STD</i> | <i>F1</i> | <i>STD</i>   | <i>F1</i>    | <i>STD</i>   | <i>F1</i>    | <i>STD</i>   | <i>F1</i>    | <i>STD</i>   | <i>F1</i>    | <i>STD</i>   | <i>F1</i>    |                |
| Banana  | DT               | ClusterCentroids | 0.017      | 0.877     | 0.009        | 0.890        | 0.013        | <b>0.884</b> | 0.015        | <b>0.873</b> | 0.153        | 0.776        | 0.019        | 0.793        | 0.828          |
|         |                  | IRB              |            |           | 0.016        | <b>0.894</b> | 0.026        | 0.866        | 0.056        | 0.789        | 0.067        | 0.567        | 0.064        | 0.362        | 0.643          |
|         |                  | NearMiss-1       |            |           | 0.025        | 0.867        | 0.022        | 0.851        | 0.050        | 0.820        | 0.038        | 0.809        | 0.060        | 0.706        | 0.794          |
|         |                  | NearMiss-2       |            |           | 0.028        | 0.800        | 0.022        | 0.795        | 0.051        | 0.721        | 0.078        | 0.675        | 0.052        | 0.687        | 0.708          |
|         |                  | NearMiss-3       |            |           | 0.037        | 0.853        | 0.249        | 0.705        | 0.019        | 0.818        | 0.050        | 0.780        | 0.079        | 0.633        | 0.740          |
|         |                  | RandomSampler    |            |           | 0.022        | 0.881        | 0.064        | 0.838        | 0.025        | 0.858        | 0.015        | <b>0.861</b> | 0.034        | <b>0.810</b> | <b>0.838</b>   |
|         | KNN              | ClusterCentroids | 0.008      | 0.901     | 0.011        | 0.902        | 0.010        | <b>0.903</b> | 0.010        | <b>0.903</b> | 0.007        | <b>0.899</b> | 0.007        | <b>0.900</b> | <b>0.901</b>   |
|         |                  | IRB              |            |           | 0.009        | <b>0.907</b> | 0.010        | 0.902        | 0.011        | 0.888        | 0.036        | 0.628        | 0.008        | 0.267        | 0.647          |
|         |                  | NearMiss-1       |            |           | 0.005        | 0.897        | 0.006        | 0.891        | 0.009        | 0.881        | 0.011        | 0.864        | 0.006        | 0.846        | 0.865          |
|         |                  | NearMiss-2       |            |           | 0.015        | 0.814        | 0.010        | 0.794        | 0.016        | 0.764        | 0.014        | 0.717        | 0.035        | 0.676        | 0.730          |
|         |                  | NearMiss-3       |            |           | 0.006        | 0.894        | 0.008        | 0.888        | 0.007        | 0.872        | 0.012        | 0.866        | 0.026        | 0.792        | 0.831          |
|         |                  | RandomSampler    |            |           | 0.008        | 0.905        | 0.007        | 0.900        | 0.009        | 0.895        | 0.002        | 0.894        | 0.006        | 0.884        | 0.891          |
|         | NN               | ClusterCentroids | 0.012      | 0.905     | 0.010        | <b>0.903</b> | 0.009        | 0.901        | 0.007        | <b>0.903</b> | 0.010        | <b>0.901</b> | 0.010        | <b>0.897</b> | <b>0.900</b>   |
|         |                  | IRB              |            |           | 0.010        | 0.900        | 0.012        | 0.898        | 0.011        | 0.887        | 0.087        | 0.638        | 0.043        | 0.365        | 0.680          |
|         |                  | NearMiss-1       |            |           | 0.007        | 0.892        | 0.010        | 0.886        | 0.007        | 0.882        | 0.012        | 0.875        | 0.015        | 0.857        | 0.869          |
|         |                  | NearMiss-2       |            |           | 0.019        | 0.800        | 0.018        | 0.752        | 0.007        | 0.708        | 0.022        | 0.648        | 0.012        | 0.587        | 0.674          |
|         |                  | NearMiss-3       |            |           | 0.008        | 0.901        | 0.010        | 0.897        | 0.006        | 0.890        | 0.010        | 0.895        | 0.061        | 0.861        | 0.841          |
|         |                  | RandomSampler    |            |           | 0.010        | 0.901        | 0.007        | <b>0.902</b> | 0.007        | 0.899        | 0.006        | 0.898        | 0.008        | 0.890        | 0.893          |
|         | RF               | ClusterCentroids | 0.009      | 0.899     | 0.006        | 0.920        | 0.010        | 0.915        | 0.012        | <b>0.906</b> | 0.005        | <b>0.902</b> | 0.008        | <b>0.896</b> | <b>0.906</b>   |
|         |                  | IRB              |            |           | 0.007        | <b>0.926</b> | 0.011        | <b>0.920</b> | 0.014        | 0.897        | 0.047        | 0.566        | 0.018        | 0.263        | 0.646          |
|         |                  | NearMiss-1       |            |           | 0.008        | 0.905        | 0.007        | 0.896        | 0.012        | 0.886        | 0.006        | 0.867        | 0.030        | 0.825        | 0.860          |
|         |                  | NearMiss-2       |            |           | 0.009        | 0.782        | 0.012        | 0.739        | 0.010        | 0.683        | 0.010        | 0.621        | 0.051        | 0.616        | 0.679          |
|         |                  | NearMiss-3       |            |           | 0.008        | 0.922        | 0.008        | 0.902        | 0.009        | 0.881        | 0.016        | 0.865        | 0.049        | 0.775        | 0.845          |
|         |                  | RandomSampler    |            |           | 0.005        | 0.917        | 0.007        | 0.911        | 0.012        | 0.903        | 0.007        | 0.895        | 0.015        | 0.884        | 0.892          |
| DT      | ClusterCentroids | 0.064            | 0.585      | 0.022     | <b>0.696</b> | 0.063        | 0.659        | 0.088        | 0.608        | 0.049        | <b>0.619</b> | 0.046        | <b>0.571</b> | <b>0.620</b> |                |
|         | IRB              |                  |            | 0.074     | 0.669        | 0.066        | <b>0.698</b> | 0.087        | <b>0.644</b> | 0.054        | 0.614        | 0.104        | 0.545        | 0.611        |                |
|         | NearMiss-1       |                  |            | 0.045     | 0.681        | 0.091        | 0.653        | 0.046        | 0.627        | 0.069        | 0.596        | 0.070        | 0.509        | 0.597        |                |
|         | NearMiss-2       |                  |            | 0.052     | 0.656        | 0.113        | 0.653        | 0.072        | 0.546        | 0.037        | 0.535        | 0.057        | 0.452        | 0.538        |                |
|         | NearMiss-3       |                  |            | 0.049     | 0.626        | 0.033        | 0.645        | 0.058        | 0.609        | 0.070        | 0.524        | 0.119        | 0.451        | 0.530        |                |
|         | RandomSampler    |                  |            | 0.073     | 0.678        | 0.042        | 0.649        | 0.102        | 0.633        | 0.060        | 0.553        | 0.073        | 0.563        | 0.597        |                |
| KNN     | ClusterCentroids | 0.079            | 0.650      | 0.059     | <b>0.801</b> | 0.063        | 0.739        | 0.054        | 0.697        | 0.045        | 0.635        | 0.026        | <b>0.634</b> | 0.684        |                |
|         | IRB              |                  |            | 0.089     | 0.769        | 0.058        | <b>0.742</b> | 0.077        | 0.707        | 0.066        | <b>0.718</b> | 0.050        | 0.621        | <b>0.688</b> |                |
|         | NearMiss-1       |                  |            | 0.090     | 0.748        | 0.063        | 0.690        | 0.078        | <b>0.709</b> | 0.020        | 0.668        | 0.080        | 0.529        | 0.636        |                |
|         | NearMiss-2       |                  |            | 0.066     | 0.694        | 0.106        | 0.655        | 0.041        | 0.597        | 0.046        | 0.584        | 0.059        | 0.524        | 0.594        |                |
|         | NearMiss-3       |                  |            | 0.076     | 0.730        | 0.074        | 0.728        | 0.037        | 0.662        | 0.067        | 0.607        | 0.052        | 0.590        | 0.638        |                |
|         | RandomSampler    |                  |            | 0.069     | 0.789        | 0.060        | 0.720        | 0.078        | 0.673        | 0.048        | 0.695        | 0.046        | 0.590        | 0.666        |                |
| NN      | ClusterCentroids | 0.048            | 0.717      | 0.045     | <b>0.812</b> | 0.076        | <b>0.782</b> | 0.074        | <b>0.768</b> | 0.056        | <b>0.731</b> | 0.071        | <b>0.711</b> | <b>0.748</b> |                |
|         | IRB              |                  |            | 0.033     | 0.773        | 0.043        | 0.767        | 0.045        | 0.730        | 0.073        | 0.726        | 0.050        | 0.704        | 0.706        |                |
|         | NearMiss-1       |                  |            | 0.069     | 0.792        | 0.067        | 0.724        | 0.054        | 0.759        | 0.041        | 0.691        | 0.064        | 0.661        | 0.700        |                |
|         | NearMiss-2       |                  |            | 0.034     | 0.711        | 0.061        | 0.678        | 0.029        | 0.608        | 0.085        | 0.645        | 0.028        | 0.550        | 0.621        |                |
|         | NearMiss-3       |                  |            | 0.057     | 0.762        | 0.068        | 0.768        | 0.040        | 0.679        | 0.073        | 0.619        | 0.072        | 0.551        | 0.662        |                |
|         | RandomSampler    |                  |            | 0.046     | 0.792        | 0.060        | 0.748        | 0.071        | 0.745        | 0.028        | 0.723        | 0.059        | 0.671        | 0.707        |                |
| RF      | ClusterCentroids | 0.079            | 0.750      | 0.040     | 0.772        | 0.045        | 0.730        | 0.058        | 0.707        | 0.074        | <b>0.737</b> | 0.045        | <b>0.708</b> | <b>0.671</b> |                |
|         | IRB              |                  |            | 0.060     | 0.757        | 0.050        | 0.732        | 0.088        | 0.688        | 0.073        | 0.705        | 0.086        | 0.591        | 0.650        |                |
|         | NearMiss-1       |                  |            | 0.103     | 0.754        | 0.062        | 0.711        | 0.080        | <b>0.716</b> | 0.068        | 0.692        | 0.082        | 0.567        | 0.639        |                |
|         | NearMiss-2       |                  |            | 0.046     | 0.685        | 0.087        | 0.653        | 0.023        | 0.602        | 0.066        | 0.563        | 0.054        | 0.533        | 0.581        |                |
|         | NearMiss-3       |                  |            | 0.032     | 0.737        | 0.055        | 0.731        | 0.046        | 0.627        | 0.073        | 0.664        | 0.090        | 0.543        | 0.624        |                |
|         | RandomSampler    |                  |            | 0.041     | <b>0.792</b> | 0.046        | <b>0.769</b> | 0.071        | 0.692        | 0.023        | 0.716        | 0.085        | 0.599        | 0.667        |                |
| DT      | ClusterCentroids | 0.000            | 1.000      | 0.000     | <b>1.000</b> | 0.000        | <b>1.000</b> | 0.030        | 0.970        | 0.024        | 0.967        | 0.013        | <b>0.974</b> | 0.930        |                |
|         | IRB              |                  |            | 0.000     | 1.000        | 0.000        | 1.000        | 0.219        | 0.711        | 0.069        | 0.584        | 0.069        | 0.584        | 0.711        |                |
|         | NearMiss-1       |                  |            | 0.111     | 0.863        | 0.022        | 0.795        | 0.022        | 0.795        | 0.042        | 0.773        | 0.087        | 0.669        | 0.751        |                |
|         | NearMiss-2       |                  |            | 0.000     | 1.000        | 0.000        | 1.000        | 0.021        | 0.991        | 0.022        | 0.977        | 0.022        | 0.965        | 0.969        |                |
|         | NearMiss-3       |                  |            | 0.013     | 0.974        | 0.013        | 0.974        | 0.018        | 0.972        | 0.100        | 0.927        | 0.100        | 0.927        | 0.950        |                |
|         | RandomSampler    |                  |            | 0.000     | 1.000        | 0.021        | 0.991        | 0.000        | <b>1.000</b> | 0.020        | <b>0.988</b> | 0.025        | 0.963        | <b>0.985</b> |                |
| KNN     | ClusterCentroids | 0.013            | 0.961      | 0.027     | <b>0.954</b> | 0.015        | <b>0.963</b> | 0.021        | <b>0.940</b> | 0.013        | <b>0.928</b> | 0.037        | <b>0.903</b> | <b>0.929</b> |                |
|         | IRB              |                  |            | 0.015     | 0.933        | 0.038        | 0.871        | 0.037        | 0.798        | 0.060        | 0.720        | 0.063        | 0.593        | 0.728        |                |
|         | NearMiss-1       |                  |            | 0.062     | 0.817        | 0.011        | 0.779        | 0.023        | 0.701        | 0.038        | 0.693        | 0.030        | 0.602        | 0.686        |                |
|         | NearMiss-2       |                  |            | 0.019     | 0.919        | 0.033        | 0.895        | 0.046        | 0.857        | 0.028        | 0.843        | 0.034        | 0.834        | 0.858        |                |
|         | NearMiss-3       |                  |            | 0.042     | 0.871        | 0.052        | 0.799        | 0.068        | 0.784        | 0.083        | 0.771        | 0.071        | 0.696        | 0.771        |                |
|         | RandomSampler    |                  |            | 0.025     | 0.940        | 0.035        | 0.916        | 0.034        | 0.903        | 0.046        | 0.852        | 0.054        | 0.852        | 0.868        |                |
| NN      | ClusterCentroids | 0.000            | 1.000      | 0.013     | <b>0.986</b> | 0.014        | <b>0.977</b> | 0.006        | <b>0.972</b> | 0.027        | <b>0.930</b> | 0.030        | <b>0.887</b> | <b>0.934</b> |                |
|         | IRB              |                  |            | 0.000     | <b>1.000</b> | 0.034        | 0.972        | 0.046        | 0.847        | 0.053        | 0.777        | 0.069        | 0.409        | 0.731        |                |
|         | NearMiss-1       |                  |            | 0.092     | 0.849        | 0.023        | 0.788        | 0.042        | 0.731        | 0.052        | 0.675        | 0.066        | 0.657        | 0.708        |                |
|         | NearMiss-2       |                  |            | 0.037     | 0.946        | 0.092        | 0.880        | 0.092        | 0.813        | 0.055        | 0.791        | 0.064        | 0.780        | 0.821        |                |
|         | NearMiss-3       |                  |            | 0.018     | 0.970        | 0.064        | 0.883        | 0.044        | 0.862        | 0.058        | 0.850        | 0.096        | 0.773        | 0.850        |                |
|         | RandomSampler    |                  |            | 0.008     | 0.988        | 0.019        | 0.974        | 0.034        | 0.947        | 0.039        | 0.924        | 0.033        | 0.845        | 0.914        |                |
| RF      | ClusterCentroids | 0.005            | 0.998      | 0.006     | 0.993        | 0.012        | <b>0.988</b> | 0.010        | <b>0.982</b> | 0.019        | <b>0.975</b> | 0.025        | 0.935        | 0.929        |                |
|         | IRB              |                  |            | 0.000     | <b>1.000</b> | 0.033        | 0.977        | 0.022        | 0.908        | 0.032        | 0.871        | 0.122        | 0.494        | 0.777        |                |
|         | NearMiss-1       |                  |            | 0.101     | 0.882        | 0.022        | 0.795        | 0.119        | 0.710        | 0.070        | 0.747        | 0.080        | 0.672        | 0.721        |                |
|         | NearMiss-2       |                  |            | 0.012     | 0.988        | 0.021        | 0.981        | 0.030        | 0.963        | 0.018        | 0.972        | 0.019        | <b>0.956</b> | 0.951        |                |
|         | NearMiss-3       |                  |            | 0.008     | 0.977        | 0.013        | 0.974        | 0.027        | 0.965        | 0.108        | 0.905        | 0.092        | 0.844        | 0.921        |                |
|         | RandomSampler    |                  |            | 0.006     | 0.993        | 0.024        | 0.979        | 0.005        | 0.979        | 0.013        | 0.975        | 0.043        | 0.954        | <b>0.967</b> |                |
| DT      | ClusterCentroids | 0.018            | 0.698      | 0.043     | 0.744        | 0.038        | 0.731        | 0.037        | 0.717        | 0.030        | 0.682        | 0.039        | 0.656        | 0.701        |                |
|         | IRB              |                  |            | 0.045     | 0.764        | 0.041        | 0.713        | 0.036        | 0.699        | 0.049        | 0.653        | 0.049        | 0.629        | 0.683        |                |
|         | NearMiss-1       |                  |            | 0.028     | 0.745        | 0.022        | 0.726        | 0.026        | 0.699        | 0.044        | 0.710        | 0.062        | 0.665        | 0.690        |                |
|         | NearMiss-2       |                  |            | 0.078     | 0.692        | 0.054        | 0.719        | 0.082        | 0.681        | 0.052        | 0.715        | 0.063        | 0.685        | 0.689        |                |
|         | NearMiss-3       |                  |            | 0.032     | 0.768        | 0.023        | 0.736        | 0.050        | <b>0.738</b> | 0.031        | <b>0.738</b> | 0.070        | 0.643        | 0.708        |                |
|         | RandomSampler    |                  |            | 0.028     | <b>0.775</b> | 0.036        | <b>0.748</b> | 0.062        | 0.721        | 0.032        | 0.706        | 0.026        | <b>0.715</b> | <b>0.714</b> |                |
| KNN     | ClusterCentroids | 0.033            | 0.729      | 0.019     | 0.760        | 0.018        | <b>0.758</b> | 0.017        | <b>0.764</b> | 0.023        | <b>0.733</b> | 0.024        | <b>0.753</b> | <b>0.751</b> |                |
|         | IRB              |                  |            | 0.038     | 0.717        | 0.032        | 0.689        | 0.022        | 0.651        | 0.023        | 0.613        | 0.023        | 0.526        | 0.615        |                |
|         | NearMiss-1       |                  |            | 0.024     | 0.729        | 0.015        | 0.729        | 0.022        | 0.723        | 0.032        | 0.712        | 0.027        | 0.678        | 0.698        |                |
|         | NearMiss-2       |                  |            | 0.037     | 0.705        | 0.037        | 0.723        | 0.025        | 0.713        | 0.035        | 0.705        | 0.033        | 0.681        | 0.705        |                |
|         | NearMiss-3       |                  |            | 0.031     | 0.747        | 0.036        | 0.723        | 0.040        | 0.728        | 0.030        | 0.723        | 0.044        | 0.657        | 0.692        |                |
|         | RandomSampler    |                  |            | 0.014     | <b>0.770</b> | 0.013        | 0.751        | 0.026        | 0.716        | 0.032        | 0.723        | 0.013        | 0.704        | 0.730        |                |
| NN      | ClusterCentroids | 0.013            | 0.760      | 0.028     | 0.812        | 0.030        | <b>0.800</b> | 0.038        | <b>0.798</b> | 0.018        | <b>0.784</b> | 0.046        | <b>0.750</b> | <b>0.785</b> |                |
|         | IRB              |                  |            | 0.037     | 0.754        | 0.050        | 0.735        | 0.033        | 0.699        | 0.049        | 0.635        | 0.058        | 0.542        | 0.646        |                |
|         | NearMiss-1       |                  |            | 0.015     | 0.764        | 0.036        | 0.758        | 0.034        | 0.737        | 0.019        | 0.740        | 0.045        | 0.697        | 0.719        |                |
|         | NearMiss-2       |                  |            | 0.045     | 0.764        | 0.039        | 0.723        | 0.059        | 0.747        | 0.024        | 0.729        | 0.039        | 0.679        | 0.739        |                |
|         | NearMiss-3       |                  |            | 0.015     | <b>0.812</b> | 0.026        | 0.798        | 0.032        | 0.771        | 0.024        | 0.774        | 0.045        | 0.739        | 0.759        |                |
|         | RandomSampler    |                  |            | 0.016     | 0.817        | 0.015        | 0.766        | 0.023        | 0.768        | 0.025        | 0.739        | 0.022        | 0.723        | 0.749        |                |
| RF      | ClusterCentroids | 0.011            | 0.750      | 0.029     | 0.852        | 0.026        | 0.834        | 0.024        | 0.803        | 0.021        | 0.778        | 0.040        | <b>0.767</b> | <b>0.797</b> |                |
|         | IRB              |                  |            | 0.029     | 0.817        | 0.021        | 0.845        | 0.034        | 0.778</      |              |              |              |              |              |                |

TABLE IV  
MODEL EVALUATION RESULTS ON LARGE DATASETS

| Dataset | Model            | Method           | Ratio |       |       |       |       |       |       |       |       |       |       |       | Avg. F1 |
|---------|------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|         |                  |                  | 0.0   |       | 0.5   |       | 0.6   |       | 0.7   |       | 0.8   |       | 0.9   |       |         |
|         |                  |                  | STD   | F1    | STD   | F1    | STD   | F1    | STD   | F1    | STD   | F1    | STD   | F1    |         |
| Kddcup  | DT               | ClusterCentroids | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.001 | 0.999 | 0.999   |
|         |                  | IRB              |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.116 | 0.948 | 0.148 | 0.931 | 0.968   |
|         |                  | NearMiss-1       |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.001 | 0.999 | 0.035 | 0.973 | 0.062 | 0.940 | 0.957   |
|         |                  | NearMiss-2       |       |       | 0.078 | 0.779 | 0.004 | 0.745 | 0.070 | 0.826 | 0.072 | 0.798 | 0.060 | 0.771 | 0.791   |
|         |                  | NearMiss-3       |       |       | 0.019 | 0.982 | 0.000 | 0.999 | 0.016 | 0.992 | 0.000 | 0.999 | 0.012 | 0.982 | 0.988   |
|         |                  | RandomSampler    |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.001 | 0.999 | 0.999   |
|         | KNN              | ClusterCentroids | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 0.999 | 1.000   |
|         |                  | IRB              |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.149 | 0.933 | 0.978   |
|         |                  | NearMiss-1       |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.149 | 0.932 | 0.976   |
|         |                  | NearMiss-2       |       |       | 0.017 | 0.756 | 0.066 | 0.798 | 0.011 | 0.964 | 0.022 | 0.867 | 0.007 | 0.780 | 0.821   |
|         |                  | NearMiss-3       |       |       | 0.000 | 1.000 | 0.001 | 0.999 | 0.001 | 0.997 | 0.002 | 0.994 | 0.002 | 0.990 | 0.994   |
|         |                  | RandomSampler    |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000   |
|         | NN               | ClusterCentroids | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 0.999 | 0.999   |
|         |                  | IRB              |       |       | 0.000 | 1.000 | 0.121 | 0.946 | 0.117 | 0.790 | 0.118 | 0.788 | 0.045 | 0.700 | 0.832   |
|         |                  | NearMiss-1       |       |       | 0.000 | 1.000 | 0.004 | 0.998 | 0.118 | 0.787 | 0.118 | 0.787 | 0.195 | 0.905 | 0.909   |
|         |                  | NearMiss-2       |       |       | 0.125 | 0.868 | 0.151 | 0.856 | 0.112 | 0.853 | 0.143 | 0.780 | 0.095 | 0.727 | 0.825   |
|         |                  | NearMiss-3       |       |       | 0.018 | 0.991 | 0.028 | 0.979 | 0.001 | 0.998 | 0.019 | 0.990 | 0.002 | 0.996 | 0.990   |
|         |                  | RandomSampler    |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 0.999 | 0.001 | 0.999 | 0.999   |
|         | RF               | ClusterCentroids | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000   |
|         |                  | IRB              |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.149 | 0.933 | 0.978   |
|         |                  | NearMiss-1       |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.146 | 0.929 | 0.956   |
|         |                  | NearMiss-2       |       |       | 0.004 | 0.746 | 0.004 | 0.746 | 0.077 | 0.781 | 0.005 | 0.744 | 0.077 | 0.802 | 0.761   |
|         |                  | NearMiss-3       |       |       | 0.013 | 0.992 | 0.004 | 0.998 | 0.001 | 1.000 | 0.000 | 1.000 | 0.004 | 0.997 | 0.997   |
|         |                  | RandomSampler    |       |       | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000   |
| Magic   | DT               | ClusterCentroids | 0.003 | 0.841 | 0.004 | 0.849 | 0.010 | 0.836 | 0.009 | 0.824 | 0.012 | 0.808 | 0.018 | 0.787 | 0.816   |
|         |                  | IRB              |       |       | 0.007 | 0.739 | 0.020 | 0.726 | 0.029 | 0.690 | 0.042 | 0.637 | 0.031 | 0.571 | 0.642   |
|         |                  | NearMiss-1       |       |       | 0.013 | 0.746 | 0.029 | 0.736 | 0.020 | 0.733 | 0.028 | 0.706 | 0.040 | 0.659 | 0.701   |
|         |                  | NearMiss-2       |       |       | 0.014 | 0.640 | 0.019 | 0.597 | 0.021 | 0.549 | 0.069 | 0.554 | 0.085 | 0.696 | 0.620   |
|         |                  | NearMiss-3       |       |       | 0.014 | 0.850 | 0.012 | 0.824 | 0.012 | 0.789 | 0.011 | 0.747 | 0.013 | 0.710 | 0.764   |
|         |                  | RandomSampler    |       |       | 0.005 | 0.861 | 0.004 | 0.855 | 0.011 | 0.843 | 0.012 | 0.825 | 0.014 | 0.807 | 0.828   |
|         | KNN              | ClusterCentroids | 0.006 | 0.839 | 0.007 | 0.894 | 0.005 | 0.878 | 0.005 | 0.868 | 0.002 | 0.854 | 0.004 | 0.838 | 0.860   |
|         |                  | IRB              |       |       | 0.009 | 0.821 | 0.006 | 0.840 | 0.017 | 0.786 | 0.021 | 0.718 | 0.012 | 0.602 | 0.717   |
|         |                  | NearMiss-1       |       |       | 0.005 | 0.825 | 0.011 | 0.813 | 0.008 | 0.810 | 0.021 | 0.790 | 0.037 | 0.707 | 0.767   |
|         |                  | NearMiss-2       |       |       | 0.004 | 0.669 | 0.006 | 0.622 | 0.010 | 0.587 | 0.027 | 0.599 | 0.009 | 0.788 | 0.665   |
|         |                  | NearMiss-3       |       |       | 0.004 | 0.894 | 0.007 | 0.843 | 0.009 | 0.788 | 0.009 | 0.729 | 0.007 | 0.660 | 0.756   |
|         |                  | RandomSampler    |       |       | 0.005 | 0.918 | 0.005 | 0.900 | 0.003 | 0.882 | 0.006 | 0.861 | 0.004 | 0.835 | 0.868   |
|         | NN               | ClusterCentroids | 0.005 | 0.876 | 0.006 | 0.872 | 0.007 | 0.869 | 0.002 | 0.866 | 0.003 | 0.860 | 0.003 | 0.845 | 0.858   |
|         |                  | IRB              |       |       | 0.013 | 0.726 | 0.020 | 0.703 | 0.022 | 0.684 | 0.026 | 0.617 | 0.024 | 0.544 | 0.622   |
|         |                  | NearMiss-1       |       |       | 0.016 | 0.732 | 0.027 | 0.717 | 0.020 | 0.725 | 0.017 | 0.718 | 0.015 | 0.648 | 0.691   |
|         |                  | NearMiss-2       |       |       | 0.004 | 0.595 | 0.009 | 0.548 | 0.015 | 0.494 | 0.077 | 0.494 | 0.008 | 0.762 | 0.602   |
|         |                  | NearMiss-3       |       |       | 0.002 | 0.871 | 0.007 | 0.856 | 0.005 | 0.826 | 0.012 | 0.759 | 0.007 | 0.694 | 0.777   |
|         |                  | RandomSampler    |       |       | 0.004 | 0.872 | 0.004 | 0.870 | 0.004 | 0.867 | 0.003 | 0.859 | 0.012 | 0.843 | 0.857   |
|         | RF               | ClusterCentroids | 0.006 | 0.879 | 0.006 | 0.911 | 0.006 | 0.895 | 0.007 | 0.879 | 0.009 | 0.865 | 0.004 | 0.844 | 0.869   |
|         |                  | IRB              |       |       | 0.012 | 0.761 | 0.011 | 0.789 | 0.016 | 0.733 | 0.020 | 0.667 | 0.018 | 0.569 | 0.667   |
|         |                  | NearMiss-1       |       |       | 0.010 | 0.765 | 0.012 | 0.739 | 0.020 | 0.744 | 0.022 | 0.727 | 0.052 | 0.657 | 0.705   |
|         |                  | NearMiss-2       |       |       | 0.010 | 0.643 | 0.012 | 0.597 | 0.012 | 0.542 | 0.019 | 0.500 | 0.112 | 0.750 | 0.624   |
|         |                  | NearMiss-3       |       |       | 0.002 | 0.930 | 0.005 | 0.888 | 0.007 | 0.818 | 0.009 | 0.760 | 0.006 | 0.698 | 0.791   |
|         |                  | RandomSampler    |       |       | 0.005 | 0.921 | 0.004 | 0.908 | 0.004 | 0.893 | 0.005 | 0.877 | 0.006 | 0.854 | 0.880   |
| DT      | ClusterCentroids | 0.017            | 0.871 | 0.011 | 0.886 | 0.008 | 0.868 | 0.019 | 0.849 | 0.013 | 0.831 | 0.015 | 0.800 | 0.836 |         |
|         | IRB              |                  |       | 0.029 | 0.778 | 0.021 | 0.765 | 0.028 | 0.722 | 0.059 | 0.622 | 0.069 | 0.541 | 0.650 |         |
|         | NearMiss-1       |                  |       | 0.034 | 0.886 | 0.054 | 0.841 | 0.080 | 0.741 | 0.078 | 0.692 | 0.054 | 0.621 | 0.725 |         |
|         | NearMiss-2       |                  |       | 0.009 | 0.722 | 0.016 | 0.687 | 0.028 | 0.658 | 0.037 | 0.634 | 0.042 | 0.733 | 0.669 |         |
|         | NearMiss-3       |                  |       | 0.052 | 0.839 | 0.048 | 0.821 | 0.041 | 0.785 | 0.039 | 0.780 | 0.033 | 0.690 | 0.750 |         |
|         | RandomSampler    |                  |       | 0.007 | 0.903 | 0.008 | 0.876 | 0.009 | 0.863 | 0.013 | 0.838 | 0.016 | 0.796 | 0.841 |         |
| Phoneme | KNN              | ClusterCentroids | 0.010 | 0.894 | 0.012 | 0.900 | 0.010 | 0.889 | 0.012 | 0.875 | 0.013 | 0.863 | 0.010 | 0.839 | 0.865   |
|         |                  | IRB              |       |       | 0.024 | 0.855 | 0.017 | 0.854 | 0.028 | 0.784 | 0.045 | 0.696 | 0.046 | 0.528 | 0.698   |
|         |                  | NearMiss-1       |       |       | 0.019 | 0.906 | 0.030 | 0.839 | 0.043 | 0.780 | 0.058 | 0.696 | 0.048 | 0.537 | 0.703   |
|         |                  | NearMiss-2       |       |       | 0.010 | 0.790 | 0.013 | 0.770 | 0.015 | 0.753 | 0.011 | 0.754 | 0.018 | 0.786 | 0.771   |
|         |                  | NearMiss-3       |       |       | 0.004 | 0.958 | 0.006 | 0.932 | 0.011 | 0.902 | 0.013 | 0.853 | 0.010 | 0.761 | 0.846   |
|         |                  | RandomSampler    |       |       | 0.018 | 0.910 | 0.003 | 0.892 | 0.009 | 0.869 | 0.009 | 0.849 | 0.007 | 0.816 | 0.856   |
|         | NN               | ClusterCentroids | 0.009 | 0.886 | 0.010 | 0.889 | 0.011 | 0.890 | 0.011 | 0.872 | 0.009 | 0.865 | 0.009 | 0.831 | 0.856   |
|         |                  | IRB              |       |       | 0.045 | 0.741 | 0.024 | 0.775 | 0.072 | 0.643 | 0.047 | 0.551 | 0.060 | 0.494 | 0.610   |
|         |                  | NearMiss-1       |       |       | 0.056 | 0.797 | 0.020 | 0.728 | 0.031 | 0.668 | 0.046 | 0.609 | 0.070 | 0.535 | 0.633   |
|         |                  | NearMiss-2       |       |       | 0.010 | 0.697 | 0.017 | 0.680 | 0.017 | 0.648 | 0.020 | 0.678 | 0.008 | 0.783 | 0.707   |
|         |                  | NearMiss-3       |       |       | 0.048 | 0.842 | 0.016 | 0.822 | 0.054 | 0.804 | 0.063 | 0.788 | 0.057 | 0.744 | 0.773   |
|         |                  | RandomSampler    |       |       | 0.009 | 0.888 | 0.009 | 0.881 | 0.012 | 0.863 | 0.011 | 0.853 | 0.020 | 0.828 | 0.851   |
|         | RF               | ClusterCentroids | 0.007 | 0.910 | 0.014 | 0.925 | 0.009 | 0.913 | 0.013 | 0.894 | 0.014 | 0.878 | 0.011 | 0.850 | 0.881   |
|         |                  | IRB              |       |       | 0.047 | 0.808 | 0.028 | 0.787 | 0.008 | 0.712 | 0.059 | 0.613 | 0.075 | 0.521 | 0.646   |
|         |                  | NearMiss-1       |       |       | 0.018 | 0.911 | 0.040 | 0.837 | 0.038 | 0.772 | 0.115 | 0.699 | 0.079 | 0.586 | 0.735   |
|         |                  | NearMiss-2       |       |       | 0.014 | 0.737 | 0.019 | 0.696 | 0.020 | 0.657 | 0.033 | 0.674 | 0.050 | 0.724 | 0.706   |
|         |                  | NearMiss-3       |       |       | 0.012 | 0.946 | 0.010 | 0.926 | 0.011 | 0.904 | 0.015 | 0.864 | 0.015 | 0.760 | 0.837   |
|         |                  | RandomSampler    |       |       | 0.012 | 0.922 | 0.009 | 0.906 | 0.004 | 0.887 | 0.014 | 0.871 | 0.008 | 0.831 | 0.871   |
|         | DT               | ClusterCentroids | 0.012 | 0.896 | 0.008 | 0.894 | 0.011 | 0.873 | 0.008 | 0.843 | 0.028 | 0.806 | 0.020 | 0.745 | 0.803   |
|         |                  | IRB              |       |       | 0.005 | 0.906 | 0.010 | 0.874 | 0.006 | 0.860 | 0.012 | 0.802 | 0.017 | 0.757 | 0.818   |
|         |                  | NearMiss-1       |       |       | 0.005 | 0.895 | 0.012 | 0.879 | 0.011 | 0.862 | 0.007 | 0.840 | 0.015 | 0.788 | 0.813   |
|         |                  | NearMiss-2       |       |       | 0.007 | 0.887 | 0.008 | 0.862 | 0.023 | 0.840 | 0.016 | 0.819 | 0.031 | 0.756 | 0.813   |
|         |                  | NearMiss-3       |       |       | 0.009 | 0.918 | 0.011 | 0.906 | 0.012 | 0.893 | 0.015 | 0.877 | 0.019 | 0.843 | 0.879   |
|         |                  | RandomSampler    |       |       | 0.004 | 0.923 | 0.015 | 0.901 | 0.010 | 0.885 | 0.015 | 0.858 | 0.014 | 0.831 | 0.868   |
| Ring    | KNN              | ClusterCentroids | 0.009 | 0.681 | 0.004 | 0.748 | 0.012 | 0.749 | 0.010 | 0.747 | 0.015 | 0.761 | 0.003 | 0.786 | 0.767   |
|         |                  | IRB              |       |       | 0.008 | 0.794 | 0.010 | 0.778 | 0.008 | 0.772 | 0.007 | 0.749 | 0.008 | 0.728 | 0.753   |
|         |                  | NearMiss-1       |       |       | 0.006 | 0.881 | 0.011 | 0.871 | 0.005 | 0.778 | 0.009 | 0.757 | 0.010 | 0.727 | 0.752   |
|         |                  | NearMiss-2       |       |       | 0.008 | 0.784 | 0.009 | 0.787 | 0.005 | 0.784 | 0.008 | 0.771 | 0.013 | 0.756 | 0.769   |
|         |                  | NearMiss-3       |       |       | 0.007 | 0.557 | 0.006 | 0.518 | 0.010 | 0.480 | 0.011 | 0.436 | 0.005 | 0.393 | 0.459   |
|         |                  | RandomSampler    |       |       | 0.004 | 0.705 | 0.010 | 0.674 | 0.005 | 0.641 | 0.009 | 0.615 | 0.009 | 0.560 | 0.619   |
|         | NN               | ClusterCentroids | 0.005 | 0.973 | 0.005 | 0.974 | 0.005 | 0.967 | 0.004 | 0.957 | 0.003 | 0.926 | 0.021 | 0.853 | 0.912   |
|         |                  | IRB              |       |       | 0.003 | 0.966 | 0.004 | 0.953 | 0.006 | 0.944 | 0.010 | 0.903 | 0.044 | 0.764 | 0.857   |
|         |                  | NearMiss-1       |       |       | 0.002 | 0.965 | 0.007 | 0.956 | 0.005 | 0.946 | 0.011 | 0.924 | 0.024 | 0.877 | 0.902   |
|         |                  | NearMiss-2       |       |       | 0.006 | 0.949 | 0.008 | 0.936 | 0.006 | 0.923 | 0.007 | 0.903 | 0.024 | 0.860 | 0.881   |
|         |                  | NearMiss-3       |       |       | 0.006 | 0.947 | 0.006 | 0.934 | 0.004 | 0.931 | 0.005 | 0.927 | 0.016 | 0.893 | 0.918   |
|         |                  | RandomSampler    |       |       | 0.004 | 0.978 | 0.008 | 0.974 | 0.007 | 0.963 | 0.005 | 0.953 | 0.010 | 0.900 | 0.939   |
|         | RF               | ClusterCentroids | 0.005 | 0.952 | 0.002 | 0.962 | 0.006 | 0.952 | 0.011 | 0.939 | 0.007 | 0.915 | 0.010 | 0.844 | 0.894   |
|         |                  | IRB              |       |       | 0.005 | 0.945 | 0.007 | 0.931 | 0.007 | 0.910 | 0.006 | 0.886 | 0.022 | 0.820 | 0.875   |
|         |                  | NearMiss-1       |       |       | 0.005 | 0.947 | 0.005 | 0.931 | 0.008 | 0.916 | 0.007 | 0.900 | 0.013 | 0.881 | 0.908   |
|         |                  | NearMiss-2       |       |       | 0.005 | 0.933 | 0.005 | 0.921 | 0.005 | 0.898 | 0.010 | 0.882 | 0.012 | 0.828 | 0.874   |
|         |                  | NearMiss-3       |       |       | 0.003 | 0.967 | 0.005 | 0.960 | 0.007 | 0.952 | 0.010 | 0.942 |       |       |         |