

Table 2. Comparison of classification performance when synthetic data from the baselines and ST-Prompt are added to the original data. We report the average performance for five runs. N_{syn} represents the number of synthetic samples added to the original data.

Dataset	Method	N_{syn}	F1 score	Sensitivity	Specificity	BAL ACC	ACC	AUC
Travel	Original	-	60.00±0.00	60.00±0.00	84.62±0.00	72.31±0.00	77.78±0.00	89.35±0.00
	+TVAE	+1K	57.69±0.00	60.00±0.00	81.54±0.00	70.77±0.00	75.56±0.00	86.15±0.00
	+CopulaGAN	+1K	20.00±0.00	12.00±0.00	96.92±0.00	54.46±0.00	73.33±0.00	75.35±0.00
	+CTGAN	+1K	25.00±0.00	16.00±0.00	95.38±0.00	55.69±0.00	73.33±0.00	72.40±0.00
	+CTAB-GAN	+1K	66.67±0.00	60.00±0.00	92.31±0.00	76.15±0.00	83.33±0.00	85.94±0.00
	+CTAB-GAN+	+1K	59.57±0.00	56.00±0.00	87.69±0.00	71.85±0.00	78.89±0.00	85.57±0.00
	+GReaT	+1K	59.57±0.00	56.00±0.00	87.69±0.00	71.85±0.00	78.89±0.00	86.12±0.00
	+TabDDPM	+1K	58.33±0.00	56.00±0.00	86.15±0.00	71.08±0.00	77.78±0.00	88.09±0.00
	+Ours	+1K	70.18±0.00	80.00±0.00	81.54±0.00	80.77±0.00	81.11±0.00	87.38±0.00
Sick	Original	-	84.09±0.00	80.43±0.00	99.28±0.00	89.86±0.00	98.12±0.00	99.64±0.00
	+TVAE	+1K	85.06±0.00	80.43±0.00	99.43±0.00	89.93±0.00	98.25±0.00	99.59±0.00
	+CopulaGAN	+1K	83.95±0.00	73.91±0.00	99.86±0.00	86.88±0.00	98.25±0.00	99.42±0.00
	+CTGAN	+1K	86.05±0.00	80.43±0.00	99.57±0.00	90.00±0.00	98.38±0.00	99.49±0.00
	+CTAB-GAN	+1K	86.05±0.00	80.43±0.00	99.57±0.00	90.00±0.00	98.38±0.00	99.61±0.00
	+CTAB-GAN+	+1K	82.93±0.00	73.91±0.00	99.71±0.00	86.81±0.00	98.12±0.00	99.53±0.01
	+GReaT	+1K	85.06±0.00	80.43±0.00	99.43±0.00	89.93±0.00	98.25±0.00	99.66±0.00
	+TabDDPM	+1K	84.71±0.00	78.26±0.00	99.57±0.00	88.92±0.00	98.25±0.00	99.60±0.00
	+Ours	+1K	91.95±0.00	86.96±0.00	99.86±0.00	93.41±0.00	99.06±0.00	99.71±0.00
HELOC	Original	-	71.32±0.04	68.47±0.06	78.31±0.00	73.39±0.03	73.59±0.03	80.61±0.01
	+TVAE	+1K	71.29±0.02	68.32±0.00	78.48±0.04	73.40±0.02	73.61±0.02	80.90±0.02
	+CopulaGAN	+1K	71.57±0.02	68.74±0.00	78.48±0.04	73.61±0.02	73.81±0.02	80.55±0.01
	+CTGAN	+1K	71.00±0.00	68.00±0.00	78.31±0.00	73.16±0.00	73.37±0.00	80.82±0.01
	+CTAB-GAN	+1K	70.91±0.00	68.22±0.00	77.72±0.00	72.97±0.00	73.16±0.00	80.52±0.00
	+CTAB-GAN+	+1K	71.03±0.02	68.32±0.00	77.84±0.04	73.08±0.02	73.28±0.02	80.73±0.01
	+GReaT	+1K	70.59±0.03	66.50±0.05	79.81±0.05	73.16±0.02	73.43±0.02	80.79±0.01
	+TabDDPM	+1K	70.65±0.00	67.48±0.00	78.31±0.00	72.89±0.00	73.11±0.00	80.64±0.00
	+Ours	+1K	71.93±0.02	69.90±0.00	77.45±0.04	73.68±0.02	73.83±0.02	80.72±0.02
Adult Income	Original	-	69.05±0.00	61.03±0.00	95.00±0.00	78.02±0.00	86.82±0.00	92.19±0.00
	+TVAE	+20K	68.30±0.00	62.05±0.00	93.77±0.00	77.91±0.00	86.12±0.00	91.57±0.00
	+CopulaGAN	+20K	68.45±0.00	62.18±0.00	93.81±0.00	77.99±0.00	86.19±0.00	91.53±0.00
	+CTGAN	+20K	67.00±0.00	59.76±0.00	94.09±0.00	76.92±0.00	85.82±0.00	91.51±0.00
	+CTAB-GAN	+20K	68.55±0.00	61.03±0.00	94.60±0.00	77.81±0.00	86.51±0.00	91.64±0.00
	+CTAB-GAN+	+20K	67.71±0.00	60.46±0.00	94.25±0.00	77.36±0.00	86.11±0.00	91.67±0.00
	+GReaT	+20K	69.17±0.00	62.82±0.00	94.03±0.00	78.42±0.00	86.51±0.00	91.97±0.00
	+TabDDPM	+20K	68.36±0.00	60.20±0.00	94.94±0.00	77.57±0.00	86.57±0.00	91.86±0.00
	+Ours	+20K	70.17±0.00	67.79±0.00	91.92±0.00	79.86±0.00	86.11±0.00	91.75±0.00
Diabetes	Original	-	56.24±0.00	60.61±0.00	62.36±0.00	43.34±0.00	60.61±0.00	70.97±0.00
	+TVAE	+10K	56.26±0.00	60.66±0.00	62.44±0.00	43.31±0.00	60.66±0.00	70.85±0.00
	+CopulaGAN	+10K	55.83±0.00	60.57±0.00	61.62±0.00	42.95±0.00	60.57±0.00	70.75±0.00
	+CTGAN	+10K	55.77±0.00	60.32±0.00	61.86±0.00	42.87±0.00	60.32±0.00	70.76±0.00
	+CTAB-GAN	+10K	55.45±0.00	60.33±0.00	61.28±0.00	42.58±0.00	60.33±0.00	70.85±0.00
	+CTAB-GAN+	+10K	55.38±0.00	60.17±0.00	61.25±0.00	42.54±0.00	60.17±0.00	70.37±0.00
	+GReaT	+10K	55.98±0.00	60.46±0.00	62.08±0.00	43.08±0.00	60.46±0.00	70.95±0.00
	+TabDDPM	+10K	56.02±0.00	60.64±0.00	62.23±0.00	42.98±0.00	60.64±0.00	70.93±0.00
	+Ours	+10K	56.39±0.00	60.73±0.00	62.52±0.00	43.46±0.00	60.73±0.00	70.95±0.00