Table 1: **Classification results obtained after over-sampling the training set.** The table shows optimal threshold parameter (λ^*), number of active irrelevant variables (# non-info), predictive accuracy (PA), PA for class 1 (PA_1) and PA for class 2 (PA_2), g-means and AUC for different levels of class-imbalance (k_1) in the training set containing 100 samples and difference between the classes (μ_2). The training set was over-sampled in order to obtain a class-balanced training set. There were 10,000 variables ($p = 10,000$) and the correlation coefficient for the variables within the same block containing 100 variables was set to 0.8. See text for more details.

μ_2	k_1		PA	PA_1	PA_2	g-means	AUC	# info	# non-info	λ
0	0.5	PAM	0.5	0.5	0.5	0.5	0.5	22.04	2019.31	1.18
			(0.01)	(0.04)	(0.04)	(0.01)	(0.02)	(37.49)	(3328.64)	(0.67)
		GM-PAM	0.5	0.5	0.5	0.5	0.5	24.71	2242.56	1.13
			(0.02)	(0.04)	(0.05)	(0.02)	(0.02)	(38.43)	(3436.9)	(0.68)
	0.6	PAM	0.5	0.62	0.38	0.48	0.5	51.87	4795.4	0.68
			(0.01)	(0.06)	(0.06)	(0.02)	(0.02)	(42.05)	(3573.33)	(0.7)
		GM-PAM	0.5	0.62	0.37	0.48	0.5	54.18	5037.92	0.64
			(0.01)	(0.06)	(0.06)	(0.02)	(0.02)	(41.99)	(3592.46)	(0.69)
	0.7	PAM	0.5	0.74	0.27	0.44	0.5	61.92	5799.99	0.49
			(0.01)	(0.05)	(0.06)	(0.03)	(0.02)	(38.43)	(2915.88)	(0.54)
		GM-PAM	0.5	0.74	0.27	0.44	0.5	62.65	5911.31	0.48
			(0.01)	(0.05)	(0.06)	(0.03)	(0.02)	(38.56)	(2939.22)	(0.54)
	0.8	PAM	0.5	0.84	0.15	0.36	0.5	71.32	6847.44	0.37
			(0.01)	(0.04)	(0.04)	(0.04)	(0.02)	(31.71)	(2450.68)	(0.33)
		GM-PAM	0.5	0.84	0.15	0.36	0.5	71.52	6921.11	0.36
			(0.01)	(0.04)	(0.04)	(0.04)	(0.02)	(31.75)	(2483.02)	(0.33)
	0.9	PAM	0.5	0.95	0.05	0.22	0.5	61.37	6026.48	0.69
			(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(37.62)	(2742.67)	(0.56)
		GM-PAM	0.5	0.95	0.05	0.21	0.5	62.69	6127.63	0.67
			(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(36.69)	(2651.88)	(0.53)
0.5	0.5	PAM	0.55	0.55	0.56	0.55	0.58	41.58	1521.02	1.34
			(0.05)	(0.06)	(0.06)	(0.05)	(0.06)	(44.16)	(2956.5)	(0.71)
		GM-PAM	0.55	0.55	0.55	0.55	0.58	45.42	1651.47	1.28
			(0.05)	(0.06)	(0.06)	(0.05)	(0.06)	(45.04)	(3051.22)	(0.7)
	0.6	PAM	0.54	0.65	0.44	0.53	0.56	76.58	4244.76	0.81
			(0.04)	(0.06)	(0.09)	(0.04)	(0.05)	(36.56)	(3526.27)	(0.81)
		GM-PAM	0.54	0.65	0.43	0.53	0.56	77.71	4500.95	0.76
			(0.04)	(0.06)	(0.09)	(0.04)	(0.05)	(35.82)	(3609.07)	(0.79)
	0.7	PAM	0.53	0.75	0.31	0.48	0.55	91.95	5468.92	0.51
			(0.02)	(0.05)	(0.07)	(0.04)	(0.03)	(22.71)	(2926.65)	(0.47)
		GM-PAM	0.53	0.75	0.31	0.48	0.55	93.32	5759.93	0.46
			(0.02)	(0.05)	(0.06)	(0.04)	(0.03)	(20.39)	(2888.1)	(0.43)
	0.8	PAM	0.52	0.85	0.19	0.4	0.55	95.17	5993.06	0.48
			(0.02)	(0.04)	(0.05)	(0.05)	(0.03)	(15.11)	(2564.83)	(0.35)
		GM-PAM	0.52	0.85	0.19	0.4	0.55	95.42	6203.27	0.46
			(0.02)	(0.04)	(0.05)	(0.05)	(0.03)	(15.07)	(2576.17)	(0.35)
	0.9	PAM	0.51	0.95	0.06	0.24	0.53	82.72	6012.49	0.69
			(0.01)	(0.02)	(0.04)	(0.06)	(0.03)	(25.81)	(2688.55)	(0.54)
		GM-PAM	0.51	0.95	0.06	0.24	0.53	83.95	6161.64	0.65
			(0.01)	(0.02)	(0.03)	(0.06)	(0.03)	(25.24)	(2631.05)	(0.51)
1	0.5	PAM	0.69	0.69	0.69	0.69	0.77	46.46	479.55	2.16
			(0.03)	(0.05)	(0.05)	(0.03)	(0.04)	(42.87)	(1525.94)	(0.94)
		GM-PAM	0.69	0.69	0.7	0.69	0.76	50.47	513.59	2.1
			(0.03)	(0.05)	(0.05)	(0.03)	(0.04)	(42.49)	(1532.66)	(0.94)
	0.6	PAM	0.68	0.73	0.63	0.67	0.74	70.97	1690.36	1.72
			(0.04)	(0.04)	(0.08)	(0.04)	(0.05)	(42.27)	(2251.51)	(1.34)
		GM-PAM	0.68	0.73	0.62	0.67	0.74	73.08	1808.83	1.67
			(0.04)	(0.04)	(0.09)	(0.04)	(0.05)	(41.41)	(2341.65)	(1.33)
	0.7	PAM	0.63	0.79	0.48	0.61	0.7	91.13	3848.5	0.96
			(0.05)	(0.04)	(0.12)	(0.07)	(0.06)	(26.49)	(3113.97)	(1.02)
		GM-PAM	0.63	0.79	0.47	0.6	0.69	93.71	4157.24	0.87
			(0.05)	(0.04)	(0.12)	(0.07)	(0.06)	(22.79)	(3103.25)	(0.96)
	0.8	PAM	0.6	0.86	0.33	0.52	0.67	97.33	5429.52	0.7
			(0.05)	(0.04)	(0.14)	(0.09)	(0.06)	(15.13)	(3103.96)	(0.85)
		GM-PAM	0.59	0.87	0.31	0.51	0.67	97.38	5797.09	0.63
			(0.05)	(0.04)	(0.13)	(0.09)	(0.06)	(15.12)	(3019.79)	(0.83)
	0.9	PAM	0.54	0.95	0.12	0.32	0.62	96.17	5651.55	0.81
			(0.03)	(0.03)	(0.09)	(0.09)	(0.06)	(13.01)	(2577.79)	(0.78)
		GM-PAM	0.53	0.95	0.12	0.32	0.62	96.17	5789.34	0.78
			(0.03)	(0.03)	(0.09)	(0.09)	(0.05)	(13.01)	(2616.25)	(0.78)

Figure 1: **Classification results obtained after over-sampling the training set.** The figure shows PA for class 1 (PA_1) and PA for class 2 (PA_2) for different levels of class-imbalance (k_1) in the training set containing 100 samples and difference between the classes (left panel: $\mu_2 = 0$, middle panel: $\mu_2 = 0.5$, right panel: $\mu_2 = 1$). The simulation setting were the same as presented in the table above. See text for more details.