A. Additional Results

Methods	Binary CIFAR10, imb. **1:200**			
	FPR@ ↓ 98%TPR	FPR@ ↓ 95%TPR	FPR@ ↓ 92%TPR	AUC ↑
BCE	75.0	55.0	40.0	87.3
+ALM	70.0	54.0	39.0	86.7
+RankReg	**67.3**	**52.7**	**37.8**	89.6
S-ML	75.0	54.0	**35.0**	87.4
+ALM	72.0	52.0	39.0	87.9
+RankReg	**65.8**	**51.8**	41.3	88.2
S-FL	78.0	59.0	43.0	85.7
+ALM	74.0	55.0	41.0	86.9
+RankReg	**70.5**	**46.5**	**40.2**	87.7
A-ML	74.0	56.0	39.0	87.4
+ALM	75.0	54.0	35.0	87.6
+RankReg	**64.9**	**50.4**	**38.1**	89.2
A-FL	76.0	59.0	40.0	86.2
+ALM	78.0	57.0	37.0	87.0
+RankReg	**68.6**	**53.6**	**35.6**	88.4
CB-BCE	87.0	74.0	61.0	78.0
+ALM	85.0	69.0	53.0	80.0
+RankReg	**72.0**	**54.8**	**44.5**	87.1
W-BCE	88.0	75.0	62.0	78.3
+ALM	83.0	69.0	54.0	81.0
+RankReg	**66.3**	**49.6**	**39.5**	89.4
LDAM	78.0	63.0	45.0	86.4
+ALM	73.0	61.0	43.0	85.6
+RankReg	**65.8**	**47.3**	**33.8**	89.7
Avg. Δ	8.2	8.0	3.2	3.1

Table 1. Comparison results for binary imbalanced CIFAR-10 showing FPRs at {98%, 95%, 92%} TPRs. Baseline numbers are quoted from ALM [1]. "+ALM" and "+RankReg" are shorthand for *BaseLoss*+ALM and *BaseLoss*+RankReg, respectively.

Methods	Binary CIFAR100, imb. **1:200**			
	FPR@ ↓ 98%TPR	FPR@ ↓ 95%TPR	FPR@ ↓ 90%TPR	AUC ↑
BCE	94.0	77.0	61.0	79.1
+ALM	87.0	**66.0**	57.0	80.9
+RankReg	**85.2**	66.8	**43.0**	83.1
S-ML	95.0	75.0	64.0	79.7
+ALM	87.0	73.0	55.0	80.7
+RankReg	**81.8**	**62.8**	**48.4**	82.4
S-FL	90.0	78.0	50.0	80.1
+ALM	85.0	76.0	50.0	80.8
+RankReg	**79.2**	**65.8**	**47.2**	83.1
A-ML	95.0	75.0	66.0	79.8
+ALM	92.0	63.0	45.0	81.0
+RankReg	**86.2**	**59.0**	**43.0**	83.4
A-FL	91.0	78.0	50.0	80.0
+ALM	88.0	76.0	46.0	80.7
+RankReg	**81.2**	**58.8**	**37.8**	83.7
CB-BCE	93.0	78.0	51.0	78.7
+ALM	**85.0**	66.0	44.0	81.0
+RankReg	85.0	**64.0**	**40.4**	81.4
W-BCE	95.0	63.0	51.0	79.7
+ALM	79.0	62.0	44.0	81.3
+RankReg	**69.9**	**51.4**	**41.6**	84.3
LDAM	80.0	67.0	45.0	82.1
+ALM	84.0	61.0	46.0	81.5
+RankReg	**70.2**	**56.8**	**37.4**	84.1
Avg. Δ	5.5	7.2	6.0	2.1

Table 2. Comparison results for binary imbalanced CIFAR-100 showing FPRs at {98%, 95%, 90%} TPRs. Baseline numbers are quoted from ALM [1]. "+ALM" and "+RankReg" are shorthand for *BaseLoss*+ALM and *BaseLoss*+RankReg, respectively.

References

[1] Sara Sangalli, Ertunc Erdil, Andreas Hoetker, Olivio Donati, and Ender Konukoglu. Constrained optimization to train neural networks on critical and under-represented classes. In *NeurIPS*, 2021. 1