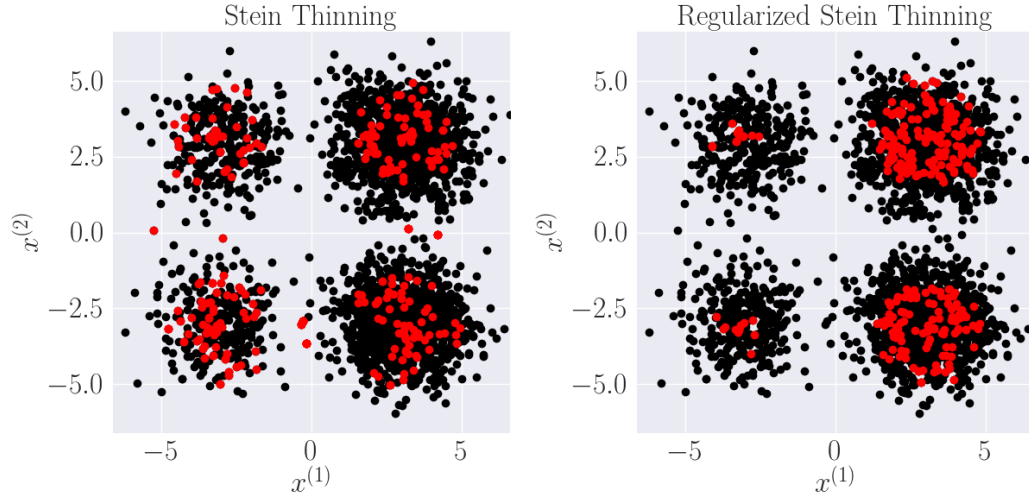


Two additional experiments with multiple modes

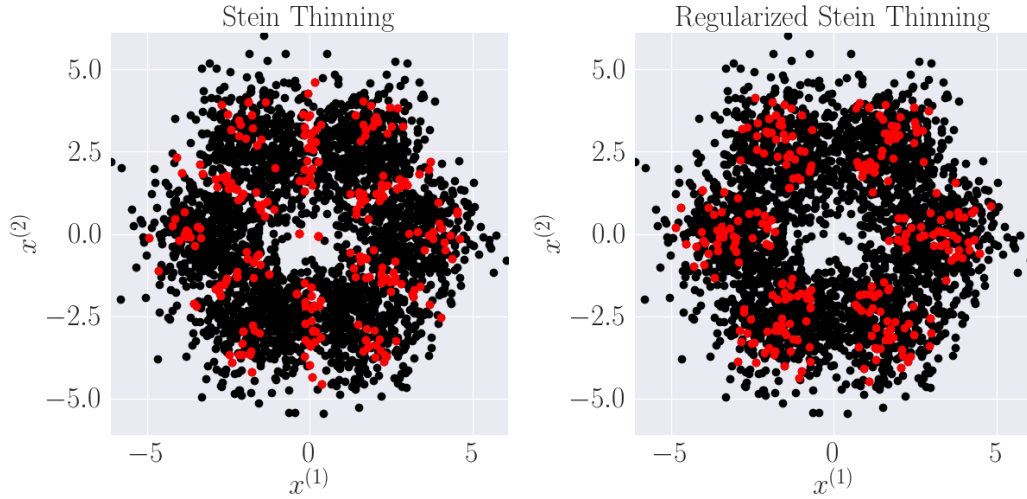
1 Mixture of four unbalanced distant Gaussian modes

In this example, we consider a mixture of four Gaussians with modes $\mu_1 = (-3, 3)$, $\mu_2 = (-3, -3)$, $\mu_3 = (3, 3)$, and $\mu_4 = (3, -3)$ and weights $w_1 = w_2 = 0.1$, $w_3 = w_4 = 0.4$, respectively. This example shows that vanilla Stein thinning is not able to capture the right proportions, while regularized Stein thinning appropriately penalizes modes with lower weights.



2 Mixture of six balanced Gaussians

In this example, we consider a mixture of six Gaussians centered as in Qiu and Wang [2023] with equal proportions. This example illustrates Pathology II for a target distribution with multiple modes, which is corrected by our regularized variant.



References

Yixuan Qiu and Xiao Wang. Efficient multimodal sampling via tempered distribution flow. *Journal of the American Statistical Association*, (just-accepted):1–24, 2023.