

# Research Paper

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Topic:

## 1 Introduction

$$E = -\text{lse}(\beta, \mathbf{X}^T \boldsymbol{\xi}) + \frac{1}{2} \boldsymbol{\xi}^T \boldsymbol{\xi} + \beta^{-1} \log N + \frac{1}{2} M^2$$

$$E_1(\boldsymbol{\xi}) = \frac{1}{2} \boldsymbol{\xi}^T \boldsymbol{\xi}$$

$$E_2(\boldsymbol{\xi}) = -\text{lse}(\beta, \mathbf{X}^T \boldsymbol{\xi})$$

$$\nabla_{\boldsymbol{\xi}} E_1^{t+1} = -\nabla_{\boldsymbol{\xi}} E_2^t$$