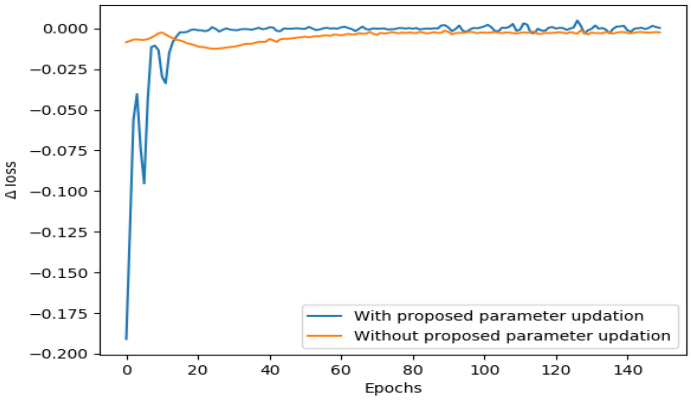
1 Ablation studies

The proposed work's superior performance is contingent upon various novel components and to visualize the contribution of each one, ablation analysis was carried out.

1.1 Performance with/without using Information Theory

1.2 Performance with/without using Novel parameter updation

To understand the criticality of Novel parameter updation step mentioned in section[] while pre-training, the ablation study was conducted. Firstly, instead of using the proposed parameter updation step (Eq 19 and 20), Eq[] were used, in which the loss factor was assigned with simple euclidean distance between best bin [] and k^{th} bin.
$W_{k,j}^{new} = W_{k,j}^{old} - \eta 1/2\sqrt{(M_k^i - M_{best}^i)^2}$, where η is the decay parameter identical to [] in Eqn [] & []. Without any other changes the model was evaluated using MNIST dataset. Figure [] shows the rate of change of loss with&without using the proposed parameter updation.



1.3 Performance with/without using K-Helly property