

# Fully Feedforward Unsupervised Features Learning in Early Visual Layers with Binary-STDP

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## SUBMISSION DETAILS

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**Presentation Abstract Summary** We present a binary variant of the STDP learning rule which perform unsupervised feature learning in feedforward convolutional neural networks with several layers. The addition of two prior, Winner-Takes-All and weight normalization mechanisms, stabilizes the training and allows us to obtain early visual features similar to the ones observed in the early visual cortex. We show that the features learn sparse representations and are relevant for visual classification task, validated on the MNIST and CIFAR-10 datasets.

**Paper Upload (PDF)** [CCN\\_P\\_Ferre\\_F\\_Mamalet\\_S\\_Thorpe.pdf](#)

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## Keywords

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## Early Visual Layers