
MANUELA GIROTTI, Saint Mary's University, Mila Institute

Convergence Analysis and Implicit Regularization of Feedback Alignment for Deep Linear Networks

We consider the Feedback Alignment algorithm, an bio-plausible alternative to backpropagation for training neural networks, and we analyze (1) convergence rates for deep linear networks and (2) incremental learning phenomena for shallow linear networks. Interestingly, depending on the initialization, the principal components of the model may be learned first (implicit regularization) or after (implicit anti-regularization) the negligible ones, thus affecting the effectiveness of the learning process.