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Alexander M. Powell*, Vanderbilt University, Department of Mathematics, Nashville, TN 37240, and **Jonathan Ashbrock**, Vanderbilt University, Department of Mathematics, Nashville, TN 37240. *Stochastic Markov gradient descent for training low-bit neural networks.*

We discuss stochastic Markov gradient descent (SMGD) as an algorithm for training neural networks with low-bit weights. SMGD utilizes only low-bit weight vectors at every stage of the training process. We prove theoretical error bounds for SMGD and also show that the approach performs well numerically. (Received September 16, 2019)