1098-90-319 **James C Spall***, james.spall@jhuapl.edu, and **Karla Hernández**. *Extending Cyclic Seesaw Optimization from Deterministic Setting to Noisy Setting.*

Consider the problem of optimizing a function with respect to multiple parameters. A known approach to such optimization in the deterministic setting is the cyclic (or alternating or block coordinate) method, where the full parameter vector is divided into two or more subvectors and the process proceeds by sequentially optimizing each of the subvectors, while holding the remaining parameters at their most recent values. Because our focus is on the division of the full parameter vector into two subvectors, we sometimes refer to the resulting back-and-forth cyclic process as a "seesaw" process. Reasonable conditions exist in the deterministic setting under which it is known that the cyclic seesaw scheme leads to parameter estimates that converge to the optimal joint value for the full vector of unknown parameters. In this paper we consider a non-trivial extension of the known results to the setting of cyclic stochastic optimization where loss function measurements contain noise. We give a set of convergence conditions for a cyclic version of stochastic gradient and SPSA. Further, numerical results are presented comparing cyclic methods and non-cyclic (standard) methods and some conjectures are offered relative to the formal rate of convergence. (Received January 28, 2014)