

STATISTICAL BIAS CORRECTION FOR STOCHASTIC OPTIMIZATION

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Stochastic approximation is used to solve a (possibly constrained) non-linear problem under noisy observations. The underlying model has a constant parameter λ which is unknown. Although this is not a parameter of interest for the optimization, the procedure may produce asymptotically unbiased estimates, even if some kind of concurrent estimation is used to estimate λ (as in the so-called quasi-static method). We propose a statistical correction and show that under general assumptions it reduces the bias and speeds convergence. For a particular application in flow networks, it turns out that our corrected procedure also has reduced variance.