

Tracking analysis of maximum versoria Criterion based adaptive filter

ABSTRACT

Recently, maximum Versoria criterion-based adaptive algorithms have been introduced as a new solution for robust adaptive filtering. This paper studies the steady-state tracking analysis of an adaptive filter with maximum Versoria criterion (MVC) in a non-stationary (Markov time-varying) system. Our analysis relies on the energy conservation method. Both Gaussian and general non-Gaussian noise are considered, and for both cases, the closed-form expression for steady-state excess mean square error (EMSE) is derived. Regardless of noise type, unlike the stationary environment, the EMSE curves are not increasing functions of step-size parameter. The validity of the theoretical results is justified via simulation.