

The adaptive algorithms used for acoustic echo cancellation (AEC) have to provide 1) high convergence rates and good tracking capabilities, since the acoustic environments imply very long and time-variant echo paths, and 2) low misadjustment and robustness against background noise variations and double-talk. In this context, the affine projection algorithm (APA) and different versions of it are very attractive choices for AEC. But an APA with a constant step-size parameter has to compromise between the performance criteria 1) and 2). Therefore, a variable step-size APA (VSS-APA) represents a more reliable solution. In this paper, we propose a VSS-APA derived in the context of AEC. Most of the APAs aim to cancel  $p$  (i.e., projection order) previous a posteriori errors at every step of the algorithm. The proposed VSS-APA aims to recover the near-end signal within the error signal of the adaptive filter. Consequently, it is robust against near-end signal variations (including double-talk). This algorithm does not require any a priori information about the acoustic environment, so that it is easy to control in practice. The simulation results indicate the good performance of the proposed algorithm as compared to other members of the APA family.