

Proportionate-type normalized least-mean-square algorithms were developed in the context of echo cancellation. In order to further increase the convergence rate and tracking, the “proportionate” idea was applied to the affine projection algorithm (APA) in a straightforward manner. The objective of this letter is twofold. First, a general framework for the derivation of proportionate-type APAs is proposed. Second, based on this approach, a new proportionate-type APA is developed, taking into account the “history” of the proportionate factors. The benefit is also twofold. Simulation results indicate that the proposed algorithm outperforms the classical one (achieving faster tracking and lower misadjustment). Besides, it also has a lower computational complexity due to a recursive implementation of the “proportionate history.”