Adaptive iterative learning control for linear discrete time-varying system with batch-varying reference trajectories

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This paper presents adaptive iterative learning control (A-ILC) schemes for linear discrete time-varying system with batch-varying reference trajectories. Generally, reference trajectories should be identical for all iterations to implement the ILC. However, references can be changed in dynamic systems such as robotics and chemical processes according to cycle or batch. A-ILC scheme for batch-varying references is proposed in norm optimal ILC form. The most important issue in the proposed ILC schemes is to estimate the precise model. For this issue, Observer/Kalman filter identification (OKID) and recursive least squares (RLS) are used.