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Kalman Filtering Through the Feedback Adaption of Prior Error Covariance

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Highlights:

- A novel covariance adaption based Kalman filter is elaborated for linear time-invariant systems without *a priori* and accurate knowledge about the process noise covariance;
- The innovative idea of proposed covariance propagation scheme is to online calibrate the prior error covariance through feedback excavation of the posterior stochastic sequence;
- Without requiring any additional computational cost, proposed adaptive Kalman filter could significantly relax Kalman theory's constraint on accurate statistic knowledge of process noise.

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