

An Algorithm to Compute the State Estimation of a Bilinear Dynamical Systems

Authors : Abdullah Eyal Al Mazrooei

Abstract : In this paper, we introduce a mathematical algorithm which is used for estimating the states in the bilinear systems. This algorithm uses a special linearization of the second-order term by using the best available information about the state of the system. This technique makes our algorithm generalizes the well-known Kalman estimators. The system which is used here is of the bilinear class, the evolution of this model is linear-bilinear in the state of the system. Our algorithm can be used with linear and bilinear systems. We also here introduced a real application for the new algorithm to prove the feasibility and the efficiency for it.

Keywords : estimation algorithm, bilinear systems, Kalman filter, second order linearization

Conference Title : ICMSCMA 2016 : International Conference on Mathematical Sciences, Computational Methods and Algorithms

Conference Location : Zurich, Switzerland

Conference Dates : September 15-16, 2016