عنوان مقاله:

Closed Loop Identification of Multi-Rate System by Expectation-Maximization

نویسندگان:

somayeh Jokar - *Department of Electrical Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran*

Amin Ramezani - *Department of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran*

Mehdi Siahi - *Department of Electrical Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran*

خلاصه مقاله:

Closed-loop identification of multi-rate system with unknown parameters, that including prevalent non-uniform sampling data, is considered. The purpose is to identify a multi-rate closed loop model to approximate the parameters varying system. As far as the research has been done, the identification of multi-rate closed loop model with unknown parameters by using the expectation-maximization algorithm has not been done. To address this challenge, the two-stage method and expectation-maximization algorithm are applied in this paper to identify unknown parameters of system. In this case, by introducing the hidden variable, an EM is utilized to estimate the unknown model parameters. And also, it will be demonstrated that, to estimate of system parameters, Instead of the point estimate of the time variable, the full probability distribution of the time variable estimate is required. The performance of this procedure represents by simulation, and obtain consequences affirm that method has high precision and also has a high convergence speed. These simulations express that the performance of this algorithm is good, as the identified parameters accede the true parameters after several iterations. The Monte Carlo simulation with different noise realizations at SNR=۲۶dB and SNR=۴۶ dB are performed for showing the effectiveness of mentioned algorithm.

کلمات کلیدی:

Closed loop system, identification, Multi-rate system, Expectation-maximization

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1705129