عنوان مقاله:

Walking parameter estimation of human leg using extended Kalman filter

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خلاصه مقاله:

Human motion tracking is a significant problem in the rehabilitation phase of people with leg injuries. To monitor and analyze them in a reliable way under low cost, Knee and thigh angles of the human leg are estimated using sensors. The human leg is modeled as a two link revolute joint robot. Initially, switched linear models of the human leg are considered. Since linear models are considered, Kalman filtering algorithm is applied to obtain the values of the estimates. Results are obtained for Kalman filtering algorithm and it is observed that, estimates cannot be obtained on using Kalman filtering algorithm. On considering the non-linearity of the human leg, the nonlinear model is obtained. The parameters are estimated using the Extended Kalman filtering algorithm. The results are obtained and are reliable. Based on these values, the rate of recovery of the patient during rehabilitation phase can be assessed. Furthermore, this data can be sent to physicians over the Internet of Things.

کلمات کلیدی:

Switched linear model, Extended Kalman filter

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