

عنوان مقاله:

Robust Three Stage Central Difference Kalman Filter for Helicopter Unmanned Aerial Vehicle Actuators Fault Estimation

محل انتشار:

ماهنامه بین المللی مهندسی، دوره 34، شماره 5 (سال: 1400)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Z. Nejati - *Department of Electrical and Computer Engineering, University of Kashan, Kashan, Iran*

A. Faraji - *Department of Electrical and Computer Engineering, University of Kashan, Kashan, Iran*

M. Abedi - *Department of Electrical Engineering, University of Shahid Beheshti, Tehran, Iran*

خلاصه مقاله:

This paper proposes state and fault estimations for uncertain time-varying nonlinear stochastic systems with unknown inputs. we suppose, the information about the fault and unknown inputs is not perfectly known. For this purpose, in this manuscript, we developed a robust three-stage central difference Kalman filter (RThSCDKF). We used RThSCDKF for model-based fault detection and identification (FDI) in nonlinear hover mode of helicopter unmanned aerial vehicle (HUAV) in the presence of external disturbance. In this system, actuator faults are affected by each other. The proposed method estimates and decouples actuator faults in the presence of external disturbances. This model can detect stuck and floating faults that are important to detect. At the end, this method is compared with the three-stage extended Kalman filter (ThSEKF). Simulation results show the effectiveness of the proposed robust method for detection and isolation of various actuator faults and also this shows more accuracy with respect to .ThSEKF

کلمات کلیدی:

Nonlinear Model, Floating actuator Fault, Stuck Actuator Faults

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