

Simplex Unscented Quadrature Information Filter

This paper presents a novel nonlinear state estimation algorithm called simplex unscented quadrature information filter (SUQIF) for distributed multi-sensor fusion problem. First, simplex unscented information filter (SUIF) is built based on extended information filter (EIF) and simplex unscented Kalman filter (SUKF). Then Gauss-Laguerre quadrature rule is used in the new filter to improve the accuracy and finally the simplex unscented quadrature information filter (SUQIF) is obtained. A highly maneuvering target tracking problem in a distributed sensor network is used to validate the performance of SUQIF. Results show that SUQIF is superior to EIF and SUIF in accuracy.