

EEI-KOLLOQUIUM

Unscented Transformation and its Application in State Estimation and Reliability Estimation

Dr.-Ing. Jan Richter

Siemens A.G.

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Cauerstraße 7/9, Hörsaal H5

Diskussionsleitung: Prof. Dr.-Ing. T. Moor

This talk discusses the unscented transformation and two selected uses in estimation applications: the unscented Kalman filter, a classical application, and on reliability estimation, a new application. The unscented transformation was developed for solving nonlinear filtering problems with severe time constraints and led to the development of the unscented Kalman filter with mild computational complexity. It is a second-order estimation method by its accuracy, but the calculation of Jacobians or Hessians is not required. Since its introduction, the unscented transformation has found wide applications in areas such as filtering, smoothing, joint state and parameter estimation, machine learning, classification, and others.