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Unscented Kalman Filter used for Simultaneous Localization and Mapping

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Abstract:

A robot measures his surrounding Landscape and constructs a map. But, the measurement is corrupted by noise and error. To get rid of these errors the robot includes recursive bayesian Filter. The best known approach for solving Simultaneous Localization and Mapping (SLAM) problem uses Extended Kalman Filter (EKF). The EKF employs first order Taylor approximation to nonlinear function linearization.

Unscented Kalman Filter (UKF) uses sigma point transformation for approximation of nonlinear functions. UKF is a recent alternative to EKF in SLAM problem. UKF belongs to the class of “weighted statistical linear regressors” the estimation is derivativeless and comparable fast to EKF.

About the Speaker:

Mr. Matthias Dilger was born in Reutlingen, Germany, on 2nd Sep. 1984.He received as a B.S. degree University of Stuttgart in 2007. He is presently a graduate student at University of Stuttgart.

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