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1.4.2.3. Bicycle model 1.4.3. Roll dynamics and lateral load transfer evaluation; 1.5. Summary; Chapter 2. Estimation Methods Based on Kalman Filtering; 2.1. Introduction; 2.2. State-space representation and system observability; 2.2.1. Linear system; 2.2.2. Nonlinear system; 2.3. Estimation method: why stochastic models?; 2.3.1. Closed-loop observer; 2.3.2. Choice of the observer type; 2.4. The linear Kalman filter; 2.5. Extension to the nonlinear case; 2.6. The unscented Kalman filter; 2.6.1. Unscented transformation; 2.6.2. UKF algorithm  
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## Sommario/riassunto

Vehicle dynamics and stability have been of considerable interest for a number of years. The obvious dilemma is that people naturally desire to drive faster and faster yet expect their vehicles to be "infinitely" stable and safe during all normal and emergency maneuvers. For the most part, people pay little attention to the limited handling potential of their vehicles until some unusual behavior is observed that often results in accidents and even fatalities. This book presents several model-based estimation methods which involve information from current potential-integrable sensors.

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