

DEPARTMENT OF INDUSTRIAL AND ENTERPRISE SYSTEMS ENGINEERING

GE/IE 590 SEMINAR

Stability in Nonlinear Filtering: Theory and Applications

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Abstract

It is well known that the stability of the Kalman filter is governed by ergodicity, observability or detectability properties of the underlying model. I will discuss a collection of recent results that establish a nonlinear counterpart of the stability theory of Kalman filters, which holds in the very general setting of Markov additive processes (in continuous time) or general state space hidden Markov models (in discrete time). The stability theory plays a key role in the analysis of particle filtering algorithms, sequential decisions under partial information, and the stationary estimation error in the small noise regime.

Biography

Ramon van Handel received the Ph.D. degree from the California Institute of Technology in 2007. He is currently an Assistant Professor of Operations Research and Financial Engineering at Princeton University.

His broad research interests are in probability theory, stochastic analysis, and their applications. He has a particular interest in stochastic systems with partial information and related problems of nonlinear estimation, stochastic control, statistical inference, and information theory.

Location: 101 Transportation Building
Date: Thursday, October 29, 2009
Time: 4-5 p.m.