The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

On

Improved particle filters for multi-target tracking

by

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Abstract

Multi-target tracking is a central and difficult problem arising in different contexts ranging from military applications to biology. The tracking problem consists of computing the best estimate of the targets' trajectories based on noisy measurements (observations). In this talk we will present a novel approach for improving particle filters for multi-target tracking. The suggested approach is based on drift homotopy for stochastic differential equations. Drift homotopy is used to design a Markov Chain Monte Carlo step which is appended to the particle filter and aims to bring the particle filter samples closer to the observations while at the same time respecting the target dynamics. We have used the proposed approach on the problem of multi-target tracking with a nonlinear observation model. The numerical results show that the suggested approach can improve significantly the performance of a particle filter. This is joint work with Panos Stinis.

Date : December 5, 2011 (Monday)

Time : 11:00 a.m. – 12:00 noon

Venue : HJ610, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***