

Accepted Manuscript

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PII: S0263-2241(18)30154-4
DOI: <https://doi.org/10.1016/j.measurement.2018.02.055>
Reference: MEASUR 5303

To appear in: *Measurement*

Received Date: 29 June 2017
Revised Date: 20 February 2018
Accepted Date: 23 February 2018



Please cite this article as: S. Sadat Hosseini, M.M. Jamali, S. Särkkä, Variational Bayesian Adaptation of Noise Covariances in Multiple Target Tracking Problems, *Measurement* (2018), doi: <https://doi.org/10.1016/j.measurement.2018.02.055>

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Variational Bayesian Adaptation of Noise Covariances in Multiple Target Tracking Problems

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Abstract

Multiple Target Tracking (MTT) is the process of computing the number of targets present in a surveillance area. MTT requires estimation of state variables and data association. New measurements are associated with existing tracks, clutter or new tracks. MTT generally involves unknown number of targets. Mostly because of computational complexity faced by MTT algorithms, it is a difficult and challenging problem. Computational load, underlying assumptions of known number of targets, and high cluttered environment are the main reasons, which available methods cannot address properly. Rao-Blackwellized has been used for multiple target tracking. It uses Kalman filter for state estimation and particle filter for data association. Our objective is to extend Rao-Blackwellized Monte Carlo Data Association (RBMCD) that

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