A Multi-Sensor, Gibbs Sampled, Implementation of the Multi-Bernoulli Poisson Filter

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 This paper introduces and addresses the implementation of the Multi-Bernoulli Poisson (MBP) filter in multi-target tracking. A performance evaluation in a real scenario, in which a 3D lidar, automotive radar and a video camera are used for tracking people will be provided. For implementation purposes, a Gaussian Mixture (GM) approximation of the MBP filter is used. Comparisons with state of the art GM-?-GLMB and GM-?-GMBP filters show similar accuracy, despite the need for less parameters, and therefore less computational cost, within the GM-MBP filter. Further performance improvements of the GM-MBP filter are shown, based on birth intensity and survival distributions, which take into account the common field of view of the sensors and the variation of time steps between asynchronous measurements.