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Nota di contenuto	Bayesian Multiple Target Tracking Second Edition; Contents; Preface; Introduction; Acknowledgments; Chapter 1 Tracking Problems; 1.1 DESCRIPTION OF TRACKING PROBLEM; 1.2 EXAMPLE 1: TRACKING A SURFACE SHIP; 1.3 EXAMPLE 2: BEARINGS-ONLY TRACKING; 1.4 EXAMPLE 3: PERISCOPE DETECTION AND TRACKING; 1.5 EXAMPLE 4: TRACKING MULTIPLE TARGETS; 1.6 SUMMARY; Chapter 2 Bayesian Inference and Likelihood Functions; 2.1 THE CASE FOR BAYESIAN INFERENCE; 2.2 THE LIKELIHOOD FUNCTION AND BAYES' THEOREM; 2.3 EXAMPLES OF LIKELIHOOD FUNCTIONS; Chapter 3 Single Target Tracking; 3.1 BAYESIAN FILTERING. 3.2 KALMAN FILTERING3.3 PARTICLE FILTER IMPLEMENTATION OF NONLINEARFILTERING; 3.4 SUMMARY; Chapter 4 Classical Multiple Target Tracking; 4.1 MULTIPLE TARGET TRACKING; 4.2 MULTIPLE HYPOTHESIS TRACKING; 4.3 INDEPENDENT MULTIPLE HYPOTHESIS TRACKING; 4.4 LINEAR-GAUSSIAN MULTIPLE HYPOTHESIS TRACKING; 4.5 NONLINEAR JOINT PROBABILISTIC DATA ASSOCIATION; 4.6 PROBABILISTIC MULTIPLE HYPOTHESIS TRACKING; 4.7 SUMMARY; 4.8 NOTES; Chapter 5 Multitarget Intensity Filters; 5.1 POINT PROCESS MODEL OF MULTITARGET STATE; 5.2 iFILTER; 5.3 PHD FILTER; 5.4 PGF

APPROACH TO THE iFILTER; 5.5 EXTENDED TARGET FILTERS.
5.6 SUMMARY5.7 NOTES; Chapter 6 Multiple Target Tracking Using Tracker-Generated Measurements; 6.1 MAXIMUM A POSTERIORI PENALTY FUNCTION TRACKING; 6.2 PARTICLE FILTER IMPLEMENTATION; 6.3 LINEAR-GAUSSIAN IMPLEMENTATION; 6.4 EXAMPLES; 6.5 SUMMARY; 6.6 NOTES; 6.7 SENSOR ARRAY OBSERVATION MODEL AND SIGNALPROCESSING; Chapter 7 Likelihood Ratio Detection and Tracking; 7.1 BASIC DEFINITIONS AND RELATIONS; 7.2 LIKELIHOOD RATIO RECURSIONS; 7.3 DECLARING A TARGET PRESENT; 7.4 LOW-SNR EXAMPLES OF LRDT; 7.5 THRESHOLDED DATA WITH HIGH CLUTTER RATE; 7.6 GRID-BASED IMPLEMENTATION.
7.7 MULTIPLE TARGET TRACKING USING LRDT7.8 iLRT; 7.9 SUMMARY; 7.10 NOTES; Appendix: Gaussian Density Lemma; About the Authors; Index.

Sommario/riassunto

This book views multiple target tracking as a Bayesian inference problem. Within this framework it develops the theory of single target tracking, multiple target tracking, and likelihood ratio detection and tracking. In addition to providing a detailed description of a basic particle filter that implements the Bayesian single target recursion, this resource provides numerous examples that involve the use of particle filters. With these examples illustrating the developed concepts, algorithms, and approaches -- the book helps radar engineers develop tracking solutions when observations are non-linear functions of target state, when the target state distributions or measurement error distributions are not Gaussian, in low data rate and low signal to noise ratio situations, and when notions of contact and association are merged or unresolved among more than one target. --