



Fundamentals of Object Tracking

By Subhash Challa, Mark R. Morelande, Darko Mušicki, Robin J. Evans

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Kalman filter, particle filter, IMM, PDA, ITS, random sets... The number of useful object-tracking methods is exploding. But how are they related? How do they help track everything from aircraft, missiles and extra-terrestrial objects to people and lymphocyte cells? How can they be adapted to novel applications? Fundamentals of Object Tracking tells you how. Starting with the generic object-tracking problem, it outlines the generic Bayesian solution. It then shows systematically how to formulate the major tracking problems - maneuvering, multiobject, clutter, out-of-sequence sensors - within this Bayesian framework and how to derive the standard tracking solutions. This structured approach makes very complex object-tracking algorithms accessible to the growing number of users working on real-world tracking problems and supports them in designing their own tracking filters under their unique application constraints. The book concludes with a chapter on issues critical to successful implementation of tracking algorithms, such as track initialization and merging.

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Editorial Review

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Subhash Challa is a Senior Principal Research Scientist at NICTA (National ICT Australia) VRL at the University of Melbourne (UoM). He is also one of the co-founders of SenSen Networks Pty Ltd and has been the Director and CTO of the company.

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