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RSS-AoA-based Target Localization and Tracking in Wireless Sensor Networks

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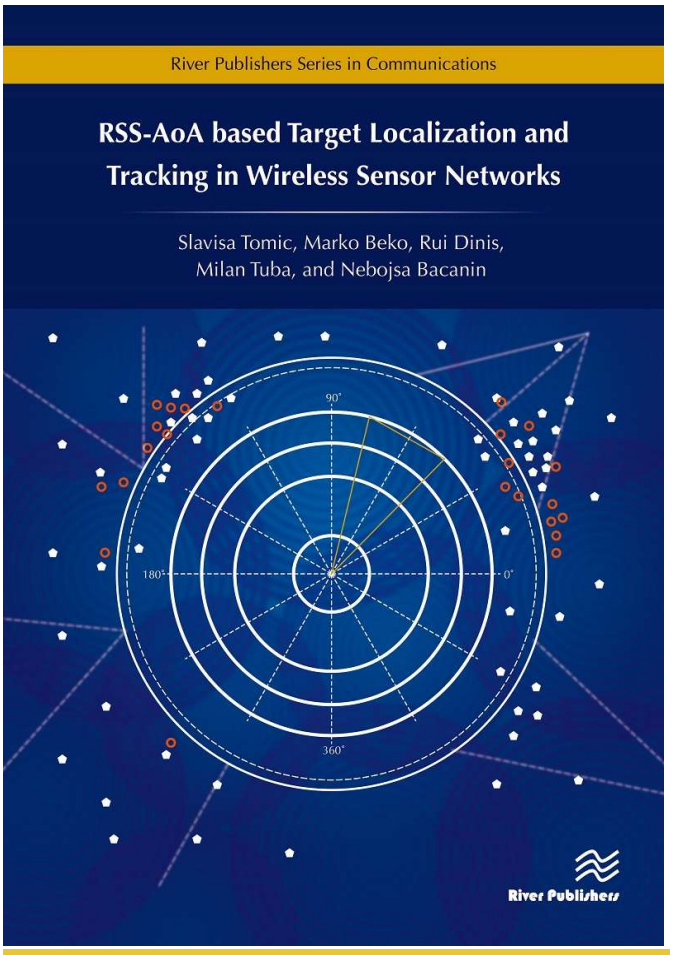
The desire for precise knowledge about the location of a moving object at any time instant has motivated a great deal of scientific research recently. This is owing to a steady expansion of the range of enabling devices and technologies, as well as the need for seamless solutions for location-based services. Besides localization accuracy, a common requirement for emerging solutions is that they are cost-abstemious, both in terms of the financial and computational cost. Hence, development of localization strategies from already deployed technologies, e.g., from different terrestrial radio frequency sources is of great practical interest. Amongst other, these include localization strategies based on received signal strength (RSS), time of arrival, angle of arrival (AoA) or a combination of them.

RSS-AoA-based Target Localization and Tracking in Wireless Sensor Networks presents recent advances in developing algorithms for target localization and tracking, reflecting the state-of-the-art algorithms and research achievements in target localization and tracking based on hybrid (RSS-AoA) measurements.

Technical topics discussed in the book include:

- Centralized RSS-AoA-based Target Localization
- Distributed RSS-AoA-based Target Localization
- RSS-AoA-based Target Tracking via Maximum A Posteriori Estimator
- RSS-AoA-based Target Tracking via Kalman Filter
- RSS-AoA-based via Sensor Navigation

This book is of interest for personnel in telecommunications and surveillance industries, military, smart systems, as well as academic staff and postgraduate/research students in telecommunications, signal processing, and non-smooth and convex optimization.



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Target localization, target tracking, received signal strength (RSS), angle of arrival (AoA), maximum likelihood (ML) estimation, second-order cone programming (SOCP) problem, semidefinite programming (SDP) problem, generalized trust region sub-problem (GTRS), maximum a posteriori (MAP) estimator, Kalman filter (KF).

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