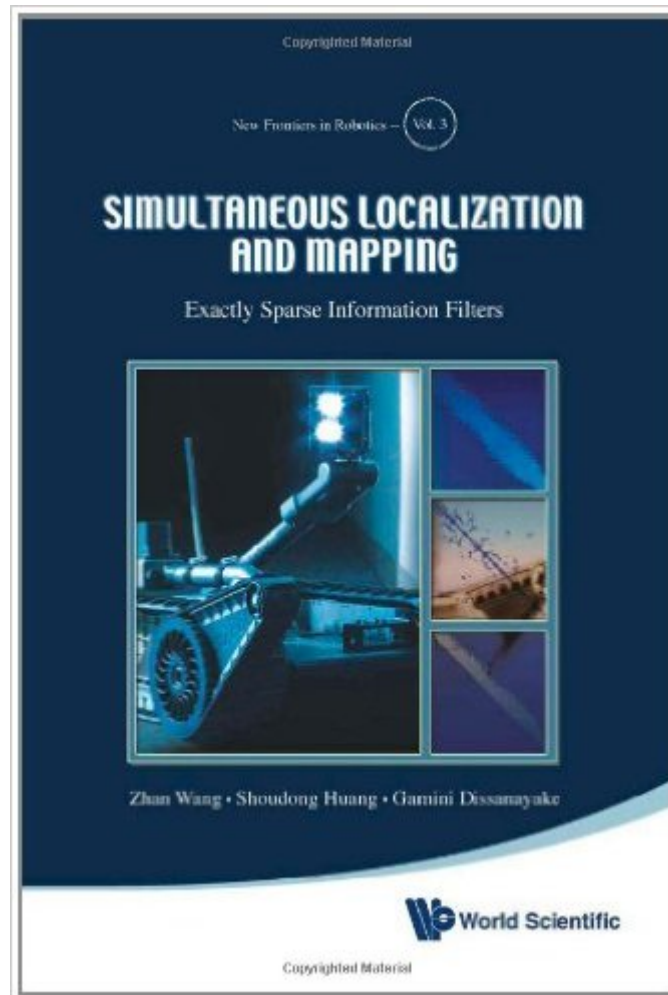


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# Simultaneous Localization And Mapping: Exactly Sparse Information Filters (New Frontiers In Robotics)



## Synopsis

Simultaneous localization and mapping (SLAM) is a process where an autonomous vehicle builds a map of an unknown environment while concurrently generating an estimate for its location. This book is concerned with computationally efficient solutions to the large scale SLAM problems using exactly sparse Extended Information Filters (EIF). The invaluable book also provides a comprehensive theoretical analysis of the properties of the information matrix in EIF-based algorithms for SLAM. Three exactly sparse information filters for SLAM are described in detail, together with two efficient and exact methods for recovering the state vector and the covariance matrix. Proposed algorithms are extensively evaluated both in simulation and through experiments.

## Book Information

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## Customer Reviews

Nice introduction to the application of information filters in Simultaneous Localization and Mapping. It is not an introduction to the subject but most certainly one of the authors' PhD work turned to a book. It is well written for use of graduate students working in the area. My own thesis was not as readable so it is good for what it is.

Well written. Clear and complete. Good background on SLAM. The authors work through the gory math details in a clear and easy to follow manner. Overall, one of the more clear math-ish books I've read lately. The main contributions of this book are 1) good explanation of the EIF and sparse

methods2) D-SLAM and extensions3) Sparse Local Submap Joining AlgorithmThe authors also provide good simulation and real-world test examples.

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