

Optimal Estimation of Dynamic Systems, Second Edition (Chapman & Hall/CRC Applied Mathematics & Nonlinear Science)

By John L. Crassidis, John L. Junkins



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Optimal Estimation of Dynamic Systems, Second Edition highlights the importance of both physical and numerical modeling in solving dynamics-based estimation problems found in engineering systems. Accessible to engineering students, applied mathematicians, and practicing engineers, the text presents the central concepts and methods of optimal estimation theory and applies the methods to problems with varying degrees of analytical and numerical difficulty. Different approaches are often compared to show their absolute and relative utility. The authors also offer prototype algorithms to stimulate the development and proper use of efficient computer programs. MATLAB® codes for the examples are available on the book's website.

New to the Second Edition

With more than 100 pages of new material, this reorganized edition expands upon the best-selling original to include comprehensive developments and updates. It incorporates new theoretical results, an entirely new chapter on advanced sequential state estimation, and additional examples and exercises.

An ideal self-study guide for practicing engineers as well as senior undergraduate and beginning graduate students, the book introduces the fundamentals of estimation and helps newcomers to understand the relationships between the estimation and modeling of dynamical systems. It also illustrates the application of the theory to real-world situations, such as spacecraft attitude determination, GPS navigation, orbit determination, and aircraft tracking.



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• Sales Rank: #617159 in Books • Published on: 2011-10-26 • Original language: English

• Number of items: 1

• Dimensions: 9.25" h x 6.25" w x 1.50" l, 2.55 pounds

• Binding: Hardcover

• 749 pages

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Editorial Review

Review

Praise for the First Edition

A nice feature of this book is that it makes the effort to explain the underlying principles behind the formula for each algorithm; the relationship between different algorithms is equally well addressed. ... The text is a good combination of theory and practice. It will be a valuable addition to references for academic researchers and industrial engineers working in the field of estimation. It will also serve as a useful reference for graduate courses in control and estimation.

?AIAA Journal, Vol. 43, No. 1, January 2005

About the Author

John L. Crassidis, Ph.D., is a professor of mechanical and aerospace engineering and the associate director of the Center for Multisource Information Fusion at the University at Buffalo, State University of New York. He previously worked at Texas A&M University, the Catholic University of America, and NASA's Goddard Space Flight Center, where he contributed to attitude determination and control schemes for numerous spacecraft missions.

John L. Junkins, Ph.D., is a distinguished professor of aerospace engineering and the founder and director of the Center for Mechanics and Control at Texas A&M University. In addition to his historical contributions in analytical dynamics and spacecraft GNC, Dr. Junkins and his team have designed, developed, and demonstrated several new electro-optical sensing technologies.

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