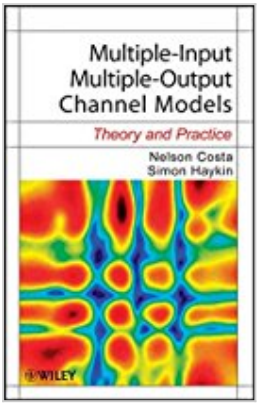

Multiple-Input Multiple-Output Channel Models: Theory and Practice

By Nelson Costa, Simon Haykin

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin

A complete discussion of MIMO communications, from theory to real-world applications

The emerging wireless technology Wideband Multiple-Input, Multiple-Output (MIMO) holds the promise of greater bandwidth efficiency and wireless link reliability. This technology is just now being implemented into hardware and working its way into wireless standards such as the ubiquitous 802.11g, as well as third- and fourth-generation cellular standards.

Multiple-Input Multiple-Output Channel Models uniquely brings together the theoretical and practical aspects of MIMO communications, revealing how these systems use their multipath diversity to increase channel capacity. It gives the reader a clear understanding of the underlying propagation mechanisms in the wideband MIMO channel, which is fundamental to the development of communication algorithms, signaling strategies, and transceiver design for MIMO systems.

MIMO channel models are important tools in understanding the potential gains of a MIMO system. This book discusses two types of wideband MIMO models in detail: correlative channel models—specifically the Kronecker, Weichselberger, and structured models—and cluster models, including Saleh-Valenzuela, European Cooperation in the field of Scientific and Technical Research (COST) 273, and Random Cluster models. From simple to complex, the reader will understand the models' mechanisms and the reasons behind the parameters. Next, channel sounding is explained in detail, presenting the theory behind a few channel sounding techniques used to sound narrowband and wideband channels. The technique of digital matched filtering is then examined and, using real-life data, is shown to provide very accurate estimates of channel gains. The book concludes with a performance analysis of the structured and Kronecker models.

Multiple-Input Multiple-Output Channel Models is the first book to apply tensor calculus to the problem of wideband MIMO channel modeling. Each chapter features a list of important references, including core literary references, Matlab implementations of key models, and the location of databases that can be used to help in the development of new models or communication algorithms. Engineers who are working in the development of telecommunications systems will find this resource invaluable, as will researchers and students at the graduate or post-

graduate level.

Multiple-Input Multiple-Output Channel Models: Theory and Practice

By Nelson Costa, Simon Haykin

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin

A complete discussion of MIMO communications, from theory to real-world applications

The emerging wireless technology Wideband Multiple-Input, Multiple-Output (MIMO) holds the promise of greater bandwidth efficiency and wireless link reliability. This technology is just now being implemented into hardware and working its way into wireless standards such as the ubiquitous 802.11g, as well as third- and fourth-generation cellular standards.

Multiple-Input Multiple-Output Channel Models uniquely brings together the theoretical and practical aspects of MIMO communications, revealing how these systems use their multipath diversity to increase channel capacity. It gives the reader a clear understanding of the underlying propagation mechanisms in the wideband MIMO channel, which is fundamental to the development of communication algorithms, signaling strategies, and transceiver design for MIMO systems.

MIMO channel models are important tools in understanding the potential gains of a MIMO system. This book discusses two types of wideband MIMO models in detail: correlative channel models—specifically the Kronecker, Weichselberger, and structured models—and cluster models, including Saleh-Valenzuela, European Cooperation in the field of Scientific and Technical Research (COST) 273, and Random Cluster models. From simple to complex, the reader will understand the models' mechanisms and the reasons behind the parameters. Next, channel sounding is explained in detail, presenting the theory behind a few channel sounding techniques used to sound narrowband and wideband channels. The technique of digital matched filtering is then examined and, using real-life data, is shown to provide very accurate estimates of channel gains. The book concludes with a performance analysis of the structured and Kronecker models.

Multiple-Input Multiple-Output Channel Models is the first book to apply tensor calculus to the problem of wideband MIMO channel modeling. Each chapter features a list of important references, including core literary references, Matlab implementations of key models, and the location of databases that can be used to help in the development of new models or communication algorithms. Engineers who are working in the development of telecommunications systems will find this resource invaluable, as will researchers and students at the graduate or post-graduate level.

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin Bibliography

- Sales Rank: #4100992 in Books
- Published on: 2010-04-12
- Original language: English
- Number of items: 1
- Dimensions: 9.55" h x .70" w x 6.35" l, 1.05 pounds

- Binding: Hardcover
- 229 pages

Editorial Review

About the Author

Nelson Costa, PhD, is President and CEO of Deus Ex Machina Consulting Inc.

Simon Haykin is Distinguished University Professor at McMaster University, Ontario, Canada.

Users Review

From reader reviews:

Charlie Bowers:

This book untitled Multiple-Input Multiple-Output Channel Models: Theory and Practice to be one of several books this best seller in this year, this is because when you read this e-book you can get a lot of benefit in it. You will easily to buy this book in the book retail store or you can order it by way of online. The publisher on this book sells the e-book too. It makes you easier to read this book, since you can read this book in your Smart phone. So there is no reason to you personally to past this guide from your list.

Harvey Hobbs:

The particular book Multiple-Input Multiple-Output Channel Models: Theory and Practice will bring you to definitely the new experience of reading a new book. The author style to elucidate the idea is very unique. In the event you try to find new book to study, this book very suited to you. The book Multiple-Input Multiple-Output Channel Models: Theory and Practice is much recommended to you to read. You can also get the e-book in the official web site, so you can easier to read the book.

Catherine Acevedo:

You may spend your free time to see this book this e-book. This Multiple-Input Multiple-Output Channel Models: Theory and Practice is simple to create you can read it in the recreation area, in the beach, train in addition to soon. If you did not have much space to bring the printed book, you can buy typically the e-book. It is make you easier to read it. You can save the particular book in your smart phone. So there are a lot of benefits that you will get when one buys this book.

Ross Turner:

That book can make you to feel relax. This specific book Multiple-Input Multiple-Output Channel Models: Theory and Practice was bright colored and of course has pictures around. As we know that book Multiple-Input Multiple-Output Channel Models: Theory and Practice has many kinds or category. Start from kids

until youngsters. For example Naruto or Investigator Conan you can read and think that you are the character on there. Therefore , not at all of book usually are make you bored, any it offers you feel happy, fun and relax. Try to choose the best book for you and try to like reading which.

Read Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin for online ebook

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin books to read online.

Online Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin ebook PDF download

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin Doc

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin Mobipocket

Multiple-Input Multiple-Output Channel Models: Theory and Practice By Nelson Costa, Simon Haykin EPub