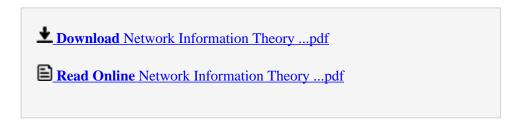# Network Information Theory

By Professor Abbas El Gamal, Young-Han Kim

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim

This comprehensive treatment of network information theory and its applications provides the first unified coverage of both classical and recent results. With an approach that balances the introduction of new models and new coding techniques, readers are guided through Shannon's point-to-point information theory, single-hop networks, multihop networks, and extensions to distributed computing, secrecy, wireless communication, and networking. Elementary mathematical tools and techniques are used throughout, requiring only basic knowledge of probability, whilst unified proofs of coding theorems are based on a few simple lemmas, making the text accessible to newcomers. Key topics covered include successive cancellation and superposition coding, MIMO wireless communication, network coding, and cooperative relaying. Also covered are feedback and interactive communication, capacity approximations and scaling laws, and asynchronous and random access channels. This book is ideal for use in the classroom, for self-study, and as a reference for researchers and engineers in industry and academia.

⬇ Download Network Information Theory ...pdf

▤ Read Online Network Information Theory ...pdf

Network Information Theory

By Professor Abbas El Gamal, Young-Han Kim

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim

This comprehensive treatment of network information theory and its applications provides the first unified coverage of both classical and recent results. With an approach that balances the introduction of new models and new coding techniques, readers are guided through Shannon's point-to-point information theory, single-hop networks, multihop networks, and extensions to distributed computing, secrecy, wireless communication, and networking. Elementary mathematical tools and techniques are used throughout, requiring only basic knowledge of probability, whilst unified proofs of coding theorems are based on a few simple lemmas, making the text accessible to newcomers. Key topics covered include successive cancellation and superposition coding, MIMO wireless communication, network coding, and cooperative relaying. Also covered are feedback and interactive communication, capacity approximations and scaling laws, and asynchronous and random access channels. This book is ideal for use in the classroom, for self-study, and as a reference for researchers and engineers in industry and academia.

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim Bibliography

- Sales Rank: #1467403 in Books
- Published on: 2012-01-16
- Original language: English
- Number of items: 1
- Dimensions: 9.72" h x 1.50" w x 6.85" l, 3.35 pounds
- Binding: Hardcover
- 714 pages

 Download Network Information Theory ...pdf

 Read Online Network Information Theory ...pdf

Download and Read Free Online Network Information Theory By Professor Abbas El Gamal, Young-Han Kim

Editorial Review

Review
"El Gamal and Kim have produced the most extensive and inclusive text on all aspects of information theory to date. They have collected and organized the fruits of six decades of research demonstrating how Shannon's original seminal theory has been enlarged to solve a multitude of important problems mostly encountered in multiple link communication networks. The authors stress the significance of these results for timely applications such as multi-hop wireless networks. Beyond its value as a textbook for an advanced course on information theory, the attention given to motivating applications makes it useful for practicing communication engineers as well."
Andrew Viterbi, University of Southern California and co-founder of Qualcomm, Inc.

"El Gamal and Kim have written a masterpiece. It brings organization and clarity to a large and previously chaotic field. The mathematics is done cleanly and carefully, and the intuition behind the results is brought out with clarity."
Robert G. Gallager, Massachusetts Institute of Technology

"On offer in this text is a superb unified pedagogical treatment including results that heretofore were only available in their original, often arcane, sources. While key regions in network information theory remain terra incognita, future discoveries are bound to owe a debt of gratitude to El Gamal and Kim's comprehensive magnum opus."
Sergio Verdú, Princeton University

"The illustrations are very helpful. The authors cover an impressively large part of information theory; furthermore, they make it accessible. I do not know of any other book on the subject that contains so many topics of practical relevance to communication engineers. I therefore recommend the book to all students, researchers, and practitioners working in the field of communication."
Klaus Galensa, Computing Reviews

"The book is written in a very pedagogical manner, going from simpler models to more sophisticated ones."
Irina Bocharova, Mathematical Reviews

"The presentation is based on basic knowledge of probability and elementary mathematical tools and techniques, making the book accessible to graduate students and for self-study. But the width of covering (this is the first unified treatment of both classical and recent results) makes the book valuable also to researchers and practitioners."
Jaak Henno, Zentralblatt MATH

About the Author
Abbas El Gamal is the Hitachi America Chaired Professor in the School of Engineering and the Chair of the Department of Electrical Engineering at Stanford University. In the field of network information theory, he is best known for his seminal contributions to the relay, broadcast, and interference channels; multiple description coding; coding for noisy networks; and energy-efficient packet scheduling and throughput-delay tradeoffs in wireless networks. He is a Fellow of the IEEE and the winner of the 2012 Claude E. Shannon Award, the highest honor in the field of information theory.

Young-Han Kim is an Associate Professor in the Department of Electrical and Computer Engineering at the University of California, San Diego. His research focuses on information theory and statistical signal processing. He is a recipient of the 2012 IEEE Information Theory Paper Award and the 2008 NSF Faculty Early Career Development (CAREER) Award.

Users Review

From reader reviews:

Terry Tyrrell:

In other case, little folks like to read book Network Information Theory. You can choose the best book if you love reading a book. Provided that we know about how is important a book Network Information Theory. You can add understanding and of course you can around the world with a book. Absolutely right, since from book you can understand everything! From your country right up until foreign or abroad you can be known. About simple factor until wonderful thing it is possible to know that. In this era, we could open a book or searching by internet unit. It is called e-book. You need to use it when you feel bored to go to the library. Let's read.

Errol Sawyer:

Book is to be different for every grade. Book for children till adult are different content. To be sure that book is very important for us. The book Network Information Theory ended up being making you to know about other know-how and of course you can take more information. It is very advantages for you. The reserve Network Information Theory is not only giving you far more new information but also being your friend when you truly feel bored. You can spend your current spend time to read your book. Try to make relationship with the book Network Information Theory. You never feel lose out for everything when you read some books.

Federico Crouch:

Information is provisions for individuals to get better life, information presently can get by anyone on everywhere. The information can be a knowledge or any news even an issue. What people must be consider if those information which is inside former life are challenging be find than now's taking seriously which one is acceptable to believe or which one often the resource are convinced. If you have the unstable resource then you buy it as your main information we will see huge disadvantage for you. All of those possibilities will not happen inside you if you take Network Information Theory as your daily resource information.

Harrison Johnson:

This book untitled Network Information Theory to be one of several books that best seller in this year, that's because when you read this guide you can get a lot of benefit into it. You will easily to buy this specific book in the book store or you can order it through online. The publisher in this book sells the e-book too. It makes you more readily to read this book, since you can read this book in your Smartphone. So there is no reason for you to past this publication from your list.

Download and Read Online Network Information Theory By Professor Abbas El Gamal, Young-Han Kim #BO4XQCKD925

Read Network Information Theory By Professor Abbas El Gamal, Young-Han Kim for online ebook

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim 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 Network Information Theory By Professor Abbas El Gamal, Young-Han Kim books to read online.

Online Network Information Theory By Professor Abbas El Gamal, Young-Han Kim ebook PDF download

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim Doc

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim Mobipocket

Network Information Theory By Professor Abbas El Gamal, Young-Han Kim EPub