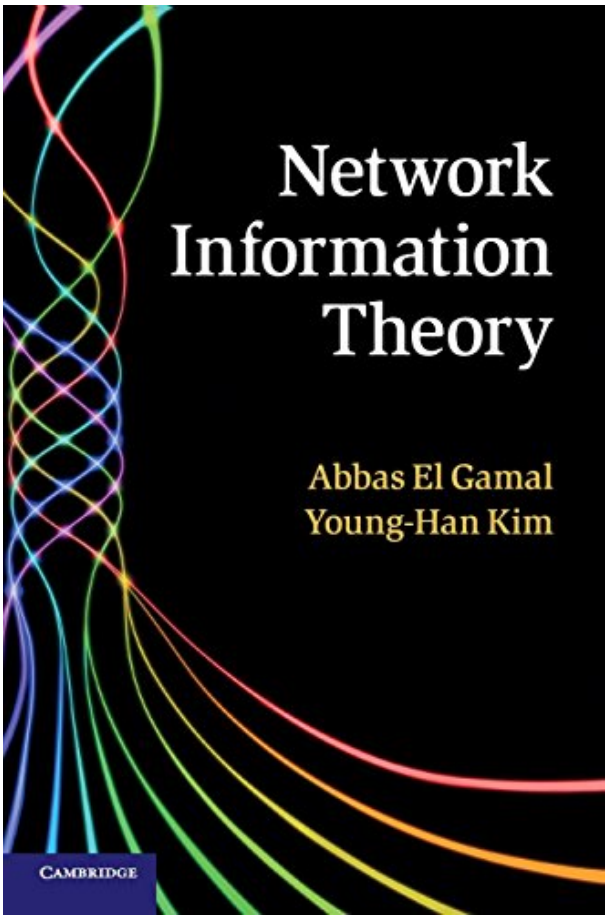
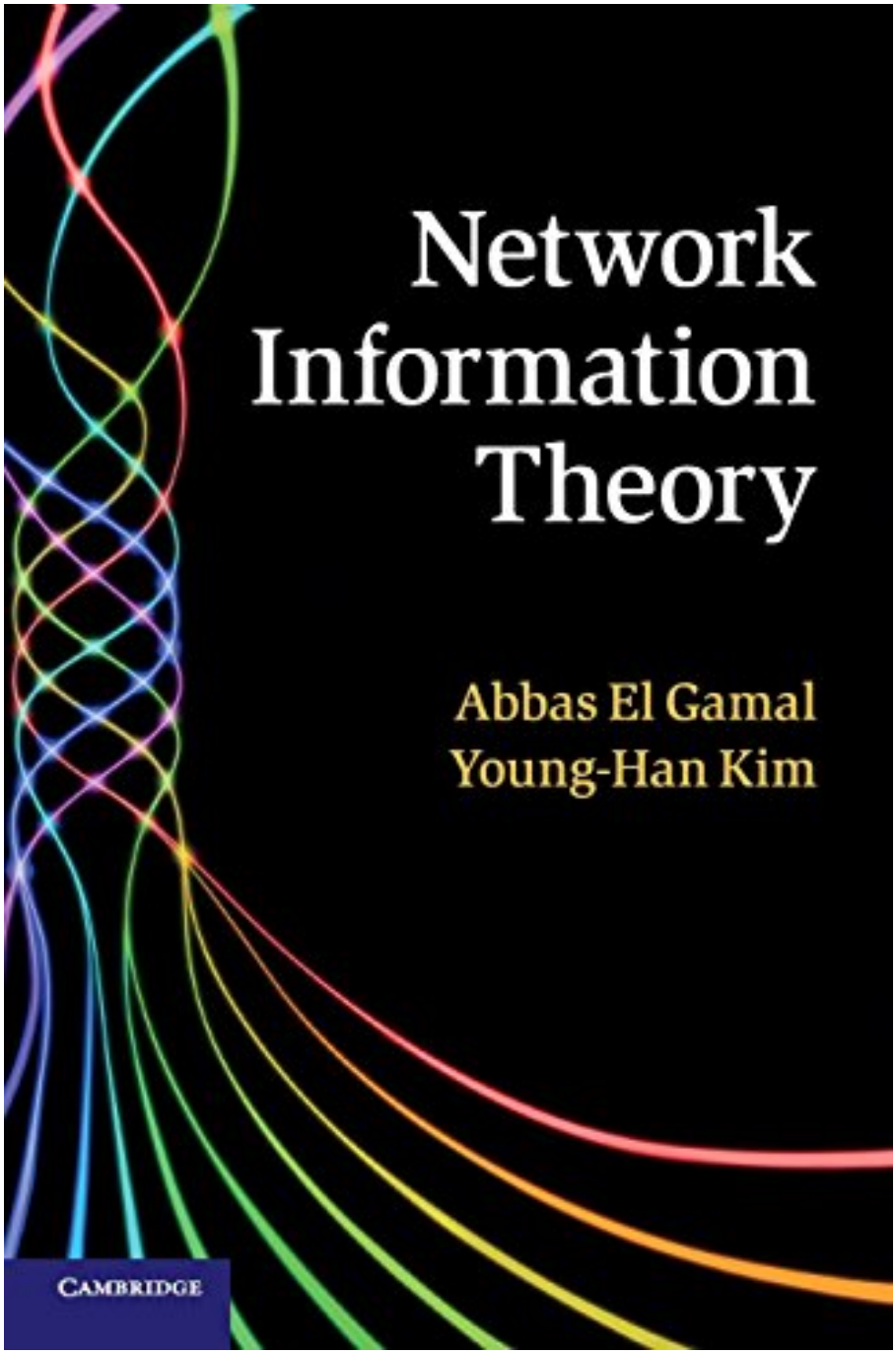
NETWORK INFORMATION THEORY BY PROFESSOR ABBAS EL GAMAL, YOUNG-HAN KIM





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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."
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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.

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Features

- Network Information Theory

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