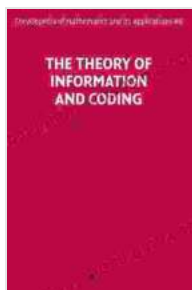# The Theory of Information and Coding Encyclopedia of Mathematics and Its Applications

The Theory of Information and Coding Encyclopedia of Mathematics and Its Applications provides a comprehensive and up-to-date account of the theory of information and coding. The encyclopedia covers a wide range of topics, including the foundations of information theory, coding theory, and applications in areas such as data compression, communication, and cryptography.

The Theory of Information and Coding (Encyclopedia of Mathematics and its Applications Book 86)

★★★★☆ 4 out of 5

Language	: English
File size	: 5188 KB
Screen Reader	: Supported
Print length	: 400 pages

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Foundations of Information Theory

The foundations of information theory are based on the work of Claude Shannon in the 1940s. Shannon developed a mathematical theory of communication that allowed him to quantify the amount of information that can be transmitted through a communication channel. Shannon's work laid the groundwork for the development of modern coding theory.

Information theory is concerned with the measurement, transmission, and storage of information. It provides a framework for understanding how information can be represented, encoded, and decoded. Information theory has applications in a wide range of fields, including communication, data compression, and cryptography.

Coding Theory

Coding theory is concerned with the design of codes that allow information to be transmitted through noisy channels. A code is a set of rules that specify how information is encoded and decoded. The goal of coding theory is to design codes that are efficient and reliable.

Coding theory has applications in a wide range of fields, including communication, data storage, and cryptography. It is used to design codes that protect information from errors that occur during transmission or storage.

Applications of Information Theory and Coding

Information theory and coding have a wide range of applications in modern society. These applications include:

- **Data compression**: Information theory is used to design data compression algorithms that can reduce the size of data files without losing any information.

- **Communication**: Coding theory is used to design codes that protect information from errors that occur during transmission over noisy channels.

- **Cryptography**: Information theory is used to design cryptographic algorithms that protect information from unauthorized access.

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The encyclopedia is written by leading experts in the field and is a valuable resource for researchers, students, and practitioners. The encyclopedia is also a useful reference for anyone who wants to learn more about the theory of information and coding.

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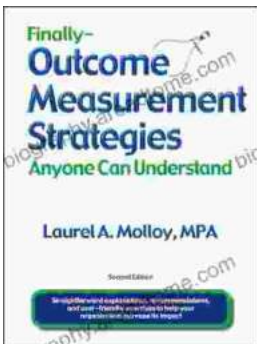
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