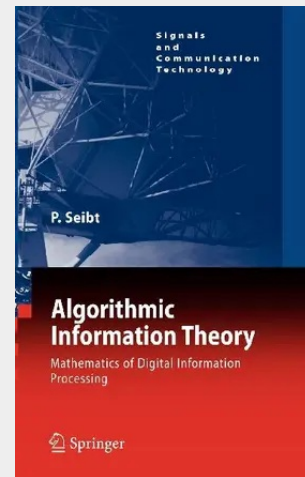


Algorithmic Information Theory

Mathematics of Digital Information Processing

Shall we be destined to the days of eternity, on holy-days, as well as working days, to be shewing the RELICKS OF LEARNING, as monks do the relicks of their saints – without working one – one single miracle with them? Laurence Sterne, Tristram Shandy This book deals with information processing; so it is far from being a book on information theory (which would be built on description and estimation). The reader will be shown the horse, but not the saddle. At any rate, at the very beginning, there was a series of lectures on "Information theory, through the looking-glass of an algebraist", and, as years went on, a steady process of teaching and learning made the material evolve into the present form. There still remains an algebraic main theme: algorithms intertwining polynomial algebra and matrix algebra, in the shelter of signal theory. A solid knowledge of elementary arithmetic and Linear Algebra will be the key to a thorough understanding of all the algorithms working in the various bit-stream landscapes we shall encounter. This priority of algebra will be the thesis that we shall defend. More concretely: We shall treat, in 7ve chapters of increasing difficulty, 7ve sensibly different subjects in Discrete Mathematics. The first two chapters on data compaction (lossless data compression) and cryptography are on an undergraduate level – the most difficult mathematical prerequisite will be a sound understanding of quotient rings, especially of finite fields (mostly in characteristic 2).

Shall we be destined to the days of eternity, on holy-days, as well as working days, to be shewing the RELICKS OF LEARNING, as monks do the relicks of their saints - without working one - one single miracle with them? Laurence Sterne, Tristram Shandy This book deals with information processing; so it is far from being a book on information theory (which would be built on description and estimation). The reader will be shown the horse, but not the saddle. At any rate, at the very beginning, there was a series of lectures on "Information theory, through the looking-glass of an algebraist", and, as years went on, a steady process of teaching and learning made the material evolve into the present form. There still remains an algebraic main theme: algorithms intertwining polynomial algebra and matrix algebra, in the shelter of signal theory. A solid knowledge of elementary arithmetic and Linear Algebra will be the key to a thorough understanding of all the algorithms working in the various bit-stream landscapes we shall encounter. This priority of algebra will be the thesis that we shall defend. More concretely: We shall treat, in 7ve chapters of increasing difficulty, 7ve sensibly different subjects in Discrete Mathematics. The first two chapters on data compaction (lossless data compression) and cryptography are on an undergraduate level - the most difficult mathematical prerequisite will be a sound understanding of quotient rings, especially of finite fields (mostly in characteristic 2).



160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540332183

Medium: Buch

ISBN: 978-3-540-33218-3

Verlag: Springer

Erscheinungstermin: 18.08.2006

Sprache(n): Englisch

Auflage: 1. Auflage 2006

Serie: Signals and Communication Technology

Produktform: Gebunden

Gewicht: 1780 g

Seiten: 443

Format (B x H): 160 x 241 mm

