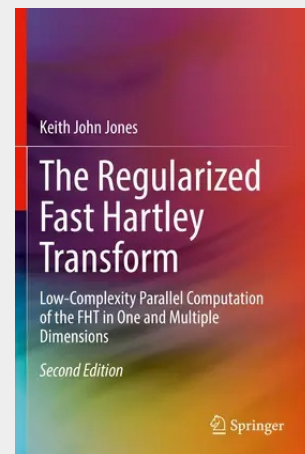


The Regularized Fast Hartley Transform

Low-Complexity Parallel Computation of the FHT in One and Multiple Dimensions

This book describes how a key signal/image processing algorithm – that of the fast Hartley transform (FHT) or, via a simple conversion routine between their outputs, of the real-data version of the ubiquitous fast Fourier transform (FFT) – might best be formulated to facilitate computationally-efficient solutions. The author discusses this for both 1-D (such as required, for example, for the spectrum analysis of audio signals) and m-D (such as required, for example, for the compression of noisy 2-D images or the watermarking of 3-D video signals) cases, but requiring few computing resources (i.e. low arithmetic/memory/power requirements, etc.). This is particularly relevant for those application areas, such as mobile communications, where the available silicon resources (as well as the battery-life) are expected to be limited. The aim of this monograph, where silicon-based computing technology and a resource-constrained environment is assumed and the data is real-valued in nature, has thus been to seek solutions that best match the actual problem needing to be solved.

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123,04 €

114,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030682477

Medium: Buch

ISBN: 978-3-030-68247-7

Verlag: Springer International Publishing

Erscheinungstermin: 04.09.2022

Sprache(n): Englisch

Auflage: 2. Auflage 2022

Produktform: Kartoniert

Gewicht: 517 g

Seiten: 320

Format (B x H): 155 x 235 mm

