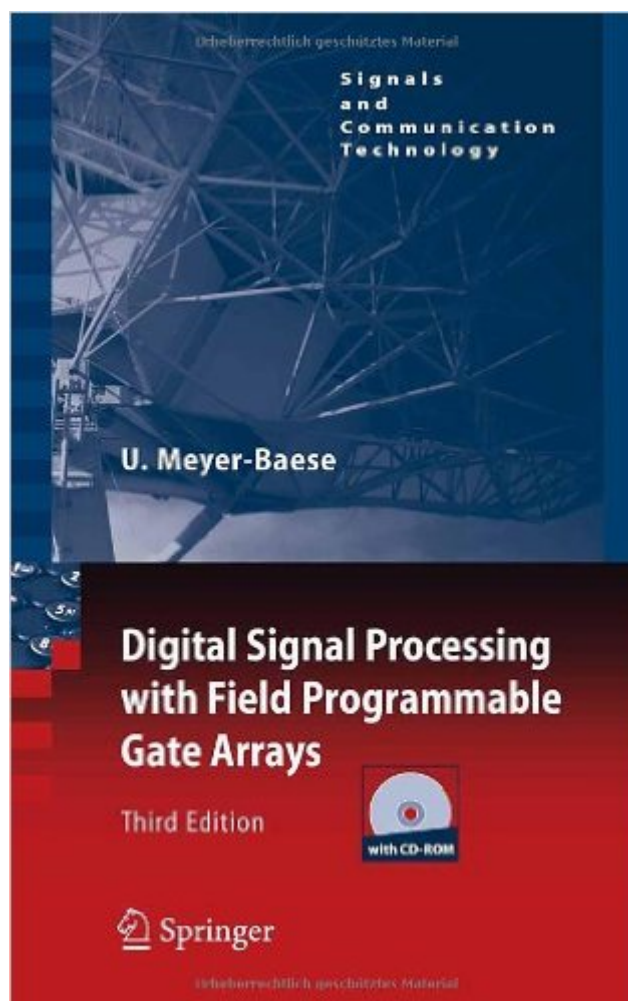# Digital Signal Processing With Field Programmable Gate Arrays (Signals And Communication Technology)

## Synopsis

A practical and fascinating book on a topic at the forefront of communications technology. Field-Programmable Gate Arrays (FPGAs) are on the verge of revolutionizing digital signal processing. Novel FPGA families are replacing ASICs and PDSPs for front-end digital signal processing algorithms at an accelerating rate. The efficient implementation of these algorithms is the main goal of this book. It starts with an overview of today's FPGA technology, devices, and tools for designing state-of-the-art DSP systems. Each of the bookâ ™s chapter contains exercises. The VERILOG source code and a glossary are given in the appendices.

## Book Information

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## Customer Reviews

From among the many books on DSP I own, I've chosen the 3rd. ed. of Dr. Meyer-Baese "DSP with FPGA", more precisely ch. 8 on "Adaptive Filters", to be the base of a module on adaptive filtering belonging to a DSP course that I teach at a University. The reason behind the choice was that, at first sight, the chapter seemed to have a good balance of conciseness and range of adaptive techniques presented.This means I read carefully ch. 8 and implemented in Scilab some of the adaptive algorithms. As a consequence, I also examined carefully the equations, mainly those on the Widrow-Hoff LMS and the RLS techniques.What I found was several handful of mistakes. From the silly ones (the definition of variance in p. 481 is $E\{(x-av)^2\}$ instead of $E$, as the average 'av' is

not assumed as zero) to errors in vectors transposition in the differentiation of matrix-vector products (e.g. in the gradient definition, in the middle of page 483, there should be x[n] x^T[n] instead of x^T[n] x[n]) which, sometimes, by miracle appear correct in the next equations, and ending in the mess with the use of [n+1] or [n] indexes in many equations in the derivation of RLS algorithms in pages 518-521, the lack of exactness in the theoretical derivations converts what could be a very good presentation/tutorial chapter on the AF topic in, at times, a messy bunch of equations plagued with mistakes.The chapter on AF first appeared in the 2nd ed. of the book (2003). So there has been plenty of time to correct at least most of the mistakes for this 3rd ed. from 2007.I also tried to found an errata, even that of the 1st ed. of the book which is promised in the preface, but I didn't succeed. That was a severe disappointment.

Digital Signal Processing with Field Programmable Gate Arrays (Signals and Communication Technology) Applied Signal Processing: A MATLABTM-Based Proof of Concept (Signals and Communication Technology (Paperback)) Multidimensional Digital Signal Processing (Prentice-Hall Signal Processing Series) Digital Signal Processing with Examples in MATLAB®, Second Edition (Electrical Engineering & Applied Signal Processing Series) Digital Signal Processing: with Selected Topics: Adaptive Systems, Time-Frequency Analysis, Sparse Signal Processing Digital Signal Processing: Signals, Systems, and Filters Building Automation: Communication systems with EIB/KNX, LON and BACnet (Signals and Communication Technology) Bayesian Signal Processing: Classical, Modern and Particle Filtering Methods (Adaptive and Cognitive Dynamic Systems: Signal Processing, Learning, Communications and Control) Signal Processing Algorithms in Fortran and C (Prentice-Hall Signal Processing Series) Discrete-Time Signal Processing (3rd Edition) (Prentice-Hall Signal Processing Series) LabVIEW Digital Signal Processing: and Digital Communications Digital Signal Processing Technology: Essentials of the Communications Revolution Digital Systems Design and Prototyping: Using Field Programmable Logic and Hardware Description Languages Millimeter-Wave Antennas: Configurations and Applications (Signals and Communication Technology) Automatic Speech Recognition: A Deep Learning Approach (Signals and Communication Technology) Speech and Audio Signal Processing: Processing and Perception of Speech and Music Biosignal and Medical Image Processing (Signal Processing and Communications) Handbook of Neural Networks for Speech Processing (Artech House Signal Processing Library) Applications of Digital Signal Processing to Audio and Acoustics (The Springer International Series in Engineering and Computer Science) Image Sensors and Signal Processing for Digital Still Cameras (Optical Science and Engineering)