[PDF] Understanding Digital Signal Processing (3rd Edition)

Richard G. Lyons - pdf download free book



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Description:

Amazon.com's Top-Selling DSP Book for Seven Straight Years—Now Fully Updated!

Understanding Digital Signal Processing, Third Edition, is quite simply the best resource for engineers and other technical professionals who want to master and apply today's latest DSP techniques. Richard G. Lyons has updated and expanded his best-selling second edition to reflect the newest technologies, building on the exceptionally readable coverage that made it the favorite of DSP professionals worldwide. He has also added hands-on problems to every chapter, giving students even more of the

practical experience they need to succeed.

Comprehensive in scope and clear in approach, this book achieves the perfect balance between theory and practice, keeps math at a tolerable level, and makes DSP exceptionally accessible to beginners without ever oversimplifying it. Readers can thoroughly grasp the basics and quickly move on to more sophisticated techniques.

This edition adds extensive new coverage of FIR and IIR filter analysis techniques, digital differentiators, integrators, and matched filters. Lyons has significantly updated and expanded his discussions of multirate processing techniques, which are crucial to modern wireless and satellite communications. He also presents nearly twice as many DSP Tricks as in the second edition—including techniques even seasoned DSP professionals may have overlooked.

Coverage includes

- New homework problems that deepen your understanding and help you apply what you've learned
- Practical, day-to-day DSP implementations and problem-solving throughout
- Useful new guidance on generalized digital networks, including discrete differentiators, integrators, and matched filters
- Clear descriptions of statistical measures of signals, variance reduction by averaging, and real-world signal-to-noise ratio (SNR) computation
- A significantly expanded chapter on sample rate conversion (multirate systems) and associated filtering techniques
- New guidance on implementing fast convolution, IIR filter scaling, and more
- Enhanced coverage of analyzing digital filter behavior and performance for diverse communications and biomedical applications
- Discrete sequences/systems, periodic sampling, DFT, FFT, finite/infinite impulse response filters, quadrature (I/Q) processing, discrete Hilbert transforms, binary number formats, and much more

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