Palle E.T. Jorgensen

Analysis and Probability Wavelets, Signals, Fractals

With graphics by Brian Treadway 58 figures and illustrations



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Glossary: function, random variable, signal, state, sequence (incl. vector-	
valued), random walk, time-series, measurement, nested subspaces,	
refinement, multiresolution, scales of visual resolutions, operator,	
process, black box, observable (if selfadjoint), Fourier dual pair,	
generating function, time/frequency, P/Q , convolution, filter, smearing,	
decomposition (e.g., Fourier coefficients in a Fourier expansion), analysis,	
frequency components, integrate (e.g., inverse Fourier transform),	
reconstruct, synthesis, superposition, subspace, resolution, (signals in a)	
frequency band, Cuntz relations, perfect reconstruction from subbands,	
subband decomposition, inner product, correlation, transition probability,	
probability of transition from one state to another, $f_{out} = T f_{in}$,	
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Drawing by the author, next page: Wavelet algorithms are good for vast sets of numbers. An engineering friend described the old approach to data mining as "Just drop a computer down onto a gigantic set of unstructured numbers!" (data mining: see Section 6.2, pp. 102–105, and the Glossary, pp. xxiv–xxv).