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Nota di contenuto	Preface -- Introduction -- 1. Normed vector spaces -- 2. Analytic tools -- 3. Fourier series -- 4. The Fourier transform -- 5. Compressive sampling -- 6. Discrete transforms -- 7. Linear filters -- 8. Windowed fourier and continuous wavelet transforms. Frames -- 9. Multiresolution analysis -- 10. Discrete wavelet theory -- 11. Biorthogonal filters and wavelets -- 12. Parsimonious representation of data.
Sommario/riassunto	Arising from courses taught by the authors, this largely self-contained treatment is ideal for mathematicians who are interested in applications or for students from applied fields who want to understand the mathematics behind their subject. Early chapters cover Fourier analysis, functional analysis, probability and linear algebra, all of which have been chosen to prepare the reader for the applications to come. The book includes rigorous proofs of core results in compressive sensing and wavelet convergence. Fundamental is the treatment of the linear system $y=x$ in both finite and infinite dimensions. There are three

possibilities: the system is determined, overdetermined or underdetermined, each with different aspects. The authors assume only basic familiarity with advanced calculus, linear algebra and matrix theory and modest familiarity with signal processing, so the book is accessible to students from the advanced undergraduate level. Many exercises are also included.
