This book examines signal processing techniques for cognitive radios. The book is divided into three parts:

Part I, is an introduction to cognitive radios and presents a history of the cognitive radio (CR), and introduce their architecture, functionalities, ideal aspects, hardware platforms, and state-of-the-art developments. Dr. Jayaweera also introduces the specific type of CR that has gained the most research attention in recent years: the CR for Dynamic Spectrum Access (DSA).

Part II of the book, Theoretical Foundations, guides the reader from classical to modern theories on statistical signal processing and inference. The author addresses detection and estimation theory, power spectrum estimation, classification, adaptive algorithms (machine learning), and inference and decision processes. Applications to the signal processing, inference and learning problems encountered in cognitive radios are interspersed throughout with concrete and accessible examples.

Part III of the book, Signal Processing in Radios, identifies the key signal processing, inference, and learning tasks to be performed by wideband autonomous cognitive radios. The author provides signal processing solutions to each task by relating the tasks to materials covered in Part II. Specialized chapters then discuss specific signal processing algorithms required for DSA and DSS cognitive radios.
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