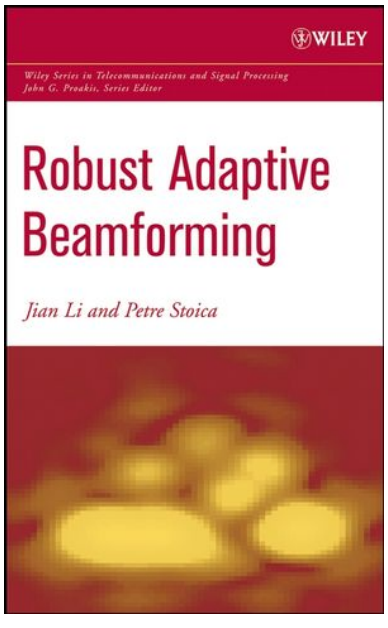

Robust Adaptive Beamforming

Jian Li, Petre Stoica

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DESCRIPTION

The latest research and developments in robust adaptive beamforming

Recent work has made great strides toward devising robust adaptive beamformers that vastly improve signal strength against background noise and directional interference. This dynamic technology has diverse applications, including radar, sonar, acoustics, astronomy, seismology, communications, and medical imaging. There are also exciting emerging applications such as smart antennas for wireless communications, handheld ultrasound imaging systems, and directional hearing aids.

Robust Adaptive Beamforming compiles the theories and work of leading researchers investigating various approaches in one comprehensive volume. Unlike previous efforts, these pioneering studies are based on theories that use an uncertainty set of the array steering vector. The researchers define their theories, explain their methodologies, and present their conclusions. Methods presented include:

* Coupling the standard Capon beamformers with a spherical or ellipsoidal uncertainty set of the array steering vector

* Diagonal loading for finite sample size beamforming

* Mean-squared error beamforming for signal estimation

* Constant modulus beamforming

* Robust wideband beamforming using a steered adaptive beamformer to adapt the weight vector within a generalized sidelobe canceller formulation

Robust Adaptive Beamforming provides a truly up-to-date resource and reference for engineers, researchers, and graduate students in this promising, rapidly expanding field.

ABOUT THE AUTHOR

JIAN LI, PhD, is Professor and Director of the Spectral Analysis Laboratory of the Department of Electrical and Computer Engineering at the University of Florida. She has coedited one book, coauthored one book and two book chapters, and published approximately 250 refereed technical conference contributions and journal papers, many of which are on topics related to array signal processing.

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