DESCRIPTION

This book was written in response to the growing demand for a text that provides a unified treatment of linear and nonlinear complex valued adaptive filters, and methods for the processing of general complex signals (circular and noncircular). It brings together adaptive filtering algorithms for feedforward (transversal) and feedback architectures and the recent developments in the statistics of complex variable, under the powerful frameworks of CR (Wirtinger) calculus and augmented complex statistics. This offers a number of theoretical performance gains, which is illustrated on both stochastic gradient algorithms, such as the augmented complex least mean square (ACLMS), and those based on Kalman filters. This work is supported by a number of simulations using synthetic and real world data, including the noncircular and intermittent radar and wind signals.

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Dr Mandic is currently a Reader in Signal Processing at Imperial College, London. He is an experienced author, having written the book Recurrent Neural Networks for Prediction: Learning Algorithms, Architectures and Stability (Wiley, 2001), and more than 150 published journal and conference papers on signal and image processing. His research interests include nonlinear adaptive signal processing, multimodal signal processing and nonlinear dynamics, and he is an Associate Editor for the journals IEEE Transactions on Circuits and Systems and the International Journal of Mathematical Modelling and Algorithms. Dr Mandic is also
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