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Titre :

Neural Networks
for Synthesis and Optimization of Antenna Arrays

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Résumé :
This paper describes a usual application of back-propagation neural networks for synthesis and optimization of antenna array. The neural network is able to model and to optimize the antennas arrays, by acting on radioelectric or geometric parameters and by taking into account predetermined general criteria. The neural network allows not only establishing important analyticalequations for the optimization step, but also a great flexibility between the system parameters in input and output.This step of optimization becomes then possible due to the explicit relation given by the neural network. According todifferent formulations of the synthesis problem such as acting on the feed law (amplitude and/or phase) and/or
space position of the radiating sources, results on antennas
arrays synthesis and optimization by neural networks are presented and discussed. However ANN is able to generate very fast the results of synthesis comparing to other approaches.

Mots Clés :
Neural networks, modeling, optimization, synthesis,
antennas arrays, printed antenna

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