Abstracts

A Superlinearly Convergent Minimax Algorithm for Microwave Circuit Design (Dec. 1985 [T-MTT])

J.W. Bandler, W. Kellermann and K. Madsen. "A Superlinearly Convergent Minimax Algorithm for Microwave Circuit Design (Dec. 1985 [T-MTT])." 1985 Transactions on Microwave Theory and Techniques 33.12 (Dec. 1985 [T-MTT] (1985 Symposium Issue)): 1519-1530.

A new and highly efficient algorithm for nonlinear minimax optimization is presented. The algorithm, based on the work of Hald and Madsen, combines linear programming methods with quasi-Newton methods and has sure convergence properties. A critical review of the existing minimax algorithms is given, and the relation of the quasi-Newton iteration of the algorithm to the Powell method for nonlinear programming is discussed. To demonstrate the superiority of this algorithm over the, existing ones, the classical three-section transmission-line transformer problem is used. A novel approach to worst-case design of microwave circuits using the present algorithm is proposed. The robustness of the algorithm is proved by using it for practical design of contiguous and noncontiguous-band multiplexer, involving up to 75 design variables.

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