



THE UNIVERSITY OF ADELAIDE
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

ADAPTIVE DIGITAL FILTERS

by

William George COWLEY, B.Sc., B.E.(Hons.)

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Summary

Some aspects of the behaviour and applications of adaptive digital filters are considered. The structures examined are finite impulse response transversal and lattice filters, using both gradient and optimum least square adaptive algorithms. Most of the material is concerned with the lattice, rather than the transversal, structure. Topics investigated include: comparisons between different adaptive lattice algorithms, convergence models for lattice structures, an analysis of the bias and variance of all-pole spectral estimates derived from transversal and lattice structures, several radar applications of adaptive lattice filters, and some implementation considerations relevant to very large scale integration.