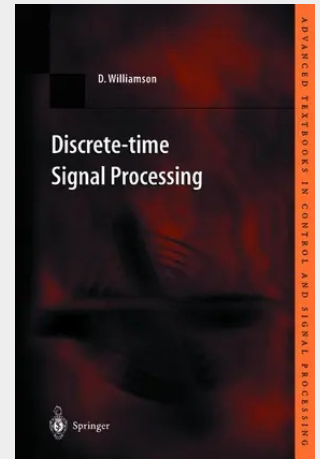


Discrete-time Signal Processing

An Algebraic Approach

The topics of control engineering and signal processing continue to flourish and develop. In common with general scientific investigation, new ideas, concepts and interpretations emerge quite spontaneously and these are then discussed, used, discarded or subsumed into the prevailing subject paradigm. Sometimes these innovative concepts coalesce into a new sub-discipline within the broad subject tapestry of control and signal processing. This preliminary battle between old and new usually takes place at conferences, through the internet and in the journals of the discipline. After a little more maturity has been acquired by the new concepts then archival publication as a scientific or engineering monograph may occur. The applications of signal processing techniques have grown and grown. They now cover the wide range from the statistical properties of signals and data through to the hardware problems of communications in all its diverse aspects. Supporting this range of applications is a body of theory, analysis and techniques which is equally broad. Darrell Williamson has faced the difficult task of organising this material by adopting an algebraic approach. This uses general mathematical and systems ideas and results to form a firm foundation for the discrete signal processing paradigm. Although this may require some extra concentration and involvement by the student or researcher, the rewards are a clarity of presentation and deeper insight into the power of individual results. An additional benefit is that the algebraic language used is the natural language of computing tools like MATLAB and its simulation facility, SIMULINK.

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