Alternative Polynomial Equation Approach to LQ Discrete-Time Feedback Control

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Abstract: The usual solution of the single-input, single-output, LQ discrete-time feedback control through the polynomial equations is modified. The way starts with a general solution of the "implied" closed-loop equation the free polynomial of which is then optimized.

At the same time the conditions are derived under which the implied equation minimum solution represents the LQ optimal one. The conclusions are obtained to be more general if compared with the former results.