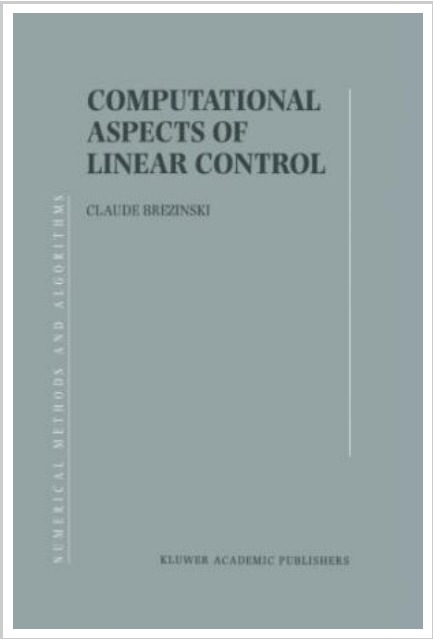

Computational Aspects of Linear Control Numerical Methods and Algorithms

By Claude Brezinski

Springer. Paperback. Book Condition: New. Paperback. 295 pages. Dimensions: 9.4in. x 6.3in. x 0.7in.Many devices (we say dynamical systems or simply systems) behave like black boxes: they receive an input, this input is transformed following some laws (usually a differential equation) and an output is observed. The problem is to regulate the input in order to control the output, that is for obtaining a desired output. Such a mechanism, where the input is modified according to the output measured, is called feedback. The study and design of such automatic processes is called control theory. As we will see, the term system embraces any device and control theory has a wide variety of applications in the real world. Control theory is an interdisci plinary domain at the junction of differential and difference equations, system theory and statistics. Moreover, the solution of a control problem involves many topics of numerical analysis and leads to many interesting computational problems: linear algebra (QR, SVD, projections, Schur complement, structured matrices, localization of eigenvalues, computation of the rank, Jordan normal form, Sylvester and other equations, systems of linear equations, regulariza tion, etc), root localization for polynomials, inversion of the Laplace transform, computation of the matrix exponential,...

Reviews

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