Contents

Part	I	
§ 1	Introduction	1
§ 2	Notation and Definitions	9
Part	II Theoretical results	
§ 3	Existence of solutions	15
§ 4	Eigenstructure of underlying matrix pencils	27
§ 5	Uniqueness and stability of feedback solutions	3 9
§ 6	Algebraic Riccati equations and deflating subspaces	50
§ 7	Schur-forms, Hessenberg-forms and triangular decompositions	55
§ 8	Perturbation analysis	66
Par	t III	
§ 9	Numerical preprocessing of the problem	70
Par	t IV Numerical solution of algebraic Riccati equations	
§ 10	Defect correction	82
§ 11	Newton's method	90
§ 12	The sign function method	98
§ 13	Elementary transformation matrices	101
§ 14	Schur methods	105
§ 15	Unitary symplectic algorithms for special Hamiltonian or symplectic eigenvalue	
lem		113
§ 16		131
§ 17		140
§ 18	A combination algorithm for real Hamiltonian and symplectic matrices	143
Par	t V	
§ 19	Numerical solution of Riccati differential or difference equations	148
Par	t VI	
§ 20	A general algorithm	152
§ 21	Conclusion	156
§ 22	Statement	157
§ 23	References	158
§ 24	Index	174