
Bibliography

- [AF06] M. Athans and P. L. Falb. *Optimal Control: An Introduction to the Theory and Its Applications*. Dover, 2006. Originally published in 1963.
- [ÅM08] K. J. Åström and R. M. Murray. *Feedback Systems: An Introduction for Scientists and Engineers*. Princeton University Press, 2008. Available at <http://www.cds.caltech.edu/~murray/amwiki>.
- [Åst06] K. J. Åström. *Introduction to Stochastic Control Theory*. Dover, New York, 2006. Originally published by Academic Press, New York, 1970.
- [BH75] A. E. Bryson, Jr. and Y.-C. Ho. *Applied Optimal Control: Optimization, Estimation, and Control*. Wiley, New York, 1975.
- [Bro81] R. W. Brockett. Control theory and singular Riemannian geometry. In *New Directions in Applied Mathematics*, pages 11–27. Springer-Verlag, New York, 1981.
- [Bry99] A. E. Bryson. *Dynamic optimization*. Addison Wesley, 1999.
- [dB78] C. de Boor. *A Practical Guide to Splines*. Springer-Verlag, 1978.
- [FLMR92] M. Fliess, J. Levine, P. Martin, and P. Rouchon. On differentially flat nonlinear systems. *Comptes Rendus des Séances de l'Académie des Sciences*, 315:619–624, 1992. Serie I.
- [Fri04] B. Friedland. *Control System Design: An Introduction to State Space Methods*. Dover, New York, 2004.
- [GMSW] P. E. Gill, W. Murray, M. A. Saunders, and M. Wright. *User's Guide for NPSOL 5.0: A Fortran Package for Nonlinear Programming*. Systems Optimization Laboratory, Stanford University, Stanford, CA 94305.
- [HO01] J. Hauser and H. Otinga. On the geometry of optimal control: The inverted pendulum example. In *American Control Conference*, 2001.
- [HP87] C. Hargraves and S. Paris. Direct trajectory optimization using nonlinear programming and collocation. *AIAA J. Guidance and Control*, 10:338–342, 1987.
- [HPS71] P. G. Hoel, S. C. Port, and C. J. Stone. *Introduction to Probability Theory*. Houghton Mifflin Company, 1971.
- [Isi89] A. Isidori. *Nonlinear Control Systems*. Springer-Verlag, 2nd edition, 1989.
- [Jad01] A. Jadbabaie. *Nonlinear Receding Horizon Control: A Control Lyapunov Function Approach*. PhD thesis, California Institute of Technology, Control and Dynamical Systems, 2001.
- [JSK99] M. Jankovic, R. Sepulchre, and P. V. Kokotović. CLF based designs with robustness to dynamic input uncertainties. *Systems Control Letters*, 37:45–54, 1999.

- [JYH01] A. Jadbabaie, J. Yu, and J. Hauser. Unconstrained receding horizon control of nonlinear systems. *IEEE Transactions on Automatic Control*, 46(5):776–783, 2001.
- [Kal64] R. E. Kalman. When is a linear control system optimal? *J. Basic Engrg. Trans. ASME Ser. D*, 86:51–60, 1964.
- [KKK95] M. Krstić, I. Kanellakopoulos, and P. Kokotović. *Nonlinear and Adaptive Control Design*. Wiley, 1995.
- [KKM91] I. Kanellakopoulos, P. V. Kokotovic, and A. S. Morse. Systematic design of adaptive controllers for feedback linearizable systems. *IEEE Transactions on Automatic Control*, 36(11):1241–1253, 1991.
- [KV86] P. R. Kumar and P. Varaiya. *Stochastic Systems: Estimation, Identification, and Adaptive Control*. Prentice Hall, Inc., 1986.
- [LM67] E. B. Lee and L. Markus. *Foundations of Optimal Control Theory*. Robert E. Krieger Publishing Company, 1967.
- [LS95] F. L. Lewis and V. L. Syrmos. *Optimal Control*. Wiley, second edition, 1995.
- [Lue97] David G. Luenberger. *Optimization by Vector Space Methods*. Wiley, New York, 1997.
- [MA73] P. J. Moylan and B. D. O. Anderson. Nonlinear regulator theory and an inverse optimal control problem. *IEEE Trans. on Automatic Control*, 18(5):460–454, 1973.
- [MDP94] P. Martin, S. Devasia, and B. Paden. A different look at output tracking—Control of a VTOL aircraft. *Automatica*, 32(1):101–107, 1994.
- [MFHM05] M. B. Milam, R. Franz, J. E. Hauser, and R. M. Murray. Receding horizon control of a vectored thrust flight experiment. *IEE Proceedings on Control Theory and Applications*, 152(3):340–348, 2005.
- [MHJ⁺03] R. M. Murray, J. Hauser, A. Jadbabaie, M. B. Milam, N. Petit, W. B. Dunbar, and R. Franz. Online control customization via optimization-based control. In T. Samad and G. Balas, editors, *Software-Enabled Control: Information Technology for Dynamical Systems*. IEEE Press, 2003.
- [MM99] M. B. Milam and R. M. Murray. A testbed for nonlinear flight control techniques: The Caltech ducted fan. In *Proc. IEEE International Conference on Control and Applications*, 1999.
- [MMM00] M. B. Milam, K. Mushambi, and R. M. Murray. A computational approach to real-time trajectory generation for constrained mechanical systems. In *Proc. IEEE Control and Decision Conference*, 2000.
- [MRRS00] D. Q. Mayne, J. B. Rawlings, C. V. Rao, and P. O. M. Sokaert. Constrained model predictive control: Stability and optimality. *Automatica*, 36(6):789–814, 2000.
- [Mur97] R. M. Murray. Nonlinear control of mechanical systems: A Lagrangian perspective. *Annual Reviews in Control*, 21:31–45, 1997.
- [PBG62] L. S. Pontryagin, V. G. Boltyanskii, R. V. Gamkrelidze, and E. F. Mishchenko. *The Mathematical Theory of Optimal Processes*. Wiley-Interscience, 1962. (translated from Russian).
- [PND99] J. A. Primbs, V. Nevistić, and J. C. Doyle. Nonlinear optimal control: A control Lyapunov function and receding horizon perspective. *Asian Journal of Control*, 1(1):1–11, 1999.

- [QB97] S. J. Qin and T. A. Badgwell. An overview of industrial model predictive control technology. In J.C. Kantor, C.E. Garcia, and B. Carnahan, editors, *Fifth International Conference on Chemical Process Control*, pages 232–256, 1997.
- [Rug90] W. J. Rugh. Analytical framework for gain scheduling. In *Proc. American Control Conference*, pages 1688–1694, 1990.
- [Sey94] H. Seywald. Trajectory optimization based on differential inclusion. *J. Guidance, Control and Dynamics*, 17(3):480–487, 1994.
- [Sha90] J. S. Shamma. Analysis of gain scheduled control for nonlinear plants. *IEEE Transactions on Automatic Control*, 35(12):898–907, 1990.
- [SJK97] R. Sepulchre, M. Jankovic, and P. V. Kokotović. *Constructive Nonlinear Control*. Springer, London, 1997.
- [Son83] E. D. Sontag. A Lyapunov-like characterization of asymptotic controllability. *SIAM Journal of Control and Optimization*, 21:462–471, 1983.
- [vNM98] M. J. van Nieuwstadt and R. M. Murray. Rapid hover to forward flight transitions for a thrust vectored aircraft. *Journal of Guidance, Control, and Dynamics*, 21(1):93–100, 1998.
- [vNRM98] M. van Nieuwstadt, M. Rathinam, and R. M. Murray. Differential flatness and absolute equivalence. *SIAM Journal of Control and Optimization*, 36(4):1225–1239, 1998.

Index

- algebraic Riccati equation, 2-11
- bang-bang control, 2-9
- cost function, 2-1
- costate variables, 2-6
- differential flatness, 1-8
- error system, 1-3
- events, 4-1
- expectation, 4-5
- extended Kalman filter, 5-4
- extremum, 2-4
- feasible trajectory, 2-4
- feedforward, 1-4
- final cost, 2-5
- finite horizon, 2-5
- gain scheduling, 1-4
- Hamiltonian, 2-5
- Harrier AV-8B aircraft, 2-14
- infinite horizon, 2-5
- information filter, 6-6
- information matrix, 6-6
- innovations process, 5-2
- integral cost, 2-5
- Kalman filter
 - recursive form, 5-2
- Lagrange multipliers, 2-3
- linear quadratic, 2-5
- linearization, 1-3
- matrix differential equation, 2-10
- mean, 4-5
- noise intensity, 4-12
- optimal control problem, 2-4
- optimal value, 2-1
- optimization, 2-1
- Ornstein-Uhlenbeck process, 4-11
- probability measure, 4-1
- probability space, 4-1
- random process, 4-6
- random variable, 4-2
- receding horizon control, 1-3, 3-1
- residual random process, 5-2
- Riccati ODE, 2-10
- sample space, 4-1
- terminal cost, 2-5
- two point boundary value problem, 2-10

Note: Under construction! The indexing for the text has not yet been done and so this index contains an incomplete and unedited set of terms.