

References & Suggested Additional Reading

Chaos and Non-linear Dynamics in Robots

- [1] V. I. Arnold 1989, *Mathematical Methods in Classical Mechanics*, 2nd Ed., Springer Verlag., New York.
- [2] H. Asada and J.-J.E. Slotline 1986, *Robot Analysis and Control*, John Wiley & Sons, Inc., New York.
- [3] J. J. Craig 1988, *Adaptive Control of Mechanical Manipulators*, Addison-Wesley., New York.
- [4] E. H. Dowell and C. Pezeshki 1986, ‘On the understanding of chaos in Duffing’s equation including a comparison with experiment.’, *Trans. ASME Jou. of Applied Mechanics* Vol. 53, pp. 5-9.
- [5] M. K. Gordon and L. F. Shampine 1975, *Computer Solutions of Ordinary Differential Equations: The Initial Value Problem*, W. H. Freeman & Co., San Francisco.
- [6] J. Guckenheimer and P. Holmes 1983, *Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields*, Springer-Verlag., New York.
- [7] P. K. Khosla 1986, *Real-Time Control and Identification of Direct-Drive Manipulators*, PhD thesis, Department of Electrical and Computer Engg, Carnegie Mellon University, USA.
- [8] R. B. Levien and S. M. Tan 1993, “Double pendulum: An experiment in chaos”, *American Journal of Physics*, Vol. 61, pp. 1038-1044.
- [9] V. Mahout, P. Lopez, J. P. Carcassés and C. Mira 1993, Complex behaviours of a two-revolute joints robot: harmonic, subharmonic, higher harmonic, fractional harmonic, chaotic responses., *Proc. International Conference on Systems, Man and Cybernetics*, Vol. 5., pp. 201-205.
- [10] F. C. Moon 1987, *Chaotic Vibrations: an Introduction for Applied Scientists and Engineers*, John Wiley & Sons, Inc., New York.
- [11] T. S. Parker and L. O. Chua 1989, *Practical Numerical Algorithms for Chaotic Systems*, Springer Verlag., New York.

- [12] A. S. Ravishankar and A. Ghosal 1999, “Nonlinear dynamics and chaotic motions in feedback controlled robots”, *Int. Jou. of Robotics Research*, Vol. 18, pp. 93-108.
- [13] P. Sekar and S. Narayanan 1992, “Chaos in mechanical systems - a review”, *Sadhana* Vol. 20, pp. 341–748.
- [14] L. Shrinivas and A. Ghosal, A, 1996, “Possible chaotic motions in a feedback controlled 2R robot”, *Proc. of IEEE Conference on Robotics and Automation*, Minneapolis, pp. 1241-1246.
- [15] L. Shrinivas and A. Ghosal 1997, “Chaos in robot control equations”, *Int. Jou. of Bifurcation and Chaos*, Vol. 7, pp. 707-720.
- [16] M. W. Spong 1992, “Remark on robot dynamics : Canonical transformations and Riemannian geometry”, *Proc. of IEEE Conference on Robotics and Automation* , pp. 554-559.
- [17] J. J. Stoker 1969, *Differential Geometry*, John Wiley & Sons, Inc., New York.
- [18] A. Wolf, J. B. Swift, H. A. Swinney and J. A. Vastano 1985, “Determining Lyapunov exponents from a time series”, *Physica 16D* Vol. 16D, pp. 285-317.
- [19] M. Zak 1985a, “Criteria for chaos in non-linear mechanics”, *Int. J. Nonlinear Mechanics*, Vol. 21, pp. 175-182.
- [20] M. Zak 1985b, “Two types of chaos in non-linear mechanics”, *Int. J. Nonlinear Mechanics*, Vol. 20, pp. 297-308.

Gough-Stewart platform as force-torque sensor

- [1] S. Bandyopadhyay and A. Ghosal 2006, “Geometric characterization and parametric representation of the singularity manifold of a 6-6 Stewart platform manipulator”, *Mechanism and Machine Theory*, Vol. 41, pp. 1377-1400.
- [2] S. Bandyopadhyay and A. Ghosal 2008, “A algebraic formulation of kinematic isotropy and design of isotropic 6-6 Stewart platform manipulators”, *Mechanism and Machine Theory*, Vol. 43, pp. 591-616.
- [3] S. Bandyopadhyay and A. Ghosal 2009, “A algebraic formulation of static isotropy and design of statically isotropic 6-6 Stewart platform

manipulators”, *Mechanism and Machine Theory*, Vol. 44, pp. 1360-1370.

- [4] T. A. Dwarakanath, B. Dasgupta, and T. S. Mruthyunjaya 2001, “Design and development of a Stewart platform based force-torque sensor”, *Mechatronics*, Vol. 11, pp. 793-809.
- [5] A. Fattah and A. M. H. Ghasemi 2002, “Isotropic design of spatial parallel manipulators”, *Int. Journal of Robotics Research*, pp. 811-824.
- [6] E. F. Fichter 1986, “The Stewart Platform manipulator: general theory and practical construction”, *Int. Journal of Robotics Research*, Vol. 5, pp. 157-182.
- [7] C. A. Klein and T. A. Milkos 1991, “Spatial robotic isotropy”, *Int. Journal of Robotics Research*, Vol. 10, pp. 426-437.
- [8] J. E. McInroy and J. C. Hamann 2000, “Design and control of flexure jointed hexapods”, *IEEE Trans. of Robotics and Automation*, Vol. 16, pp. 372-381.
- [9] J. P. Merlet 1989, “Singularity configurations of parallel manipulators and Grassmann geometry”, *Int. Journal of Robotics Research*, Vol. 8, pp. 45-56.
- [10] *NISA II/DISPLAY III Users Manual*, Engineering Mechanics Research Corporation, USA, Version 7, 1997.
- [11] J. M. Paros and L. Weisbord 1965, “How to design flexure hinges”, *Machine Design*, pp. 151-156.
- [12] R. Ranganath, P. S. Nair, T. S. Mruthyunjaya and A. Ghosal 2004, “A force torque sensor based on a Stewart platform in a near singular configuration”, *Mechanism and Machine Theory*, Vol. 39, pp. 971-998.
- [13] B. M. St-Onge and C. Gosselin 2000, “Singularity analysis and representation of general Gough-Stewart platform”, *Int. Jou. of Robotics Research*, Vol. 19, pp. 271-288.
- [14] D. Stewart 1965, “A platform with six degrees of freedom”, *Proc. of Institution of Mechanical Engineers*, Part 1, Vol. 180(15), pp. 371-386.
- [15] L. S. Srinath 1983, *Advanced Mechanics of Solids*, Tata McGraw-Hill Publishing Company, New Delhi, 1983.

- [16] S. Wolfram 2004, *The Mathematica Book*, Cambridge University Press, Cambridge.
- [17] S. Zhang and E. D. Fasse 2001, “A finite-element-based method to determine the spatial stiffness properties of a notch hinge”, *Trans. ASME, Jou. of Mechanical Design*, Vol. 123, pp. 141-147.

Modeling and Analysis of Deployable Structures

- [1] G. T. Bennett 1903, “A new mechanism”, *Engineering*, Vol. 76, pp. 777-778.
- [2] F. Freudenstein 1962, “On the verity of motions generated by mechanisms”, *Trans. ASME, Jou. of Engineering for Industry*, Vol. 84, pp. 156-160.
- [3] C. Gantes, J. J. Connor and R. D. Lacher 1994, “An equivalent continuum model for flat deployable slabs”, *Jou. of Aerospace Engineering, ASCE*, Vol. 7, pp. 72-91.
- [4] J. Garcia de Jalon and E. Bayo 1994, *Kinematics and Dynamic Simulation of Multibody Systems: The Real Time Challenge*, Springer Verlag.
- [5] G. Gogu 2005, “Mobility of mechanisms: A critical review”, *Mechanism and Machine Theory*, Vol. 40, pp. 1002-1014.
- [6] S. D. Guest and P. W. Fowler 2005, “A symmetry extended mobility rule”, *Mechanism and Machine Theory*, Vol. 40, 1002-1014.
- [7] R. S. Hartenberg and J. Denavit 1965, *Kinematic Synthesis of Linkages*, McGraw-Hill.
- [8] E. N. Kuznetsov 1988, “Under constrained structural systems”, *Int. Jou. of Solids and Structures*, Vol. 24, pp. 153-163.
- [9] A. K. S. Kwan and S. Pellegrino 1994, “Matrix formulation of macro-elements for deployable structures”, *Computers and Structures*, Vol. 50, pp. 237-254.
- [10] A. K. Mallik, A. Ghosh and G. Detrich 1994, *Kinematic Analysis and Synthesis of Mechanisms*, CRC Press.

- [11] B. P. Nagaraj 2009, *Kinematic and Static Analysis of Over-constrained Mechanisms and Deployable Pantograph Masts*, Ph. D. Thesis, IISc Bangalore.
- [12] B. P. Nagaraj, R. Pandiyan and A. Ghosal 2009, “Kinematics of pantograph masts”, *Mechanisms and Machine Theory*, Vol. 44, pp. 822-834.
- [13] B. P. Nagaraj, R. Pandiyan and A. Ghosal 2010, “A constraint Jacobian based approach for static analysis of pantograph masts”, *Computers and Structures*, Vol. 88, pp. 95-104.
- [14] P. E. Nikravesh 1988, *Computer Aided Analysis of Mechanical Systems*, Prentice Hall.
- [15] W. Shan 1992, “Computer analysis of foldable structures”, *Computers and Structures*, Vol. 42, pp. 903-912.
- [16] L.-W. Tsai 2001, *Enumeration of Kinematic Structure according to Function*, CRC Press
- [17] K. J. Waldron 1966, “The constraint analysis of mechanisms”, *Trans. ASME, Jou. of Mechanisms*, Vol. 1, pp. 101-114.
- [18] R. M. Warden 1987, “Folding articulated square truss”, *21 Aerospace Mechanism Symposium*, NASA-CP-2740, Texas, pp. 1-17.
- [19] Z. You and S. Pellegrino 1997, “Cable stiffened pantographic deployable structures”, *AIAA Journal*, Vol. 35, pp. 1348-1355.
- [20] W. Wunderlich 1968, “On Burmester’s focal mechanism and Hart’s straight line motion”, *Journal of Mechanisms*, Vol. 3, pp. 79-86.