

## References

- [Ait Mohamed 95] Ait Mohamed A., "Commande dynamique de robots redondants dans l'espace opérationnel", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, February 1995.
- [Aldon 82] Aldon M.J., "Elaboration automatique de modèles dynamiques de robots en vue de leur conception et de leur commande", Thèse d'Etat, USTL, Montpellier, France, October 1982.
- [Aldon 86] Aldon M.J., "Identification des paramètres structuraux des robots manipulateurs", *Proc. Outils Mathématiques pour la Modélisation et la Commande des Robots*, Paris, France, September 1986, p. 243-296.
- [An 85] An C.H., Atkeson C.G., Hollerbach J.M., "Estimation of inertial parameters of rigid body links of manipulators", *Proc. 24<sup>th</sup> IEEE Conf. on Decision and Control*, Fort Lauderdale, USA, December 1985, p. 990-995.
- [An 87] An C.H., Hollerbach J.M., "Kinematic stability issues in force control of manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 897-903.
- [Angeles 88] Angeles J., Gosselin C., "Détermination du degré de liberté des chaînes cinématiques", *Trans. of the CSME*, Vol. 12, 1977, p. 219-226.
- [Arimoto 84] Arimoto S., Miyazaki F., "Stability and robustness of PID feedback control for robots manipulators of sensory capability", *The 1<sup>st</sup> Int. Symp. of Robotics Research*, MIT Press, Cambridge, USA, 1984.
- [Arimoto 93] Arimoto S., Liu Y.H., Naniwa T., "Model-based adaptive hybrid control for geometrically constrained robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, Atlanta, USA, May 1993, p. 618-623.
- [Armstrong 79] Armstrong W.W., "Recursive solution to the equation of motion of an N-links manipulator", *Proc. 5<sup>th</sup> World Congress on Theory of Machines and Mechanisms*, Montréal, Canada, 1979, p. 1343-1346.
- [Armstrong 86] Armstrong B., Khatib O., Burdick J., "The explicit dynamic model and inertial parameters of the PUMA 560 Arm", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 510-518.

- [Armstrong 88] Armstrong B., "Dynamics for robot control: friction modeling and ensuring excitation during parameter identification", Ph. D Thesis, Dept. of Electrical Engineering, Stanford University, Stanford, USA, May 1988.
- [Armstrong 89] Armstrong B., "On finding exciting trajectories for identification experiments involving systems with non linear dynamics", *The Int. J. of Robotics Research*, Vol. 8(6), 1989, p. 28-48.
- [Armstrong 91] Armstrong B., *Control of Machines with frictions*, Kluwer Academic Publ., Boston, USA, 1991.
- [Armstrong 94] Armstrong-Hélouvry B., Dupont P., Canudas de Wit C., "A survey of analysis tools and compensation methods for the control of machines with friction", *Automatica*, Vol. 30(10), 1994, p. 1083-1138.
- [Asada 86] Asada H., Slotine J.-J.E., *Robot analysis and control*, John Wiley & Sons, New York, USA, 1986.
- [Atkeson 86] Atkeson C.G., An C.H., Hollerbach J.M., "Estimation of inertial parameters of manipulator loads and links", *The Int. J. of Robotics Research*, Vol. 5(3), 1986, p. 101-119.
- [Aubin 91] Aubin A., "Modélisation, identification et commande du bras manipulateur TAM", Thèse de Doctorat, INPG, Grenoble, France, 1991.
- [Baillieul 84] Baillieul J., Hollerbach J.M., Brockett R., "Programming and control of kinematically redundant manipulators", *Proc. 23<sup>rd</sup> IEEE Conf. on Decision and Control*, Las Vegas, USA, December 1984, p. 768-774.
- [Baillieul 85] Baillieul J., "Kinematic programming alternatives for redundant manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, St Louis, USA, March 1985, p. 722-728.
- [Baillieul 86] Baillieul J., "Avoiding obstacles and resolving kinematic redundancy", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 1698-1704.
- [Baron 94] Baron L., Angeles J., "The decoupling of the direct kinematics of parallel manipulators using redundant sensors", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Diego, USA, May 1994, p. 974-979.
- [Bartels 88] Bartels R.H., Beatty J.C., Barsky B.A., *Mathématiques et CAO 6, B-splines*, Hermès, Paris, France, 1988.
- [Baumgarte 72] Baumgarte J., "Stabilization of constraints and integral of motion", *Computer Methods in Applied Mech. Eng.*, Vol. 1(1), 1972, p. 1-16.
- [Bayard 88] Bayard D., Wen J.T., "New class of control laws for robotic manipulators; Part 2: Adaptive case", *Int. J. Control*, Vol. 47(5), 1988, p. 1387-1406.
- [Bejczy 74] Bejczy A.K., "Robot arm dynamics and control", NASA Technical Memorandum 33-669, Jet Propulsion Laboratory, Pasadena, USA, 1974.
- [Bejczy 79] Bejczy A.K., "Dynamic models and control equations for manipulators", Tutorial Workshop, 18<sup>th</sup> IEEE Conf. on Decision and Control, Fort Lauderdale, USA, December 1979.
- [Bejczy 85] Bejczy A.K., Tarn T.J., Yun X., Hans S., "Non linear feedback control of Puma 560 robot arm by computer", *Proc. 24<sup>th</sup> IEEE Conf. on Decision and Control*, Fort Lauderdale, USA, December 1985, p. 1680-1688.

- [Beji 97] Beji L., "Modélisation, identification et commande d'un robot parallèle", Thèse de Doctorat, Université d'Evry-Val d'Essone, France, June 1997.
- [Benallegue 91] Benallegue A., "Contribution à la commande dynamique adaptative des robots manipulateurs rapides", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, November 1991.
- [Benhlila 93] Benhlila, S., "Identification des paramètres dynamiques des systèmes mécaniques articulés complexes", Thèse de Doctorat, ENSAM, Paris, France, 1993.
- [Bennett 03] Bennett G.T., "A new mechanism", *Engineering*, Vol. 76, 1903., p. 777-778.
- [Bennis 91a] Bennis F., "Contribution à la modélisation géométrique et dynamique des robots à chaîne simple et complexe", Thèse de doctorat, E.N.S.M., Nantes, France, 1991.
- [Bennis 91b] Bennis F., Khalil W., "Minimum inertial parameters of robots with parallelogram closed-loops", *IEEE Trans. on Systems, Man, and Cybernetics*, Vol. SMC-21(2), 1991, p. 318-326.
- [Bennis 93] Bennis F., Khalil W., "Modèle géométrique inverse des robots à chaîne découplable : application aux équations de contraintes des boucles fermées", *Trans. of the Canadian Society for Mechanical Engineering*, Vol. 17(4A), 1993, p. 473-491.
- [Benoit 75] Benoit M., Briot M., Donnarel H., Liégeois A., Meyer M.A., Renaud M., "Synthèse de la commande dynamique d'un téléopérateur redondant", *Revue RAIRO, Série J-2*, May 1975, p. 89-103.
- [Berghuis 93] Berghuis H., "Model-based robot control: from theory to practice", Ph. D. Thesis, University of Twente, Enschede, The Netherlands, 1993.
- [Bernhardt 93] Bernhardt R., Albright S.L., *Robot calibration*, Chapman & Hall, London, UK, 1993.
- [Besnard 99] Besnard S., Khalil W., "Calibration of parallel robots using two inclinometers", *Proc. IEEE Int. Conf. on Robotics and Automation*, Detroit, USA, May 1999, p. 1758-1763.
- [Besnard 00a] Besnard S., "Etalonnage géométrique des robots série et parallèles", Thèse de Doctorat, Université de Nantes, France, 1996.
- [Besnard 00b] Besnard S., Khalil W., Garcia G., "Robot calibration using multiple plane constraints", *Proc. 7<sup>th</sup> Int. Symp. on Advances in Robot Kinematics, ARK 2000*, Slovenia, June 2000, p. 61-70.
- [Besnard 01] Besnard S., Khalil W., "Identifiable parameters for parallel robots kinematic calibration", *Proc. IEEE Int. Conf. on Robotics and Automation*, Seoul, Korea, May 2001, p. 2859-2866.
- [Bicchi 98] Bicchi A., "Manipulability of cooperating robots with passive joints", *Proc. IEEE Int. Conf. on Robotics and Automation*, Louvain, Belgium, May 1998, p. 1038-1044.
- [Binford 77] Binford T.O. et al., "Discussion of trajectory calculation methods", in 'Exploratory study of computer integrated assembly system', Stanford Artificial Intelligence Lab., Progress Report, Memo AIM-285.4, Stanford, USA, June 1977.
- [Blanchon 87] Blanchon J.-L., "Génération et identification des lois de mouvement en robotique : application à l'identification et à la correction de trajectoires du manipulateur PUMA 560, Thèse de Doctorat, USTL, Montpellier, France, March 1987.

- [Borm 91] Borm J.H., Menq C.H., "Determination of optimal measurement configurations for robot calibration based on observability measure", *The Int. J. of Robotics Research*, Vol. 10(1), p. 51-63, 1991.
- [Borrel 79] Borrel P., "Modèle de comportement de manipulateurs ; application à l'analyse de leurs performances et à leur commande automatique", Thèse de Troisième Cycle, USTL, Montpellier, France, December 1979.
- [Borrel 86] Borrel P., "Contribution à la modélisation géométrique des robots-manipulateurs ; application à la conception assistée par ordinateur", Thèse d'Etat, USTL, Montpellier, France, July 1986.
- [Boullion 71] Boullion T.L., Odell P.L., *Generalized inverse matrices*, John Wiley & Sons, New York, USA, 1971.
- [Bouzouia 89] Bouzouia B., "Commande des robots manipulateurs : identification des paramètres et étude des stratégies adaptatives", Thèse de Doctorat, UPS, Toulouse, France, May 1989.
- [Boyer 94] Boyer F., "Contribution à la modélisation et à la commande dynamique des robots flexible", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, 1994.
- [Boyer 98] Boyer F., Khalil W., "An efficient calculation of flexible manipulator inverse dynamics", *The Int. J. of Robotics Research*, Vol. 17(3), 1998, p. 282-293.
- [Brandl 86] Brandl H., Johanni R., Otter M., "A very efficient algorithm for the simulation of robots and multibody systems without inversion of the mass matrix", *Proc. IFAC Symp. on Theory of Robots*, Vienna, Austria, December 1986, p. 365-370.
- [Brogliato 91] Brogliato B., "Systèmes passifs et commande adaptative des manipulateurs", Thèse de Doctorat, INPG, Grenoble, France, 1991.
- [Bruyninckx 98] Bruyninckx H., "Closed-form forward position kinematics for a (3-1-1-1)<sup>2</sup> fully parallel manipulator", *IEEE Trans. on Robotics and Automation*, Vol. RA-14(2), 1998, p. 326-328.
- [Burdick 86] Burdick J.W., "An algorithm for generation of efficient manipulator dynamic equations", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 212-218.
- [Burdick 88] Burdick J.W., "Kinematic analysis and design of redundant manipulators", Ph. D Thesis, Stanford University, Stanford, USA, 1988.
- [Caenen 93] Caenen J.-L., "Contribution à l'identification de paramètres géométriques et non géométriques d'un modèle de robot. Application à l'amélioration de la précision de positionnement statique", Thèse de Doctorat, Université de Valenciennes et de Hainault-Cambrésis, France, January 1993.
- [Cannon 84] Cannon H., Schmitz E., "Initial experiments on the end-point control of a flexible one-link robot", *The Int. J. of Robotics Research*, Vol. 3(3), 1984, p. 62-75.
- [Canudas de Wit 89] Canudas de Wit C., Noël P., Aubin A., Brogliato B., Drevet P., "Adaptive Friction compensation in robot manipulators: low-velocities", *Proc. IEEE Int. Conf. on Robotics and Automation*, Scottsdale, USA, May 1989, p. 1352-1357.
- [Canudas de Wit 90] Canudas de Wit C., Seront V., "Robust adaptive friction compensation", *Proc. IEEE Int. Conf. on Robotics and Automation*, Cincinnati, USA, May 1990, p. 1383-1389.

- [Canudas de Wit 92] Canudas de Wit C., Fixot N., Aström K.J., "Trajectory tracking in robot manipulators via nonlinear estimated feedback", *IEEE Trans. on Robotics and Automation*, Vol. RA-8(1), 1992, p. 138-144.
- [Castain 84] Castain R.H., Paul R.P., "An on-line dynamic trajectory generator", *The Int. J. of Robotics Research*, Vol. 3(1), 1984, p. 68-72.
- [Castelain 86] Castelain J.M., "Application de la méthode hypercomplexe aux modélisations géométriques et différentielles des robots constitués d'une chaîne cinématique simple", Thèse d'Etat, Université de Valenciennes et du Hainaut-Cambresis, France, December 1986.
- [Catia] Dassault Systèmes, 308 Bureaux de la Colline, 92210 Saint Cloud, France.
- [Cesareo 84] Cesareo G., Nicolo F., Nicosia S., "DYMIR: a code for generating dynamic model of robots", *Proc. IEEE Int. Conf. on Robotics*, Atlanta, USA, March 1984, p. 115-120.
- [Chace 67] Chace M.A., "Analysis of the time dependance of multi-freedom mechanical system in relative coordinate", *Trans. of ASME, J. of Engineering for Industry*, Vol. 89, February 1967, p. 119-125.
- [Chace 71] Chace M.A., Bayazitoglu Y.O., "Development and application of a generalized d'Alembert force for multi-freedom mechanical system", *Trans. ASME, J. of Engineering for Industry*, Vol. 93, February 1971, p. 317-327.
- [Chand 85] Chand S., Doty K.L., "On-line polynomial trajectories for robot manipulators", *The Int. J. of Robotics Research*, Vol. 4(2), 1985, p. 38-48.
- [Chang 86] Chang P.H., "A closed form solution for the control of manipulators with kinematic redundancy", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 9-14.
- [Charentus 90] Charentus S., "Modélisation et commande d'un robot manipulateur redondant composé de plusieurs plates-formes de Stewart", Thèse de Doctorat, UPS, Toulouse, France, April 1990.
- [Chedmail 86] Chedmail P., Gautier M., Khalil W., "Automatic modelling of robots including parameters of links and actuators", *Proc. IFAC Symp. on Theory of Robots*, Vienna, Austria, December 1986, p. 295-299.
- [Chedmail 90a] Chedmail P., "Contribution à la conception des robots et à la modélisation et commande de robots souples", Thèse d'Etat, ENSM, Nantes, France, January 1990.
- [Chedmail 90b] Chedmail P., Gautier M., "Optimum choice of robot actuators", *Trans. of ASME, J. of Engineering for Industry*, Vol. 112(4), 1990, p. 361-367.
- [Chedmail 92] Chedmail P., Dombre E., "CAO et robotique : conception et programmation des cellules robotisées", *Revue d'Automatique et de Productique Appliquées*, Vol. 5(2), 1992, p. 27-38.
- [Chedmail 98] Chedmail P., Dombre E., Wenger P., *La CAO en robotique : outils et méthodologies*, Collection 'Etudes en Mécanique des Matériaux et des Structures', Hermès, Paris, France, 1998.
- [Cheok 93] Cheok K.C., Overholt J.L., Beck R.R., "Exact methods for determining the kinematics of a Stewart platform using additional displacement sensors", *J. of Robotic Systems*, Vol. 10(5), 1993, p. 974-979.
- [Cherki 96] Cherki B., "Commande des robots manipulateurs par retour d'état estimé", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, 1996.

- [Chevallereau 87] Chevallereau C., Khalil W., "Efficient method for the calculation of the pseudo inverse kinematic problem", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 1842-1848.
- [Chevallereau 88] Chevallereau C., "Contribution à la commande des robots-manipulateurs dans l'espace opérationnel", Thèse de Doctorat, ENSM, Nantes, France, May 1988.
- [Chevallereau 98] Chevallereau C., "Feasible trajectories in task space from a singularity for a non redundant or redundant robot manipulator", *The Int. J. of Robotic Research*, Vol. 17(1), 1998, p. 56-69.
- [Chiaverini 93] Chiaverini S., Sciavicco L., "The parallel approach to force/position control of robotic manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-9(4), 1993, p. 361-373.
- [Clavel 89] Clavel R., "Une nouvelle structure de manipulateur parallèle pour la robotique légère", *Revue APII-AFCET*, Vol. 23, 1989, p. 501-519.
- [Cloutier 95] Cloutier B.P., Pai D.K., Ascher U.M., "The formulation stiffness of forward dynamics algorithms and implications for robot simulation", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nagoya, Japan, May 1995, p. 2816-2822.
- [Coiffet 81] Coiffet P., *Les Robots ; Tome 1 : Modélisation et commande*, Hermès, Paris, France, 1981.
- [Colbaugh 93] Colbaugh R., Seraji H., Glass K., "Direct adaptive impedance control of robot manipulators", *J. of Robotic Systems*, Vol. 10, 1993, p. 217-248.
- [Craig 86a] Craig J.J., *Introduction to robotics: mechanics and control*, Addison Wesley Publishing Company, Reading, USA, 1986.
- [Craig 86b] Craig J.J., Hsu P., Sastry S., "Adaptive control of mechanical manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 190-195.
- [Craig 93] Craig J.J., "Calibration of industrial robots", *Proc. 24th Int. Symp. on Industrial Robots*, Tokyo, Japan, November 1993, p. 889-893.
- [Dafaoui 94] Dafaoui E., "Modélisation et commande d'un robot parallèle : application au suivi de contour", Thèse de Doctorat, Paris XII-Val de Marne, France, September 1994.
- [Dahl 77] Dahl P.R., "Measurements of solid friction parameters of ball bearings", *Proc. of the 6th Annual Symp. on Incremental Motion Control Systems and Devices*, University of Illinois, USA, 1977.
- [Damak 96] Damak M., "Théorie et instrumentation pour l'étalonnage statique des robots : vers une programmation hors-ligne industriellement plus efficace", Thèse de Doctorat, ENSAM, Lille, France, July 1996.
- [Daney 00] Daney D., "Etalonnage géométrique des robots parallèles", Thèse de Doctorat, Université de Nice-Sophia Antipolis, France, February 2000.
- [de Boor 78] de Boor C., *A practical guide to splines*, Springer-Verlag, New York, USA, 1978.
- [de Casteljau 87] de Casteljau P., *Les quaternions*, Hermès, Paris, France, 1987.
- [Dégoulange 93] Dégoulange E., "Commande en effort d'un robot manipulateur à deux bras : application au contrôle de la déformation d'une chaîne cinématique fermée", Thèse de Doctorat, Université Montpellier II, France, December 1993.

- [de Larminat 77] de Larminat P., Thomas Y., *Automatique des systèmes linéaires ; Tome 2 : Identification*, Editions Flammarion, Paris, France, 1977.
- [Delignières 87] Delignières S., "Choix de morphologies de robot", Thèse de Docteur-Ingénieur, ENSM, Nantes, France, November 1987.
- [de Luca 91a] de Luca A., Oriolo G., "Issues in acceleration resolution of robot redundancy", *Proc. IFAC Symp. on Robot Control, SYROCO'91*, Vienna, Austria, 1991, p. 665-670.
- [de Luca 91b] de Luca A., Manes C., "Hybrid force-position control for robots in contact with dynamic environments", *Proc. IFAC Symp. on Robot Control, SYROCO'91*, Vienna, Austria, 1991, p. 177-182.
- [Denavit 55] Denavit J., Hartenberg R.S., "A kinematic notation for lower pair mechanism based on matrices", *Trans. of ASME, J. of Applied Mechanics*, Vol. 22, June 1955, p. 215-221.
- [Desbats 90] Desbats P., "Modélisation et commande dynamique des robots rapides", Thèse de Doctorat, Université de Paris Sud, Orsay, France, June 1990.
- [de Schutter 88] de Schutter J., van Brussel H., "Compliant robot motion - II - a control approach based on external control loop", *The Int. J. of Robotics Research*, Vol. 7(4), 1988, p. 18-33.
- [Desoer 75] Desoer C.A., Vidyaasagar M., *Feedback systems: input-output properties*, Academic Press, New York, USA, 1975.
- [Dietmaier 98] Deitmaier P., "The Stewart-Gough platform of general geometry can have 40 real postures", in *Advances in Robot Kinematics: Analysis and Control*, J. Lenarčič, M.L. Husty Eds, Klumer Academic Publishers, 1998, p. 7-16.
- [Dillon 73] Dillon S.R., "Computer assisted equation generation in linkage dynamics", Ph. D. Thesis, Ohio State University, USA, August 1973.
- [Dombre 81] Dombre E., "Analyse des performances des robots-manipulateurs flexibles et redondants ; contribution à leur modélisation et à leur commande", Thèse d'Etat, USTL, Montpellier, France, June 1981.
- [Dombre 85] Dombre E., Borrel P., Liégeois A., "A CAD system for programming and simulating robot's actions", in *Computing Techniques for Robots*, I. Aleksander Ed., Kogan Page, London, UK, 1985, p. 222-247.
- [Dombre 88a] Dombre E., Khalil W., *Modélisation et commande des robots*, Hermès, Paris, France, 1988.
- [Dombre 88b] Dombre E., "Outils d'aide à la conception de cellules robotisées", in *Techniques de la robotique : perception et planification*, Hermès, Paris, France, 1988, p. 255-291.
- [Dombre 94] Dombre E., Fournier A., "Yet another calibration technique to reduce the gap between CAD world and real world", *Proc. 1st WAC'94 on Intelligent Automation and Soft Computing*, Hawai, USA, August 1994, p. 47-52.
- [Dongarra 79] Dongarra J.J., Moler C.B., Bunch J.R., Stewart G.W., "LINPACK User's Guide", Philadelphia, USA, SIAM, 1979.

- [Douss 96] Douss M., "Programmation hors ligne par CAO-Robotique : caractérisation de lois de contrôleurs de robots et étalonnage de cellules robotisées en vue d'améliorer la précision", Thèse de Doctorat, Université de Franche-Comté, Besançon, France, November 1996.
- [Drake 77] Drake S.H., "Using compliance in lieu of sensory feedback for automatic assembly", Ph. D. Thesis, Dept. of Mechanical Engineering, MIT, USA, September 1977.
- [Driels 90] Driels M. R., Pathre U.S., "Significance of observation strategy on the design of robot calibration experiment", *J. of Robotic Systems*, Vol. 7, 1990, p. 197-223.
- [Dubowsky 79] Dubowsky S., Des Forges D.T., "The application of model-referenced adaptive control to robotic manipulators", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 101, 1979, p. 193-200.
- [Duffy 90] Duffy J., "The fallacy of modern hybrid control theory that is based on 'orthogonal complements' of twist and wrench spaces", *J. of Robotic Systems*, Vol. 7, 1990, p. 139-144.
- [Edwall 82] Edwall C.W., Pottinger H.J., Ho C.Y., "Trajectory generation and control of a robot arm using spline functions", *Proc. Robot-6*, Detroit, USA, 1982, p. 421-444.
- [Egeland 91] Egeland O., Spangelo I., "Manipulator control in singular configurations-Motion in degenerate directions", in *Advanced Robot Control, Lecture Notes in Control and Information Sciences*, Springer-Verlag, New York, USA, 1991, p. 296-306.
- [El Omri 96] El Omri J., "Analyse géométrique et cinématique des mécanismes de type manipulateur", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, February 1996.
- [El Serafi 91a] El Serafi K., Khalil W., "Energy based indirect adaptive control of robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, Sacramento, USA, April 1991, p. 2142-2147.
- [El Serafi 91b] El Serafi K., "Contribution à la commande adaptative des robots manipulateurs", Thèse de Doctorat, ENSM, Nantes, France, May 1991.
- [Everett 88] Everett L.J., Suryahadiprojo A.H., "A study of kinematic models for forward calibration of manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Philadelphia, USA, April 1988, p. 798-800.
- [Eykhoff 74] Eykhoff P., *System identification: parameter and state estimation*, John Wiley & Sons, London, UK, 1974.
- [Fages 98] Fages G., "Statistiques 97", *RobAut*, n° 21, March-April 1998, p. 28-32.
- [Featherstone 83a] Featherstone R., "Position and velocity transformations between robot end-effector coordinates and joint angles", *The Int. J. of Robotics Research*, Vol. 2(2), 1983, p. 35-45.
- [Featherstone 83b] Featherstone R., "The calculation of robot dynamics using articulated-body inertias", *The Int. J. of Robotics Research*, Vol. 2(3), 1983, p. 87-101.
- [Ferreira 84] Ferreira E.P., "Contribution à l'identification de paramètres et à la commande des robots manipulateurs", Thèse de Docteur-Ingénieur, UPS, Toulouse, France, July 1984.
- [Fichter 86] Fichter E.F., "A Stewart platform-based manipulator: general theory and practical construction", *The Int. J. of Robotic Research*, Vol. 5(2), 1986, p. 157-181.
- [Fisher 92] Fisher W., Mujtaba M.S., "Hybrid position / force control: a correct formulation", *The Int. J. of Robotics Research*, Vol. 11(4), 1992, p. 299-311.



- [Fliess 95] Fliess M., Lévine J., Martin P., Rouchon P., "Flatness and defect of nonlinear systems: introductory theory and examples", *Int. J. Control*, Vol. 61, 1995, p. 1327-1361.
- [Forsythe 77] Forsythe G.E., Malcom M.A., Moler C.B., *Computer methods for mathematical computations*, Prentice Hall, Englewood Cliffs, USA, 1977.
- [Fournier 80] Fournier A., "Génération de mouvements en robotique ; application des inverses généralisées et des pseudo-inverses", Thèse d'Etat, USTL, Montpellier, France, April 1980.
- [Fourquet 90] Fourquet J.-Y., "Mouvement en temps minimal pour les robots manipulateurs en tenant compte de leur dynamique", Thèse de Doctorat, UPS, Toulouse, France, 1990.
- [Freidovich 97] Freidovich L.B., Pervozvanski A.A., "Some estimates of performance for PID-like control of robotic manipulators", *Proc. IFAC Symp. on Robot Control, SYROCO'97*, Nantes, France, September 1997, p. 85-90.
- [Freund 82] Freund E., "Fast nonlinear control with arbitrary pole placement for industrial robots and manipulators", *The Int. J. of Robotics Research*, Vol. 1(1), 1982, p. 65-78.
- [Froissart 91] Froissart C., "Génération adaptative de mouvement pour processus continus ; application au suivi de joint", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, December 1991.
- [Gaudin 92] Gaudin H., "Contribution à l'identification *in situ* des constantes d'inertie et des lois de frottement articulaire d'un robot manipulateur en vue d'une application expérimentale au suivi de trajectoires optimales", Thèse de Doctorat, Université de Poitiers, France, November 1992.
- [Gautier 86] Gautier M., "Identification of robots dynamics", *Proc. IFAC Symp. on Theory of Robots*, Vienna, Austria, December 1986, p. 351-356.
- [Gautier 88] Gautier M., Khalil W., "On the identification of the inertial parameters of robots", *Proc. 27<sup>th</sup> IEEE Conf. on Decision and Control*, Austin, USA, December 1988, p. 2264-2269.
- [Gautier 90a] Gautier M., "Contribution à la modélisation et à l'identification des robots", Thèse de Doctorat d'Etat, ENSM, Nantes, France, May 1990.
- [Gautier 90b] Gautier M., Khalil W., "Direct calculation of minimum set of inertial parameters of serial robots", *IEEE Trans. on Robotics and Automation*, Vol. RA-6(3), 1990, p. 368-373.
- [Gautier 91] Gautier M., "Numerical calculation of the base inertial parameters", *J. of Robotic Systems*, Vol. 8(4), August 1991, p. 485-506.
- [Gautier 92a] Gautier M., Khalil W., "Exciting trajectories for inertial parameters identification", *The Int. J. of Robotics Research*, Vol. 11(4), 1992, p. 362-375.
- [Gautier 92b] Gautier M., "Optimal motion planning for robot's inertial parameters identification", *Proc. 31<sup>st</sup> IEEE Conf. on Decision and Control*, Tucson, USA, December 1992, Vol. 1, p. 70-73.
- [Gautier 93] Gautier M., Janin C., Pressé C., "On the validation of robot dynamic model", *Proc. 2<sup>nd</sup> European Control Conf., ECC'93*, Groningen, The Netherlands, June-July 1993, p. 2291-2295.

- [Gautier 94] Gautier M., Vandanjon P.-O., Pressé C., "Identification of inertial and drive gain parameters of robots", *Proc. IEEE 33<sup>th</sup> Conf. on Decision and Control*, Orlando, USA, December 1994, p.3764-3769.
- [Gautier 95] Gautier M., Khalil W., Restrepo P. P., "Identification of the dynamic parameters of a closed loop robot", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nagoya, Japan, May 1995, p. 3045-3050.
- [Gautier 96] Gautier M., "A comparison of filtered models for dynamic identification of robots", *Proc. IEEE 35<sup>th</sup> Conf. on Decision and Control*, Kobe, Japan, December 1996, p. 875-880.
- [Gautier 97] Gautier M., "Dynamic identification of robots with power model", *Proc. IEEE Int. Conf. on Robotics and Automation*, Albuquerque, USA, April 1997, p. 1922-1927.
- [Geffard 00] Geffard F., "Etude et conception de la commande en effort d'un télémanipulateur équipé d'un capteur d'effort à sa base et son extrémité", Thèse de Doctorat, Université de Nantes, France, December 2000.
- [Giordano 86] Giordano M., "Dynamic model of robots with a complex kinematic chain", *Proc.16<sup>th</sup> Int. Symp. on Industrial Robots*, Brussels, Belgium, September-October 1986, p. 377-388.
- [Goldenberg 85] Goldenberg A.A., Benhabib B., Fenton R.G., "A complete generalized solution to inverse kinematics of robots", *IEEE J. of Robotics and Automation*, Vol. RA-1(1), 1985, p. 14-20.
- [Golub 83] Golub G.H., Van Loan C.F., *Matrix computations*, Johns Hopkins University Press, Baltimore, USA, 1983.
- [Gorla 84] Gorla B., Renaud M., *Modèles des robots-manipulateurs ; application à leur commande*, Cepadues Editions, Toulouse, France, 1984.
- [Gosselin 88] Gosselin C., "Kinematic analysis, optimization and programming of parallel robotic manipulators", Ph. D. Thesis, McGill University, Montréal, Canada, June 1988.
- [Gosselin 90] Gosselin C., Angeles J., "Singularity analysis of closed-loop kinematic chains", *IEEE Trans. on Robotics and Automation*, Vol. RA-6(3), 1990, p. 281-290.
- [Goswami 93] Goswami A., Quaid A., Peshkin M., "Identifying robot parameters using partial pose information", *Proc. IEEE Int. Conf. on Systems, Man, and Cybernetics*, Chicago, USA, October 1993, p. 6-14.
- [Goudali 96] Goudali A., Lallemand J.-P., Zeghloul S., "Modeling of the 2-delta decoupled parallel robot", *Proc. 6<sup>th</sup> Int. Symp. on Robotics and Manufacturing, WAC'96*, Vol. 6, Montpellier, France, May 1996, p. 243-248.
- [Gough 56] Gough V.E., "Contribution to discussion of papers on research in automobile stability, control and tyre performance", *Proc. Auto. Div. Inst. Mech. Eng.*, 1956-1957.
- [Greville 60] Greville T.N., "Some applications of the pseudo-inverse of a matrix", *SIAM Review*, Vol. 2(1), 1960, p. 15-22.
- [Grudić 93] Grudić G.Z., Lawrence P.D., "Iterative inverse kinematics with manipulator configuration control", *IEEE Trans. on Robotics and Automation*, Vol. RA-9(4), August 1993, p. 476-483.

- [Guglielmi 87] Guglielmi M., Jonker E., Piasco J.-M., "Modelisation and identification of a two degrees of freedom SCARA robot using extended Kalman filtering", *Proc. Int. Conf. on Advanced Robotics, ICAR'87*, Versailles, France, October 1987, p. 137-148.
- [Guyot 95] Guyot G., "Contribution à l'étalonnage géométrique des robots manipulateurs", Thèse de Doctorat, Université de Nice-Sophia Antipolis, France, January 1995.
- [Ha 89] Ha I.J., Ko M.S., Kwon S.K., "An efficient estimation algorithm for the model parameters of robotic manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-5(6), 1989, p. 386-394.
- [Hahn 67] Hahn W., *Stability of Motion*, Springer-Verlag, New York, USA, 1967.
- [Han 95] Han K., Chung W.K., Youm Y., "Local structurization for the forward kinematics of parallel manipulators using extra sensor data", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nayoga, Japan, May 1995 p. 514-520.
- [Hayati 83] Hayati S.A., "Robot arm geometric link parameter estimation", *Proc. 22<sup>nd</sup> IEEE Conf. Decision and Control*, San Antonio, USA, December 1983, p. 1477-1483.
- [Held 88] Held V., Maron C., "Estimation of friction characteristics, inertial and coupling coefficients in robotic joints based on current and speed measurements", *Proc. IFAC Symp. on Robot Control, SYROCO'88*, 1988, p. 86.1-86.6.
- [Hervé 78] Hervé J.-M., "Analyse structurelle des mécanismes par groupe de déplacement", *J. of Mechanism and Machine Theory*, Vol. 13(4), 1978, p. 437-450.
- [Hervé 91] Hervé J.-M., Sparacino F., "Structural synthesis of parallel robot generating spatial translation", *Proc. Int. Conf. on Advanced Robotics, ICAR'91*, Pise, Italy, 1991, p. 808-813.
- [Hogan 85] Hogan N., "Impedance control: an approach to manipulation", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 107, March 1985, p. 1-24.
- [Hogan 87] Hogan N., "Stable execution of contact tasks using impedance control", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 1047-1054.
- [Hollerbach 80] Hollerbach J.M., "An iterative lagrangian formulation of manipulators dynamics and a comparative study of dynamics formulation complexity", *IEEE Trans. on Systems, Man, and Cybernetics*, Vol. SMC-10(11), 1980, p. 730-736.
- [Hollerbach 84a] Hollerbach J.M., "Dynamic scaling of manipulator trajectories", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 106(1), March 1984, p. 102-106.
- [Hollerbach 84b] Hollerbach J.M., "Optimum kinematic design for a seven degree of freedom manipulator", *Proc. 2<sup>nd</sup> Int. Symp. of Robotics Research*, Kyoto, Japan, August 1984, p. 349-356.
- [Hollerbach 85] Hollerbach J.M., Suh K.C., "Redundancy resolution of manipulators through torque optimization", *Proc. IEEE Int. Conf. on Robotics and Automation*, St Louis, USA, March 1985, p. 1016-1021.
- [Hollerbach 89] Hollerbach J.M., "A survey of kinematic calibration", in *The Robotics Review n°1*, MIT Press, Cambridge, USA, 1989, p. 207-242.

- [Hollerbach 95] Hollerbach J.M., Lokhorst D., "Closed-loop kinematic calibration of the RSI 6-dof hand controller", *IEEE Trans. on Robotics and Automation*, Vol. RA-11, 1995, p. 352-359.
- [Hollerbach 96] Hollerbach J.M., Wampler C.W., "The calibration index and taxonomy of kinematic calibration methods", *The Int. J. of Robotics Research*, Vol. 14, 1996, p. 573-591.
- [Hooker 65] Hooker W.W., Margulies G., "The dynamical attitude equations for a n-body satellite", *The Journal of the Astronautical Sciences*, Vol. 12(4), 1965, p. 123-128.
- [Horowitz 80] Horowitz R., Tomizuka M., "An adaptive control scheme for mechanical manipulators; compensation of non linearity and decoupling control", *Presentation at the Winter Meeting of ASME, Dynamic Systems and Control Division*, Chicago, USA, 1980.
- [Hsia 86] Hsia T.C., "Adaptive control of robot manipulators; a review", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 183-189.
- [Hsu 88] Hsu P., Hauser J., Sastry S., "Dynamic control of redundant manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Philadelphia, USA, April 1988, p. 183-187.
- [Hunt 83] Hunt K. H., "Structural kinematics of in-parallel-actuated robot-arms", *Trans of ASME, J. of Mechanisms, Transmissions, and Automation in Design*, Vol. 105, March 1983, p. 705-712.
- [Husty 96] Husty M., "An algorithm for solving the direct kinematics of Stewart-Gough-type platforms", *J. of Mechanisms and Machine Theory*, Vol. 31(4), 1996, p. 365-379.
- [Ikits 97] Ikits M., Hollerbach J.M., "Kinematic calibration using a plane constraint", *Proc. IEEE Int. Conf. on Robotics and Automation*, Albuquerque, USA, April 1997, p. 3191-3196.
- [Innocenti 93] Innocenti C., Parenti-Castelli V., "Direct kinematics in analytical form of a general geometry 5-4 fully parallel manipulator", in *Computational kinematics*. J. Angeles et al. Eds., Klumer Academic Publishers, 1993, p. 141-152.
- [Innocenti 95] Innocenti C., "Analytical-form direct kinematics for the second scheme of a 5-5 general-geometry fully parallel manipulator", *J. of Robotic Systems*, Vol. 12(10), 1995, p. 661-676.
- [Inoue 85] Inoue H., Tsusaka Y., Fukuizumi T., "Parallel manipulator", *Proc. 3<sup>rd</sup> Int. Symp. of Robotics Research*, Gouvieux, France, October 1985, p. 69-75.
- [Izaguirre 86] Izaguirre A., Paul R.C.P., "Automatic generation of the dynamic equations of the robot manipulators using a LISP program", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 220-226.
- [Judd 90] Judd R., Knasinski A., "A technique to calibrate industrial robots with experimental verification", *IEEE Trans. on Robotics and Automation*, Vol. RA-6(1), 1990, p. 20-30.
- [Kahn 69] Kahn M.E., "The near minimum time control of open loop articulated kinematic chains", Ph. D. Thesis, Stanford University, Stanford, USA, December 1969.
- [Kanade 84] Kanade T., Khosla P., Tanaka N., "Real-time control of the CMU direct-drive arm II using customized inverse dynamics", *Proc. 23<sup>rd</sup> IEEE Conf. on Decision and Control*, Las Vegas, USA, December 1984, p. 1345-1352.
- [Kane 83] Kane T.R., Levinson D., "The use of Kane's dynamical equations in robotics", *The Int. J. of Robotics Research*, Vol. 2(3), 1983, p. 3-21.

- [Kawasaki 88] Kawasaki H., Nishimura K., "Terminal-link parameter estimation and trajectory control of robotic manipulators", *IEEE J. of Robotics and Automation*, Vol. RA-4(5), p. 485-490, 1988.
- [Kawasaki 96] Kawasaki H., Takahiro B., Kazuo K., "An efficient algorithm for the model-based adaptive control of robotic manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-12(3), 1996, p. 496-501.
- [Kazerooni 86] Kazerooni H., Sheridan T., Houpt P., "Robust compliant motion for manipulators", Parts I and II, *IEEE J. of Robotics and Automation*, Vol. RA-2(2), 1986, p.83-105.
- [Kazerounian 86] Kazerounian K., Gupta K.C., "Manipulator dynamics using the extended zero reference position description", *IEEE J. of Robotics and Automation*, Vol. RA-2(4), 1986, p. 221-224.
- [Kelly 88] Kelly R., Ortega R., "Adaptive control of robot manipulators: an input-output approach", *Proc. IEEE Int. Conf. on Robotics and Automation*, Philadelphia, USA, April 1988, p. 699-703.
- [Kelly 95] Kelly R., "A tuning procedure for stable PID control of robot manipulators", *Robotica*, Vol. 13, 1995, p. 141-148.
- [Khalil 76] Khalil W., "Modélisation et commande par ordinateur du manipulateur MA-23 ; extension à la conception par ordinateur des manipulateurs", Thèse de Docteur-Ingénieur, USTL, Montpellier, France, September 1976.
- [Khalil 78] Khalil W., "Contribution à la commande automatique des manipulateurs avec l'aide d'un modèle mathématique des mécanismes", Thèse d'Etat, USTL, Montpellier, France, October 1978.
- [Khalil 79] Khalil W., Liegeois A., Fournier A., "Commande dynamique des robots", *Revue RAIRO Automatique / Systems Analysis and Control*, Vol. 13(2), 1979, p. 189-201.
- [Khalil 85a] Khalil W., Kleinfinger J.-F., "Une modélisation performante pour la commande dynamique de robots", *Revue RAIRO, APIL*, Vol. 6, 1985, p. 561-574.
- [Khalil 85b] Khalil W., Gautier M., "Identification of geometric parameters of robots", *Proc. IFAC Symp. on Robot Control, SYROCO'85*, Barcelona, Spain, November 1985, p. 191-194.
- [Khalil 86a] Khalil W., Kleinfinger J.-F., "A new geometric notation for open and closed-loop robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 1174-1180.
- [Khalil 86b] Khalil W., "On the explicit derivation of the inverse geometric models of robots", *Proc. IMACS-IFAC Symp.*, Villeneuve d'Ascq, France, June 1986, p. 541-546.
- [Khalil 86c] Khalil W., Kleinfinger J.-F., Gautier M., "Reducing the computational burden of the dynamic model of robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 525-531.
- [Khalil 87a] Khalil W., Chevallereau C., "An efficient algorithm for the dynamic control of robots in the cartesian space", *Proc. 26<sup>th</sup> IEEE Conf. on Decision and Control*, Los Angeles, USA, December 1987, p. 582-588.
- [Khalil 87b] Khalil W., Kleinfinger J.-F., "Minimum operations and minimum parameters of the dynamic model of tree structure robots", *IEEE J. of Robotics and Automation*, Vol. RA-3(6), December 1987, p. 517-526.

- [Khalil 89a] Khalil W., Bennis F., Chevallereau C., Kleinfinger J.-F., "SYMORO: a software package for the symbolic modelling of robots", *Proc. 20<sup>th</sup> Int. Symp. on Industrial Robots*, Tokyo, Japan, October 1989, p. 1023-1030.
- [Khalil 89b] Khalil W., Bennis F., Gautier M., "Calculation of the minimum inertial parameters of tree structure robots", *Proc. Int. Conf. on Advanced Robotics, ICAR'89*, Columbus, USA, 1989, p. 189-201.
- [Khalil 89c] Khalil W., Caenen J.-L., Enguehard C., "Identification and calibration of the geometric parameters of robots", *Proc. 1<sup>st</sup> Experimental Robot Conference*, Montreal, Canada, 1989, Springer-Verlag, New York, Vol. 139, p. 528-538.
- [Khalil 90a] Khalil W., Bennis F., Gautier M., "The use of the generalized links to determine the minimum inertial parameters of robots", *J. of Robotic Systems*, Vol. 7(2), 1990, p. 225-242.
- [Khalil 90b] Khalil W., Bennis F., "Calcul de la matrice d'inertie des robots à chaîne ouverte simple ou arborescente", Rapport interne n° 90-09, LAN-ENSM, Nantes, France, April 1990.
- [Khalil 90c] Khalil W., Bennis F., "Automatic generation of the inverse geometric model of robots", *J. of Robotics and Autonomous Systems*, Vol. 7, 1991, p. 1-10.
- [Khalil 91a] Khalil W., Gautier M., "Calculation of the identifiable parameters for robot calibration", *Proc. IFAC Symp. on Identification and System Parameter Estimation*, Budapest, Hungary, 1991, p. 888-892.
- [Khalil 91b] Khalil W., Gautier M., Enguehard C., "Identifiable parameters and optimum configurations for robot calibration", *Robotica*, Vol. 9, 1991, p. 63-70.
- [Khalil 93] Khalil W., Gautier M., "Computed current control of robots", *Proc. IFAC 12<sup>th</sup> World Congress*, Sydney, Australia, July 1993, Vol. IV, p. 129-132.
- [Khalil 94a] Khalil W., Bennis F., "Comments on Direct Calculation of Minimum Set of Inertial Parameters of Serial Robots", *IEEE Trans. on Robotics and Automation*, Vol. RA-10(1), 1994, p. 78-79.
- [Khalil 94b] Khalil W., Murareci D., "On the general solution of the inverse kinematics of six-degrees-of-freedom manipulators", *Proc. Int. Workshop on Advances in Robot Kinematics, ARK 94*, Slovenia, July 1994.
- [Khalil 95a] Khalil W., Bennis F., "Symbolic calculation of the base inertial parameters of closed-loop robots", *The Int. J. of Robotics Research*, Vol. 14(2), April 1995, p. 112-128.
- [Khalil 95b] Khalil W., Garcia G., Delagarde J.-F., "Calibration of the geometric parameters of robots without external sensors", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nayoga, Japan, May 1995, p. 3039-3044.
- [Khalil 96a] Khalil W., Restrepo P.P., "An efficient algorithm for the calculation of the filtered dynamic model of robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, Minneapolis, USA, April 1996, p. 323-329.
- [Khalil 96b] Khalil W., Lemoine P., Gautier M., "Autonomous calibration of robots using planar points", *Proc. 6<sup>th</sup> Int. Symp. on Robotics and Manufacturing, WAC'96*, Vol. 3, Montpellier, France, May 1996, p. 383-388.
- [Khalil 96c] Khalil W., Murareci D., "Kinematic analysis and singular configuration of a class of parallel robots", *J. of Mathematic and Computer in Smulation*, n°1245, 1996, p. 1-14.

- [Khalil 97] Khalil W., Creusot D., "SYMORO+: a system for the symbolic modelling of robots", *Robotica*, Vol. 15, 1997, p. 153-161.
- [Khalil 99a] Khalil W., Lemoine P., "Gecaro: a system for the geometric calibration of robots", *Revue APIL-JESA*, Vol. 33(5-6), 1999, p. 717-739.
- [Khalil 99b] Khalil W., Besnard S., "Self calibration of Stewart-Gough parallel robots without extra sensors", *IEEE Trans. on Robotics and Automation*, Vol. RA-15(6), p. 1116-1121, December 1999.
- [Khalil 00a] Khalil W., Gautier M., "Modeling of mechanical systems with lumped elasticity", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, April 2000, p. 3965-3970.
- [Khalil 00b] Khalil W., Besnard S., Lemoine P., "Comparison study of the geometric parameters calibration methods", *Int. J. of Robotics and Automation*, Vol. 15(2), 2000, p. 56-67.
- [Khatib 80] Khatib O., "Commande dynamique dans l'espace opérationnel des robots-manipulateurs en présence d'obstacles", Thèse de Docteur-Ingénieur, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, Toulouse, France, December 1980.
- [Khatib 87] Khatib O., "A unified approach for motion and force control of robot manipulators: the operational space formulation", *IEEE J. of Robotics and Automation*, Vol. RA-3(1), February 1987, p. 43-53.
- [Khelifi 95] Khelifi M.-F., "Observateurs non linéaires : application à la commande des robots manipulateurs", Thèse de Doctorat, Université Poincaré Nancy I, France, 1995.
- [Kholi 85] Kholi D., Spanos J., "Workspace analysis of mechanical manipulators using polynomial discriminants", *J. of Mechanisms, Transmissions, and Automation in Design*, Vol. 107, June 1985, p. 209-215.
- [Kholi 87] Kholi D., Hsu M.S., "The jacobian analysis of workspaces of mechanical manipulators", *J. of Mechanisms and Machine Theory*, Vol. 22(3), 1987, p. 265-275.
- [Khosla 85] Khosla P.K., Kanade T., "Parameter identification of robot dynamics", *Proc. 24<sup>th</sup> IEEE Conf. on Decision and Control*, Fort-Lauderdale, USA, December 1985, p. 1754-1760.
- [Khosla 86] Khosla P.K., "Real-time control and identification of direct drive manipulators", Ph. D. Thesis, Carnegie Mellon University, Pittsburgh, USA, 1986.
- [Kircanski 85] Kircanski M., Vukobratovic M., "Computer-aided generation of manipulator kinematic models in symbolic form", *Proc. 15<sup>th</sup> Int. Symp. on Industrial Robots*, Tokyo, Japan, September 1985, p. 1043-1049.
- [Klein 83] Klein C.A., Huang C., "Review of pseudo inverse control for use with kinematically redundant manipulators", *IEEE Trans. on Systems, Man, and Cybernetics*, Vol. SMC-13(2), 1983, p. 245-250.
- [Klein 84] Klein C.A., "Use of redundancy in the design of robotic systems", *Proc. 2<sup>nd</sup> Int. Symp. of Robotic Research*, Kyoto, Japan, August 1984, p. 58-65.
- [Klein 95] Klein C.A., Chu-Jenq, Ahmed S., "A new formulation of the extended Jacobian method and its use in mapping algorithmic singularities for kinematically redundant manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-11(1), 1995, p. 50-55.

- [Kleinfinger 86a] Kleinfinger J.-F., "Modélisation dynamique de robots à chaîne cinématique simple, arborescente ou fermée, en vue de leur commande", Thèse de Doctorat, ENSM, Nantes, France, May 1986.
- [Kleinfinger 86b] Kleinfinger J.-F., Khalil W., "Dynamic modelling of closed-chain robots", *Proc. 16<sup>th</sup> Int. Symp. on Industrial Robots*, Brussels, Belgium, September-October 1986, p. 401-412.
- [Klema 80] Klema V.C., Lanio A.J., "The singular value decomposition: its computation and some applications", *IEEE Trans. on Automatic Control*, Vol. AC-25(2), 1980, p. 164-176.
- [Koditschek 84] Koditschek D.E., "Natural motion for robot arms", *Proc. 23<sup>rd</sup> IEEE Conf. on Decision and Control*, Las Vegas, USA, December 1984, p. 737-735.
- [Konstantinov 81] Konstantinov M.S., Markov M.D., Nenchev D.N., "Kinematic control of redundant manipulators", *Proc. 11<sup>th</sup> Int. Symp. on Industrial Robots*, Tokyo, Japan, October 1981, p. 561-568.
- [Korrami 88] Korrami F., Özgüner U., "Decentralized control of robot manipulators via state and proportional-integral feedback", *Proc. IEEE Int. Conf. on Robotics and Automation*, Philadelphia, USA, April 1988, p. 1198-1203.
- [Kreuzer 79] Kreuzer E.J., "Dynamical analysis of mechanisms using symbolical equation manipulation", *Proc. 5<sup>th</sup> World Congress on Theory of Machines and Mechanisms*, Montréal, Canada, 1979, p. 599-602.
- [Landau 79] Landau I. D., *Adaptive control; The model reference approach*, Marcel Dekker Inc. New York, USA, 1979.
- [Landau 88] Landau I. D., Horowitz R., "Synthesis of adaptive controllers for robot manipulators using a passive feedback system approach", *Proc. IEEE Int. Conf. on Robotics and Automation*, Philadelphia, USA, April 1988, p. 1028-1033.
- [Lavallée 92] Lavallée S., "Procédé d'étalonnage d'un robot", Brevet n° FR 2 696 969 du 21/10/92.
- [Lawson 74] Lawson C.L., Hanson R.J., *Solving Least Squares Problems*, Prentice Hall, Englewood Cliffs, USA, 1974.
- [Lazard 92] Lazard D., "Stewart platforms and Grubner basis", *Proc. 3<sup>rd</sup> Int. Workshop on Advances in Robot Kinematics*, ARK 92, Ferrare, Italy, 1992, p. 136-142.
- [Le Borzec 75] Le Borzec R., Lotterie J., *Principes de la théorie des mécanismes*, Dunod, Paris, 1975.
- [Lee 83] Lee C.S.G., Ziegler M., "A geometric approach in solving the inverse kinematics of PUMA robots", *Proc. 13<sup>th</sup> Int. Symp. on Industrial Robots*, Chicago, USA, April 1983, p. (16-1)-(16-18).
- [Lee 88] Lee H.Y., Liang C.G., "Displacement analysis of the general 7-link 7R mechanism", *J. of Mechanism and Machine Theory*, Vol. 23(3), 1988, p. 219-226.
- [Lee 93] Lee H.Y., Roth B., "A closed-form solution of the forward displacement analysis of a class of in-parallel robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, Atlanta, USA, May 1993, p. 720-724.
- [Léon 91] Léon J.-C., *Modélisation et construction de surfaces pour la CFAO*, Hermès, Paris, France, 1991.



- [Lewis 93] Lewis F.L., Abdallah C.T., Dawson D.M., *Control of robot manipulators*, Macmillan, New York, USA, 1993.
- [Li 89] Li W., Slotine J.-J.E., "An indirect adaptive robot controller", *Systems & Control Letters*, Vol. 12, 1989, p. 259-266.
- [Liégeois 79] Liégeois A., Dombre E., "Analyse des robots industriels ; relations entre structures, performances et fonctions", Rapport IRIA n° 79102, Projet SURF, LAM, Montpellier, France, 1979.
- [Lilly 90] Lilly K.W., Orin D.E., "Efficient  $O(N)$  computation of the operational space inertia matrix", *Proc. IEEE Int. Conf. on Robotics and Automation*, Cincinnati, USA, May 1990, p. 1014-1019.
- [Lin 83] Lin C.S., Chang P.R., Luh J.Y.S., "Formulation and optimization of cubic polynomial joint trajectories for industrial robots", *IEEE Trans. on Automatic Control*, Vol. AC-28(12), December 1983, p. 1066-1073.
- [Lin 92] Lin W., Griffiths M., Duffy J., "Forward displacement analysis of the 4-4 Stewart platforms", *Trans. of the ASME, J. of Mechanical Design*, Vol. 114, September 1992, p. 444-450.
- [Llibre 83] Llibre M., Mampey R., Chrétien J.P., "Simulation de la dynamique des robots manipulateurs motorisés", *Congrès AFCET : Productique et Robotique Intelligente*, Besançon, France, November 1983, p. 197-207.
- [Lloyd 96] Lloyd J.E., "Using Puiseux series to control non-redundant robots at singularities", *Proc. IEEE Int. Conf. on Robotics and Automation*, Minneapolis, USA, April 1996, p. 1877-1882.
- [Lu 93] Lu Z., Shimoga K.B., Goldberg A., "Experimental determination of dynamic parameters of robotic arms", *J. of Robotic Systems*, Vol. 10(8), 1993, p. 1009-1029.
- [Luh 80a] Luh J.Y.S., Walker M.W., Paul R.C.P., "Resolved-acceleration control of mechanical manipulators", *IEEE Trans. on Automatic Control*, Vol. AC-25(3), June 1980, p. 468-474.
- [Luh 80b] Luh J.Y.S., Walker M.W., Paul R.C.P., "On-line computational scheme for mechanical manipulators", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 102(2), 1980, p. 69-76.
- [Luh 85a] Luh J.Y.S., Gu Y.L., "Industrial robots with seven joints", *Proc. IEEE Int. Conf. on Robotics and Automation*, St Louis, USA, March 1985, p. 1010-1015.
- [Luh 85b] Luh J.Y.S., Zheng Y.F., "Computation of input generalized forces for robots with closed kinematic chain mechanisms", *IEEE J. of Robotics and Automation*, Vol. RA-1(2), 1985, p. 95-103.
- [Ma 91] Ma O., Angeles J., "Architecture singularities of platform manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Sacramento, USA, April 1991, p. 1542-1547.
- [Maciejewski 85] Maciejewski A.A., Klein C.A., "Obstacle avoidance for kinematically redundant manipulators in dynamically varying environments", *The Int. J. of Robotics Research*, Vol. 4(3), Fall 1985, p. 109-117.
- [Maciejewski 88] Maciejewski A.A., Klein C.A., "Numerical filtering operation of robotic manipulators through kinematically singular configurations", *J. of Robotic Systems*, Vol. 5(6), 1988, p. 527-552.

- [Maciejewski 89] Maciejewski A.A., Klein C.A., "The singular value decomposition: computation and applications to robotics", *The Int. J. of Robotics Research*, Vol. 8(6), 1989, p. 63-79.
- [Manaoui 85] Manaoui O., "Calcul automatique de transformateurs de coordonnées analytiques de robots à partir de classes de solutions préétablies", Rapport de DEA, USTL, Montpellier, France, July 1985.
- [Mason 82] Mason M.T., "Compliant motion", in *Robot motion: planning and control*, M. Brady *et al.* Eds., MIT Press, Cambridge, USA, 1982.
- [Maurine 96] Maurine P., "Développement et mise en œuvre de méthodologies d'étalonnage de robots manipulateurs industriels", Thèse de Doctorat, Université Montpellier II, France, December 1996.
- [Mavroidis 93] Mavroidis C., "Résolution du problème géométrique inverse pour les manipulateurs série à six degrés de liberté", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, May 1993.
- [Mayeda 84] Mayeda H., Osuka K., Kangawa A., "A new identification method for serial manipulator arms", *Proc. IFAC 9<sup>th</sup> World Congress*, Budapest, Hungary, July 1984, p. 74-79.
- [Mayeda 90] Mayeda H., Yoshida K., Osuka K., "Base parameters of manipulator dynamic models", *IEEE Trans. on Robotics and Automation*, Vol. RA-6(3), 1990, p. 312-321.
- [Megahed 82] Megahed S., Renaud M., "Minimization of the computation time necessary for the dynamic control", *Proc. 12<sup>th</sup> Int. Symp. on Industrial Robots*, Paris, France, June 1982, p. 469-478.
- [Megahed 84] Megahed S., "Contribution à la modélisation géométrique et dynamique des robots manipulateurs ayant une structure de chaîne cinématique simple ou complexe ; application à leur commande", Thèse d'Etat, UPS, Toulouse, France, July 1984.
- [Mendel 73] Mendel J.M., *Discrete techniques of parameter estimation: the equation error formulation*, Marcel Dekker Inc. New York, USA, 1973.
- [Merlet 86] Merlet J.-P., "Contribution à la formalisation de la commande par retour d'effort en robotique ; application à la commande de robots parallèles", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, June 1986.
- [Merlet 89] Merlet J.-P., "Singular configurations of parallel manipulators and Grassmann geometry", *The Int. J. of Robotics Research*, Vol. 8(5), October 1989, p. 45-56.
- [Merlet 93] Merlet J.-P., "Closed-form resolution of the direct kinematics of parallel manipulators using extra sensor data", *Proc. IEEE Int. Conf. on Robotics and Automation*, Atlanta, USA, May 1993, p. 200-204.
- [Merlet 00] Merlet J.-P., *Parallel robots*, Kluwer Academic Publ., Dordrecht, The Netherlands, 2000.
- [Middleton 88] Middleton R.H., Goodwin G.C., "Adaptive computed torque control for rigid link manipulators", *Systems & Control Letters*, Vol. 10, 1988, p. 9-16.
- [Milenkovic 83] Milenkovic V., Huang B., "Kinematics of major robot linkage", *Proc. 13<sup>th</sup> Int. Symp. on Industrial Robots*, Chicago, USA, April 1983, p. 16.31-16.47.
- [Mooring 91] Mooring B.W., Roth Z.S., Driels M.R., *Fundamentals of manipulator calibration*, John Wiley & Sons, New York, USA, 1991.

- [Morel 94] Morel G., "Programmation et adaptation d'impédance de manipulateurs au contact", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, June 1994.
- [Murareci 97] Murareci D., "Contribution à la modélisation géométrique et à l'étalonnage des robots séries et parallèles", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, March 1997.
- [Murphy 93] Murphy S.H., Wen J.T.U., "Analysis of active manipulator elements in space manipulation", *IEEE Trans. on Robotics and Automation*, Vol. RA-9(5), October 1993, p. 544-552.
- [Murray 84] Murray J.J., Newman C.P., "ARM: an algebraic robot dynamic modeling program", *Proc. IEEE Int. Conf. on Robotics*, Atlanta, USA, March 1984, p. 103-104.
- [Nahvi 94] Nahvi A., Hollerbach J.M., Hayward V., "Calibration of parallel robot using multiple kinematic closed loops", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Diego, USA, May 1994, p. 407-412.
- [Nakamura 86] Nakamura Y., Hanafusa Y., "Inverse kinematic solutions with singularity robustness for robot manipulator control", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 108, 1986, p. 163-171.
- [Nakamura 87] Nakamura Y., Hanafusa Y., Yoshikawa T., "Task-priority based redundancy control of a robot manipulator", *The Int. J. of Robotics Research*, Vol. 6(2), 1987, p. 3-15.
- [Nanua 90] Nanua P., Waldron K.J., Murthy V., "Direct kinematic solution of a Stewart platform", *IEEE Trans. on Robotics and Automation*, Vol. RA-6(4), 1990, p. 438-444.
- [Nenchev 92] Nenchev D.N., "Restricted jacobian matrices of redundant manipulators in constrained motion tasks", *The Int. J. of Robotics Research*, Vol. 11(6), 1992, p. 584-597.
- [Nevins 73] Nevins J.L., Whitney D.E., "The force vector assembler concept", *Proc. 1<sup>st</sup> CISM-IFTOMM Symp. on Theory and Practice of Robots and Manipulators*, Udine, Italy, September 1973, p. 273-288.
- [Nevins 77] Nevins J.L. et al., "Exploratory research in industrial modular assembly", Charles Stark Draper Lab., Cambridge, USA, Report R-1111, 1977.
- [Newman 79] Newman W.H., Sproull R.F., *Principles of interactive computer graphics*, McGraw Hill, New York, USA, 1979.
- [Nicosia 84] Nicosia S., Tomei P., "Model reference adaptive control algorithms for industrial robots", *Automatica*, Vol. 20(5), 1984, p. 635-644.
- [Nicosia 90] Nicosia S., Tomei P., "Robot control by using only joint position measurements", *IEEE Trans. on Automatic Control*, Vol. AC-35(5), 1990, p. 1058-1061.
- [Nielsen 91] Nielsen L., Canudas de Wit C., Hagander P., "Controllability issues of robots near singular configurations", in *Advanced Robot Control, Lecture Notes in Control and Information Sciences*, Springer-Verlag, New York, USA, 1991, p. 307-314.
- [Olsen 86] Olsen H.B., Bekey G.A., "Identification of robot dynamics", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 1986, p. 1004-1010.
- [Orin 79] Orin D.E., McGhee R.B., Vukobratovic M., Hartoch G., "Kinematic and kinetic analysis of open-chain linkages utilizing Newton-Euler methods", *Mathematical Biosciences*, Vol. 43, 1979, p. 107-130.
- [Ortega 89] Ortega R., Spong M.W., "Adaptive motion control of rigid robots: a tutorial", *Automatica*, Vol. 25(6), 1989, p. 877-888.

- [Paden 88] Paden B, Panja R., "Globally asymptotically stable 'PD+' controller for robot manipulator", *Int. J. Control*, Vol. 47, 1988, p. 877-888.
- [Paul 72] Paul R.C.P., "Modelling, trajectory calculation, and servoing of a computer controlled arm", Ph. D. Thesis, Stanford Artificial Intelligence Lab., Stanford, USA, 1972.
- [Paul 81] Paul R.C.P., *Robot manipulators: mathematics, programming and control*, MIT Press, Cambridge, USA, 1981.
- [Payannet 85] Payannet D., "Modélisation et correction des erreurs statiques des robots manipulateurs", Thèse de Doctorat, USTL, Montpellier, France, 1985.
- [Penrose 55] Penrose R., "A generalized inverse for matrices", *Proc. Cambridge Philos. Soc.*, Vol. 51, 1955, p. 406-413.
- [Perdereau 91] Perdereau V., "Contribution à la commande hybride force-position", Thèse de Doctorat, Université Pierre et Marie Curie, Paris, France, February 1991.
- [Pham 91a] Pham C., Chedmail P., Gautier M., "Determination of base parameters of flexible links manipulators", *Proc. IMACS MCTS Symposium, Modelling and Control of Technological Systems*, Lille, France, May 1991, Vol. 1, p. 524-529.
- [Pham 91b] Pham C., Gautier M., "Essential parameters of robots", *Proc. 30<sup>th</sup> IEEE Conf. on Decision and Control*, Brighton, UK, December 1991, p. 2769-2774.
- [Pieper 68] Pieper D.L., "The kinematics of manipulators under computer control", Ph. D. Thesis, Stanford University, Stanford, USA, 1968.
- [Pierrot 91a] Pierrot F., "Robots pleinement parallèles légers : conception, modélisation et commande", Thèse de Doctorat, Université Montpellier II, France, April 1991.
- [Pierrot 91b] Pierrot F., Fournier A., Dauchez P., "Towards a fully-parallel six dof robot for high-speed applications", *Proc. IEEE Int. Conf. on Robotics and Automation*, Sacramento, USA, April 1991, p. 1288-1293.
- [Pledel 96] Pledele P., "Génération de mouvements optimaux pour un robot manipulateur", Thèse de doctorat, Université de Nantes et Ecole Centrale de Nantes, France, September 1996.
- [Poignet 00] Poignet P., Gautier M., "Comparison of weighted least squares and extended Kalman filtering methods for dynamic identification of robots", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Francisco, USA, April 2000, p. 3622-3627.
- [Popov 73] Popov V.M., *Hyperstability of control systems*, Springer-Verlag, New York, USA, 1973.
- [Potkonjak 86] Potkonjak V., "Thermal criterion for the selection of DC drives for industrial robots", *Proc. 16<sup>th</sup> Int. Symp. on Industrial Robots*, Brussels, Belgium, September-October 1986, p. 129-140.
- [Powell 64] Powell, M.J.D., "An efficient method for finding the minimum of a function of several variables without calculating derivatives", *The Computer Journal*, Vol. 7, 1964, p. 155-162.
- [Pressé 93] Pressé C., Gautier M., "New criteria of exciting trajectories for robot identification", *Proc. IEEE Int. Conf. on Robotics and Automation*, Atlanta, USA, May 1993, p. 907-912.
- [Pressé 94] Pressé C., "Identification des paramètres dynamiques des robots", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, October 1994.

- [Priel 90] Priel M., *Les robots industriels : caractéristiques, performance et choix*, Collection AFNOR Technique, Paris, France, 1990.
- [Prüfer 94] Prüfer M., Schmidt C., Wahl F., "Identification of robots dynamics with differential and integral models: a comparison", *Proc. IEEE Int. Conf. on Robotics and Automation*, San Diego, USA, May 1994, p. 340-345.
- [Pujas 95] Pujas A., "Etude de la robustesse de schémas de commande position / force pour robots à deux bras", Thèse de Doctorat, Université Montpellier II, France, June 1995.
- [Qu 91] Qu Z., Dorsey J., "Robust PID control of robots", *Int. J. Robotics and Automation*, Vol. 6(4), 1991, p. 228-235.
- [Raghavan 90] Raghavan M., Roth B., "Inverse kinematics of the general 6R manipulator and related linkages", *Trans. of the ASME, J. of Mechanical Design*, Vol. 115, 1990, p. 502-508.
- [Raghavan 91] Raghavan M., "The Stewart platform of general geometry has 40 configurations", in *Advances in Design Automation*, ASME Press, New-York, USA, 1991, p. 397-402.
- [Raibert 77] Raibert M.H., "Analytic equations vs. table look-up for manipulation: a unifying concept", *Proc. 16<sup>th</sup> IEEE Conf. on Decision and Control*, New Orleans, USA, 1977, p. 576-579.
- [Raibert 78] Raibert M.H., Horn B.K.P., "Manipulator control using the configuration space method", *The Industrial Robot*, Vol. 5(2), 1978, p. 69-73.
- [Raibert 81] Raibert M.H., Craig J.J., "Hybrid position/force control of manipulators", *Trans. of the ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 103, June 1981, p. 126-133.
- [Raucent 90] Raucent B., "Identification des paramètres dynamiques des robots manipulateurs", Thèse de Doctorat, Université de Louvain, Belgium, 1990.
- [Raucent 92] Raucent B., Bastin G., Campion G., Samin J.-C., Willems P.Y., "Identification of barycentric parameters of robotic manipulators from external measurements", *Automatica*, Vol. 28(5), 1992, p. 1011-1016.
- [Reboulet 85] Reboulet C., Robert A., "Hybrid control of a manipulator equipped with an active compliant wrist", *Proc. 3<sup>rd</sup> Int. Symp. of Robotics Research*, Gouvieux, France, October 1985, p. 76-80.
- [Reboulet 88] Reboulet C., "Modélisation des robots parallèles", in *Techniques de la robotique : architectures et commandes*, Hermès, Paris, France, 1988.
- [Renaud 75] Renaud M., "Contribution à l'étude de la modélisation et de la commande des systèmes mécaniques articulés", Thèse de Docteur-Ingénieur, UPS, Toulouse, France, December 1975.
- [Renaud 80a] Renaud M., "Contribution à la modélisation et à la commande dynamique des robots manipulateurs", Thèse d'Etat, UPS, Toulouse, France, September 1980.
- [Renaud 80b] Renaud M., "Calcul de la matrice jacobienne nécessaire à la commande coordonnée d'un manipulateur", *J. of Mechanism and Machine Theory*, Vol. 15(1), 1980, p. 81-91.
- [Renaud 85] Renaud M., "A near minimum iterative analytical procedure for obtaining a robot-manipulator dynamic model", *IUTAM/IFTOMM Symp. on Dynamics of Multi-body Systems*, Udine, Italy, 1985.

- [Renaud 87] Renaud M., "Quasi-minimal computation of the dynamic model of a robot manipulator utilizing the Newton-Euler formalism and the notion of augmented body", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 1677-1682.
- [Restrepo 95] Restrepo P.P., Gautier M., "Calibration of drive chain of robot joints", *Proc. 4<sup>th</sup> IEEE Conf. on Control Applications, CCA'95*, Albany, USA, 1995, p. 526-531.
- [Restrepo 96] Restrepo P.P., Contribution à la modélisation, identification et commande des robots à structures fermées : application au robot Acma SR400", Thèse de Doctorat, Université de Nantes et Ecole Centrale de Nantes, France, October 1996.
- [Richalet 98] Richalet J., *Pratique de l'identification*, 2<sup>ième</sup> édition, Hermès, Paris, France, 1998.
- [Robert 86] Robert A., "Commande hybride position-force ; mise en œuvre et expérimentation sur un micro-ordinateur parallèle", Thèse de Docteur-Ingénieur, Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, Toulouse, France, December 1986.
- [Roberts 65] Roberts L.G., "Homogeneous matrix representation and manipulation of N-dimensional constructs", MIT Lincoln Lab., USA, MS 1405, May 1965.
- [Rocco 96] Rocco P., "Stability of PID control for industrial robot arms", *IEEE Trans. on Robotics and Automation*, Vol. RA-12(4), 1996, p. 607-614.
- [Roth 76] Roth B., "Performance evaluation of manipulators from a kinematic viewpoint", Cours de Robotique, IRIA, Toulouse, France, 1976, p. 233-263.
- [Roth 87] Roth Z.S., Mooring B.W., Ravani B., "An overview of robot calibration", *IEEE J. of Robotics and Automation*, Vol. RA-3(5), October 1987, p. 377-385.
- [Sadegh 87] Sadegh N., Horowitz R., "Stability analysis of an adaptive controller for robotic manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 1223-1229.
- [Sadegh 90] Sadegh N., Horowitz R., "Stability and robustness analysis of a class of adaptive controllers for robotic manipulators", *The Int. J. of Robotics Research*, Vol. 9(3), 1990, p. 74-92.
- [Salisbury 80] Salisbury J.K., "Active stiffness control of a manipulator in cartesian coordinates", *Proc. 19<sup>th</sup> IEEE Conf. on Decision and Control*, Albuquerque, USA, December 1980, p. 95-100.
- [Salmon 1885] Salmon G., *Lessons introductory to the modern higher algebra*, Chelsea Publishing CO., New York, USA, 1885.
- [Samson 83] Samson C., "Problèmes en identification et commande de systèmes dynamiques", Thèse d'Etat, Rennes, France, 1983.
- [Samson 87] Samson C., "Robust control of a class of non-linear systems and applications to robotics", *Int. J. of Adaptive Control and Signal Processing*, Vol. 1, 1987, p. 49-68.
- [Samson 91] Samson C., Le Borgne M., Espiau B., *Robot Control*, Oxford University Press, Oxford, UK, 1991.
- [Schefer 82] Schefer B., "Geometric control and calibration method of an industrial robot", *Proc. 12th Int. Symposium on Industrial Robotics*, Paris, France, 1982, p. 331-339.

- [Sciavicco 94] Sciavicco L., Siciliano B., Villani L., "On dynamic modelling of gear-driven rigid robot manipulators", *Proc. 4<sup>th</sup> IFAC Symp. on Robot Control, SYROCO'94*, Capri, Italy, September 1994, p. 543-549.
- [Sgarbi 92] Sgarbi F., Cammoun R., "Real time trajectory generation using filtering techniques", *Proc. 2<sup>nd</sup> Int. Conf. on Automation, Robotics, and Computer Vision, ICARCV'92*, Singapour, September 1992, p. RO-8.5.1-RO-8.5.6.
- [Sheth 71] Sheth P.N., Uicker J.J., "A generalized symbolic notation for mechanism", *Trans. of ASME, J. of Engineering for Industry*, Vol. 93, 1971, p. 102-112.
- [Shiller 94] Shiller Z., "On singular time-optimal control along specified paths", *IEEE Trans. on Robotics and Automation*, Vol. RA-10(4), 1994, p. 561-566.
- [Shin 85] Shin K.G., McKay N.D., "Minimum time control of robotic manipulators with geometric path constraints", *IEEE Trans. on Automatic Control*, Vol. AC-30(6), 1985, p. 531-541.
- [Siciliano 93] Siciliano B., Villani L., "An adaptive force/position regulator for robot manipulators", *Int. J. of Adaptive Control and Signal Processing*, Vol. 7, 1993, p. 389-403.
- [Siciliano 96a] Siciliano B., Villani L., "A passivity-based approach to force regulation and motion control of robot manipulators", *Automatica*, Vol. 32, 1996, p. 443-447.
- [Siciliano 96b] Siciliano B., Villani L., "Adaptive compliant control of robot manipulators", *Control Engineering Practice*, Vol. 4, 1996, p. 705-712.
- [Siciliano 00] Siciliano B., Villani L., *Robot force control*, Kluwer Academic Publ., Boston, USA, 2000.
- [Slotine 87] Slotine J.-J.E., Li W., "Adaptive manipulator control: a case study", *Proc. IEEE Int. Conf. on Robotics and Automation*, Raleigh, USA, March-April 1987, p. 1312-1400.
- [Slotine 91] Slotine J.-J.E., Li W., *Applied Nonlinear Control*, Prentice Hall, Englewood Cliffs, USA, 1991.
- [Spanos 85] Spanos J., Kholi D., "Workspace analysis of regional structures of manipulators", *J. of Mechanisms, Transmissions, and Automation in Design*, Vol. 107, June 1985, p. 219-225.
- [Spetch 88] Spetch R., Isermann R., "On-line identification of inertia, friction and gravitational forces applied to an industrial robot", *Proc. IFAC Symp. on Robot Control, SYROCO'88*, 1988, p. 88.1-88.6.
- [Spong 87] Spong M.W., "Modeling and control of elastic joint robots", *Trans. of the ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 109, 1987, p. 310-319.
- [Spong 89] Spong M.W., Vidyasagar M., *Robot dynamics and control*, John Wiley & Sons, New York, USA, 1989.
- [Spong 90] Spong M.W., Ortega R., "On adaptive inverse dynamics control of rigid robots", *IEEE Trans. on Automatic Control*, Vol. AC-35(1), 1990, p. 92-95.
- [Stepanenko 93] Stepanenko Y., Yuan J., "A reduced order regressor and its application to adaptive robotic control", *The Int. J. of Robotics Research*, Vol. 12(2), April 1993, p. 180-187.
- [Stewart 65] Stewart D., "A platform with six degrees of freedom", *Proc. of Institution of Mechanical Engineers*, Vol. 180, Part 1, n° 15, 1965-1966, p. 371-385.

- [Sugimoto 85] Sugimoto K., Okada T., "Compensation of positioning errors caused by geometric deviations in robot systems", *The 3<sup>rd</sup> Int. Symp. of Robotics Research*, MIT Press, Cambridge, USA, 1985, p. 231-236.
- [Takegaki 81a] Takegaki M., Arimoto S., "An adaptive trajectory control of manipulators", *Int. J. Control*, Vol. 34(2), 1981, p. 219-230.
- [Takegaki 81b] Takegaki M., Arimoto S., "A new feedback method for dynamic control of manipulators", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 102, 1981, p. 119-125.
- [Tancredi 95] Tancredi L., "De la simplification et la résolution du modèle géométrique direct des robots parallèles", Thèse de Doctorat, Ecole Nationale Supérieure des Mines de Paris, France, December 1995.
- [Tang 94] Tang G.R., Lieu L.S., "A study of three robot calibration methods based on flat surfaces", *J. of Mechanism and Machine Theory*, Vol. 29(2), 1994, p. 195-206.
- [Taylor 79] Taylor R.H., "Planning and execution of straight line manipulator trajectories", *IBM J. of Research and Development*, Vol. 23(4), July 1979, p. 424-436.
- [Thérond 96] Thérond X., Dégoulange E., Dombre E., Pierrot F., "Force control of a medical robot for arterial diseases detection", *Proc. 6<sup>th</sup> Int. Symp. on Robotics and Manufacturing*, WAC'96, Montpellier, France, May 1996, Vol. 6, p. 793-798.
- [Tomei 91] Tomei P., "Adaptive PD controller for robot manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-7(4), 1991, p. 565-570.
- [Tondou 94] Tondou B., El Zorkany H., "Identification of a trajectory model for the PUMA-560 Robot", *J. of Robotic Systems*, Vol. 11(2), 1994, p. 77-90.
- [Touren 84] Touren P., "Modélisation de la dynamique des mécanismes polyarticulés ; application à la CAO et à la simulation de robots", Thèse de Docteur-Ingénieur, USTL, Montpellier, France, July 1984.
- [Uicker 69] Uicker J.J., "Dynamic behavior of spatial linkages", *Trans. of ASME, J. of Engineering for Industry*, Vol. 91, 1969, p. 251-258.
- [Vandanjon 95] Vandanjon P.-O., Gautier M., Desbats P., "Identification of inertial parameters of robots by means of spectrum analysis", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nayoga, Japan, May 1995, p. 3033-3038.
- [Veitschegger 86] Veitschegger W.K., Wu C.H., "Robot accuracy analysis based on kinematics", *IEEE J. of Robotics and Automation*, Vol. RA-2(3), September 1986, p. 171-179.
- [Volpe 93] Volpe R., Khosla P., "A theoretical and experimental investigation of explicit force control for manipulators", *IEEE Trans. on Automatic Control*, Vol. AC-38(11), 1993, p. 1634-1650.
- [Volpe 95] Volpe R., Khosla P., "The equivalence of second-order impedance control and proportional gain explicit force control", *The Int. J. of Robotics Research*, Vol. 14(6), 1995, p. 574-589.
- [Vukobratovic 82] Vukobratovic M., Potkonjak V., *Dynamics of manipulation robots*; Vol. 1: *Theory and applications*, Springer-Verlag, New York, USA, 1982.
- [Vukobratovic 85] Vukobratovic M., Kircanski N., *Real-time dynamics of manipulation robots*, Springer-Verlag, New York, USA, 1985.



- [Walker 82] Walker M.W., Orin D.E., "Efficient dynamic computer simulation of robotics mechanism", *Trans. of ASME, J. of Dynamic Systems, Measurement, and Control*, Vol. 104, 1982, p. 205-211.
- [Wampler 86] Wampler C.W., "Manipulator inverse kinematic solutions based on vector formulation and damped least-squares methods", *IEEE Trans. on Systems, Man, and Cybernetics*, Vol. SMC-16, 1986, p. 93-101.
- [Wang 83] Wang L.T., Ravani B., "Recursive computations of kinematic and dynamic equations for mechanical manipulators", *IEEE J. of Robotics and Automation*, Vol. RA-1(3), September 1983, p. 124-131.
- [Wang 91] Wang L.C.T., Chen C.C., "A combined optimisation method for solving the inverse kinematics problem of mechanical manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-7(4), 1991, p. 489-499.
- [Wang 93] Wang D., McClamroch N.H., "Position and force control for constrained manipulator motion: Lyapunov's direct method", *IEEE Trans. on Robotics and Automation*, Vol. RA-9(3), 1993, p. 308-313.
- [Wen 88] Wen J. T., Bayard D., "New class of control laws for robotic manipulators; Part 1: non-adaptive case", *Int. J. Control*, Vol. 47(5), 1988, p. 1361-1385.
- [Wen 91] Wen J., Murphy S., "Stability analysis of position and force control for robot arms", *IEEE Trans. on Automatic Control*, Vol. AC-36, 1991, p. 365-371.
- [Wenger 89] Wenger P., "Aptitude d'un robot manipulateur à parcourir son espace de travail en présence d'obstacles", Thèse de Doctorat, ENSM, Nantes, France, September 1989.
- [Wenger 92] Wenger P., "A new general formalism for the kinematic analysis of all non redundant manipulators", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nice, France, May 1992, p. 442-447.
- [Wenger 93] Wenger P., "A classification of manipulator geometries based on singularity avoidance ability", *Proc. Int. Conf. on Advanced Robotics, ICAR'93*, Tokyo, Japan, November 1993, p. 649-654.
- [Wenger 98] Wenger P., "Classification of 3R positioning manipulators", *ASME J. of Mechanical Design*, Vol. 120(2), June 1998, p. 327-332.
- [West 89] West H., Papadopoulos E., Dubowsky S., Cheah H., "A method for estimating the mass properties of a manipulator by measuring the reaction moments at its base", *Proc. IEEE Int. Conf. on Robotics and Automation*, Scottsdale, USA, May 1989, p. 1510-1516.
- [Whitney 69] Whitney D.E., "Resolved motion rate control of manipulators and human prostheses", *IEEE Trans. on Man Machine Systems*, Vol. MMS-10(2), June 1969, p. 47-53.
- [Whitney 79] Whitney D.E., Nevins J.L., "What is the remote center compliance (RCC) and what can it do", *Proc. 9<sup>th</sup> Int. Symp. on Industrial Robots*, Washington, USA, March 1979, p. 135-147.
- [Whitney 85] Whitney D.E., "Historical perspective and state of the art in robot force control", *Proc. IEEE Int. Conf. on Robotics and Automation*, St Louis, USA, March 1985, p. 262-268.
- [Whitney 86] Whitney D.E., Lozinski C.A., Rourke J.M., "Industrial robot forward calibration method and results", *J. Dynamic Systems, Measurements, and Control*, Vol. 108, p. 1-8, 1986.

- [Wittenburg 77] Wittenburg J., *Dynamics of system of rigid bodies*, B.G. Teubner, Stuttgart, Germany, 1977.
- [Wittenburg 85] Wittenburg J., Holtz U., "The program MESA VERDE for robot dynamics simulations", *The 3<sup>rd</sup> Int. Symp. of Robotics Research*, MIT Press, Cambridge, USA, 1985, p. 197-204.
- [Wu 84] Wu C.H., "A kinematic CAD tool for the design and control of robot manipulators", *The Int. J. of Robotics Research*, Vol. 3(1), 1984, p. 74-85.
- [Yabuta 92] Yabuta T., "Nonlinear basic stability concept of the hybrid position/force control scheme for robot manipulators", *IEEE Trans. on Robotics and Automation*, Vol. RA-8(5), 1992, p. 663-670.
- [Yang 66] Yang A.T., Freudenstein F., "Application of dual number quaternion algebra in the analysis of spatial mechanisms", *Trans. of ASME, J. of Applied Mechanics*, Vol. 33, 1966, p. 300-308.
- [Yoshida 00] Yoshida K., Khalil W., "Verification of the positive definiteness of the inertial matrix of manipulators using base inertial parameters", *The Int. J. of Robotics Research*, Vol. 19(5), 2000, p. 498-510.
- [Yoshikawa 84a] Yoshikawa T., "Analysis and control of robot manipulators with redundancy", *The 1<sup>st</sup> Int. Symp. of Robotics Research*, MIT Press, Cambridge, USA, 1984, p. 735-748.
- [Yoshikawa 84b] Yoshikawa T., "Manipulability of robotics mechanisms", *Proc. 2<sup>nd</sup> Int. Symp. of Robotics Research*, Kyoto, Japan, August 1984, p. 91-98.
- [Zabala 78] Zabala Iturralde J., "Commande des robots-manipulateurs à partir de la modélisation de leur dynamique", Thèse de Troisième Cycle, UPS, Toulouse, France, July 1978.
- [Zeghloul 91] Zeghloul S., "Développement d'un système de CAO Robotique intégrant la planification de tâches et la synthèse de sites robotisés", Thèse d'Etat, Université de Poitiers, France, February 1991.
- [Zgaib 92] Zgaib W., "Génération symbolique automatique des équations de la dynamique des systèmes mécaniques complexes avec contraintes cinématiques", Thèse de Doctorat, ENSAM, Paris, France, 1992.
- [Zhang 92] Zhang C., Song S.M., "Forward kinematics of a class of parallel (Stewart) platforms with closed-form solutions", *J. of Robotic Systems*, Vol. 9(1), 1992, p. 93-112.
- [Zhong 95] Zhong X.L., Lewis J.M., "A new method for autonomous robot calibration", *Proc. IEEE Int. Conf. on Robotics and Automation*, Nayoga, Japan, May 1995, p. 1790-1795.
- [Zhuang 95] Zhuang H., Masory O., Yan J., "Kinematic calibration of a Stewart platform using pose measurements obtained by a single theodolite", *Proc. 1995 Int. Conf. on Intelligent Robots and Systems, IROS'95*, Pittsburg, USA, August 1995, p. 329-334.
- [Zhuang 97] Zhuang H., "Self-calibration of a class of parallel mechanisms with a case study on Stewart platform", *IEEE Trans. on Robotics and Automation*, Vol. RA-13(3), 1997, p. 387-397.
- [Zhuang 99] Zhuang H., Motaghedi S.H., Roth Z.S., "Robot calibration with planar constraints", *Proc. IEEE Int. Conf. on Robotics and Automation*, Detroit, USA, May 1999, p. 805-810.

**[Zodiac 96]** *The Zodiac, Theory of robot control*, C. Canudas de Wit, B. Siciliano, G. Bastin Eds., Springer-Verlag, Berlin, Germany, 1996.