

References

- ABB Robotics, (2018). Available at: https://www.researchgate.net/figure/The-IRB-1400-industrial-robot-from-ABB-used-in-the-experiments_fig1_228960943. Accessed 21/06/18.
- Abdel-Malek, K. (1995) ‘*Dexterity of manipulators at an operating point*’, in *ASME Des. Eng. Tech. Conf.*, Boston, MA, USA.
- Agarwal, V. (2012) ‘*Trajectory planning of redundant manipulator using fuzzy clustering method*’, *Int. J. Adv. Manuf. Technol.*, 61(5–8), pp. 727–744.
- Al-Dois, H., Jha, A. K. and Mishra, R. B. (2013) ‘*Task-based design optimization of serial robot manipulators*’, *Eng. Optim.*, 45(6), pp. 647–658.
- Ali Hosseinaveh, A., Sargeant, B., Erfani, T., Robson, S., Shortis, M., Hess, M. and Boehm, J. (2014) ‘*Towards fully automatic reliable 3D acquisition: From designing imaging network to a complete and accurate point cloud*’, *Rob. Auton. Syst.*, 62(8), pp. 1197–1207.
- Angeles, J. (2003) *Fundamentals of Robotic Mechanical Systems : Theory , Methods , and Algorithms , Second Edition*.
- Arai, T., Pagello, E. and Parker, L. E. (2002) ‘*Editorial : Advances in Multi-Robot Systems*’, *Ieee Trans. Robot. Autom. Oct.*, 18(5), pp. 655–661.
- Azariadis, P. N. and Sapidis, N. S. (2005) ‘*Drawing curves onto a cloud of points for point-based modelling*’, 37, pp. 109–122.
- Baizid, K., Ćuković, S., Iqbal, J., Yousnadj, A., Chellali, R., Meddahi, A., Devedžić, G. and Ghionea, I. (2016) ‘*IRoSim: Industrial Robotics Simulation Design Planning and*

- Optimization platform based on CAD and knowledgware technologies*’, *Robot. Comput. Integr. Manuf.*, 42, pp. 121–134.
- Balafoutis, C. A. and Patel, R. V. (1991) *Dynamic Analysis of Robot Manipulators: A Cartesian Tensor Approach*, Kluwer Academic Publishers, Boston.
- Barral, D., Perrin, J. P., Dombre, E., and Liégeois, A. (2001) ‘*Simulated annealing combined with a constructive algorithm for optimising assembly workcell layout*’, *Int. J. Adv. Manuf. Technol.*, 17(8), pp. 593–602.
- Bartelt, M., Stumm, S., and Kuhlenkötter, B. (2014) ‘*Tool oriented robot cooperation*’, *Procedia CIRP*, 23(C), pp. 188–193.
- Basile, F., Caccavale, F., Chiacchio, P., Coppola, J. and Curatella, C. (2012) ‘*Task-oriented motion planning for multi-arm robotic systems*’, *Robot. Comput. Integr. Manuf.*, 28(5), pp. 569–582.
- Bejczy, A. K. (1974) *Robot Arm Dynamic and Control*, 33, pp.669, Jet Propulsion Laboratory, California Institute of Technology.
- Beserra G., R. Ferreira da Silva, B. M., Rocha, L. K. D. M., Aroca, R. V., Velho, L. C. P. R. and Gonçalves, L.M.G. (2013) ‘*Efficient 3D object recognition using foveated point clouds*’, *Comput. Graph. Pergamon*, 37(5), pp. 496–508.
- Brock, O. and Khatib, O. (1999) ‘*Real-time obstacle avoidance and motion coordination in a multi-robot workcell*’, in *IEEE Int. Symp. Assem. Task Plan.* Porto.
- Cao, T. and Sanderson, A. C. (1991) ‘*Task sequence planning in a robot workcell using AND/OR nets.*’, in *IEEE Int. Symp. Intell. Control* Arlington, VA.
- Carl de Boor (1978) *A Practical Guide to Splines*, Springer-Verlag, New York.

- Chan, F. T.S., Lau, K. W., Chan, P. L.Y. and Choy, K. L. (2006) 'Two-stage approach for machine-part grouping and cell layout problems', *Robot. Comput. Integr. Manuf.*, 22(3), pp. 217–238.
- Chedmail, P. and Wenger, P. (1990) 'Manipulator Free Workspace: A New Approach for Robotic CAD Systems.', in *Int. Symp. Robot. Manuf. Res. Educ.* Burnaby.
- Chegg, (2018). Available at: <https://www.chegg.com/homework-help/apply-concepts-associated-work-cell-support-systems-presente-chapter-6-problem-1pcsp-solution-9780130602435-exc> (Accessed: 21/06/2018).
- Chettibi, T., et al. (2004) 'Minimum cost trajectory planning for industrial robots', *Eur. J. Mech. A/Solids*, 23(4), pp. 703–715.
- Chiddarwar, S. S. and Babu, R. N. (2011) 'Conflict free coordinated path planning for multiple robots using a dynamic path modification sequence', *Rob. Auton. Syst.*, 59(7–8), pp. 508–518.
- Colon, E. and Verbiest, K. (2008) *3D Mission Oriented Simulation*, Royal Military school, Belgium.
- Corke, P.I. (1996) 'A Robotics Toolbox for MATLAB', *IEEE Rob. Auto. Mag.*, 3(1), pp. 24–32.
- Corke, P. I. (2013) *Robotics, Vision and control*, 2 ed., Springer-Verlag, Berlin.
- Craig, J. J. (2005) *Introduction to Robotics*, 3 ed., Pearson Prentice Hall, New Jersey.
- Cyberneticzoo, (2018). Available at: <http://cyberneticzoo.com/teleoperators/1976-mf3-manipulator-vehicle-kohler-german/attachment/mf3-mobile-robot-x640/> (Accessed: 21/06/2018).

- Dawande, M. W., Geismar, H. N., Sethi, S. P. and Sriskandarajah, C. (2007) *Throughput Optimization in Robotic Cells*, Springer-Verlag, New York.
- Denavit, J. and Hartenberg, R. S. (1955) 'A kinematic notation for lower-pair mechanisms based on matrices', *Trans. ASME J. Appl. Mech.*, 22, pp. 215–221.
- Dillon, S. R. (1973) *Computer assisted equation generation in linkage dynamics*, Ohio State University, Ohio, Columbus.
- Ding, D., Shen, C., Pan, Z., Cuiuri, D., Li, H., Larkin, N. and Duin, S. V. (2016) 'Computer-Aided Design Towards an automated robotic arc-welding-based additive manufacturing system from CAD to finished part', *Comput. Des.*, 73, pp. 66–75.
- Dogar, M., Spielberg, A., Baker, S. and Rus, D. (2015) 'Multi-Robot Grasp Planning for Sequential Assembly Operations Terms of Use Multi-Robot Grasp Planning for Sequential Assembly Operations', *IEEE Int. Conf. Robot. Autom.*
- Farinelli, A., Iocchi, L. and Nardi, D. (2004) 'Multirobot systems: A classification focused on coordination', *IEEE Trans. Syst. Man, Cybern. Part B Cybern.*, 34(5), pp. 2015–2028.
- Fawaz, K., Merzouki, R. and Ould-Bouamama, B. (2009) 'Model based real time monitoring for collision detection of an industrial robot', *Mechatronics*, 19(5), pp. 695–704.
- Featherstone, R. (1983) 'The calculation of robot dynamics using articulated-body inertias', *Int. J. Rob. Res.*, 2(1), pp. 13–30.
- Featherstone, R. (2008) *Rigid Body Dynamics Algorithms*, Springer, New York, USA.
- Featherstone, R. and Orin, D. (2000) 'Robot Dynamics: Equations and Algorithms.', in *IEEE Int. Conf. Robot. Autom.* San Francisco, CA.

- Ferreira, L. A., Figueira, Y. L., Iglesias, I. F. and Souto, M. Á. (2017) ‘*Offline CAD-based robot programming and welding parametrization of a flexible and adaptive robotic cell using enriched CAD / CAM system for shipbuilding*’, *Procedia Manuf.*, 11, pp. 215–223.
- Fitzgerald, J. M. (1998) ‘*Industrial material handling and process applications of robots*’, in *CRC Handb. Mech. Eng.* Taylor & Francis.
- Fu, K. S., Gonzalez, R. C. and Lee, C. S. G. (1987) *Robotics: Control, Sensing, Vision, and Intelligence*, 1st ed., McGraw-Hill, Inc., New York, USA.
- Gasparetto, A., Lanzutti, A., Boscariol, P., Lanzutti, A. and Vidoni, R. (2012) ‘*Experimental validation and comparative analysis of optimal time-jerk algorithms for trajectory planning*’, *Robot. Comput. Integr. Manuf.*, 28(2), pp. 164–181.
- Gasparetto, A., Lanzutti, A., Boscariol, P., Lanzutti, A. and Vidoni, R. (2012) ‘*Trajectory Planning in Robotics*’, *Math. Comput. Sci.*, 6(3), pp. 269–279.
- Gasparetto, A. and Zanotto, V. (2007) ‘*A new method for smooth trajectory planning of robot manipulators*’, *Mech. Mach. Theory*, 42(4), pp. 455–471.
- Groover, M. P. (1987) *Automation, Production Systems, and Computer Integrated Manufacturing*, Prentice-Hall, New Delhi, India.
- Groover, M. P. and Zimmers Jr., E. W. (2006) *CAD/CAM: Computer-Aided Design and Manufacturing*, Pearson Education, India.
- Guarato, A. Z., Quinsat, Y., Charyar, M-S, Lartigue, C. and Sura, E. (2017) ‘*Conversion of 3D scanned point cloud into a voxel-based representation for crankshaft mass balancing*’, *Int. J. Adv. Manuf. Technol.*

- Guo, Y., Chen, L. P., Wang, S. and Zhou, J. (2003) '*A new simulation optimisation system for the parameters of a machine cell simulation model*', *Int. J. Adv. Manuf. Technol.*, 21(8), pp. 620–626.
- Haddad, M., *et al.* (2007) '*Trajectory Generation.*', in Khalil, W., and Dombre, E. (eds) *Robot Manip. Model. Performance, Anal. Control*, 1st ed., ISTE Ltd., London.
- Hammond, F. L. and Shimada, K. (2009) '*Improvement of manufacturing workcell layout design using weighted isotropy metrics*', *2009 IEEE Int. Conf. Mechatronics Autom. ICMA 2009*, pp. 3408–3414.
- Harmon, R. L. and Peterson, L. D. (1990) *Reinventing the Factory: Productivity Breakthroughs in Manufacturing Today*, Free Press, New York.
- Hernansanz, A., Casals, A. and Amat, J. (2015) '*A multi-robot cooperation strategy for dexterous task oriented teleoperation*', *Rob. Auton. Syst.*, 68, pp. 156–172.
- Hollerbach, J. M. (1980) '*A Recursive Lagrangian Formulation of Manipulator Dynamics and a Comparative Study of Dynamics Formulation Complexity*', *IEEE Trans. Syst. Man Cybern.*, 10(11), pp. 730–736.
- Hong, C., Nguyen, P. and Choi, Y. (2018) '*Automation in Construction Comparison of point cloud data and 3D CAD data for on-site dimensional inspection of industrial plant piping systems*', *Autom. Constr.*, 91(3), pp. 44–52.
- Horváth, G. and Erdős, G. (2017) '*Point cloud based robot cell calibration*', *CIRP Ann.*, 66(1), pp. 145–148.
- Hu, J., Zhang, X. and Zhan, J. (2008) '*Trajectory Planning of a Novel 2-DoF High-Speed Planar Parallel Manipulator*', in Xiong, C., *et al.* (eds) *Intell. Robot. Appl.* Springer, Heidelberg.

- Huang, Y., Chiba, R., Arai, T., Ueyama, T. and Ota, J.. (2015) '*Robust multi-robot coordination in pick-and-place tasks based on part-dispatching rules*', *Rob. Auton. Syst.*, 64, pp. 70–83.
- Huck, M. (1989) '*Computer-Aided Layout Planning for Robot Applications*', in *INCOM'89 Madrid*.
- Hutchinson, S. A. and Kak, A. C. (1989) '*Planning Sensing Strategies in a Robot Work Cell with Multi-Sensor Capabilities.*', *IEEE Trans. Robot. Autom.*, 5(6), pp. 34-46.
- Hyer, N. and Wemmerlöv, U. (2002) *Reorganizing the factory : competing through cellular manufacturing*, Productivity press, Portland.
- IFR (2016) *World Robotics Report 2016 : European Union occupies top position in the global automation race*.
- IFR (2017) *Robot density rises globally – International Federation of Robotics*.
- Izui, K., Murakumo, Y., Suemitsu, I., Nishiwaki, S., Noda, A. and Nagatani, T. (2013) '*Multiobjective layout optimization of robotic cellular manufacturing systems*', *Comput. Ind. Eng.*, 64(2), pp. 537–544.
- Jayaswal, S. and Adil, G. K. (2004) '*Efficient algorithm for cell formation with sequence data, machine replications and alternative process routings*', *Int. J. Prod. Res.*, 42(12), pp. 2419–2433.
- Jerbić, B., Jerbić, Bojan, Šuligoj, F., Švaco, M. and Šekoranja, B. (2015) '*Robot Assisted 3D Point Cloud Object Registration*', *Procedia Eng.*, 100, pp. 847–852.
- Jian, Z. and Ai-Ping, L. (2009) '*Genetic algorithm for robot workcell layout problem*', *2009 WRI World Congr. Softw. Eng. WCSE*, 4, pp. 460–464.
- Jose, K. and Pratihari, D. K. (2016) '*Task allocation and collision-free path planning of*

- centralized multi-robots system for industrial plant inspection using heuristic methods*, *Rob. Auton. Syst.*, 80, pp. 34–42.
- Kahn, E. and Roth, B. (1971) '*The near-minimum-time control of open-loop articulated kinematic chains*', *ASME J. Dyn. Syst. Meas. Control*, 39(3), pp. 164–172.
- Kaldestad, K. B., Hovland, G. and Anisi, D. A. (2012) '*CAD-Based Training of an Expert System and a Hidden Markov Model for Obstacle Detection in an Industrial Robot Environment*' *IFAC*, (4020), pp. 0–5.
- Kardos, C. and Váncza, J. (2018) '*Application of generic CAD models for supporting feature based assembly process planning*', *Procedia CIRP*, 67, pp. 446–451.
- Keith, L. D. and Chand, S. (1985) '*On-Line Polynomial Trajectories for Robot Manipulators.*', *Int. J. Rob. Res.*, 4(2).
- Khalil, W., & Dombre, E. (2007) *Robot manipulators, modeling, performance, analysis and control*, 1 ed ISTE Ltd, London, UK.
- Kim, P., Chen, J. and Cho, Y. K. (2018) '*Automation in Construction SLAM-driven robotic mapping and registration of 3D point clouds*', *Autom. Constr.*, 38–48.
- Kirkpatrick, S., Gelatt Jr, C. D. and Vecchi, M. P. (1983) '*Optimization by Simulated Annealing*', *Science*, 220 (4598): pp.671–680.
- Klafter, R. D., Chiecelewski, T. A. and Neigen, M. (2008) *Robotic Engineering, An Integrated Approach*, Indian Rep Prentice-Hall of India, New Delhi, India.
- Koren, Y. (1987) *Robotics for Engineers*, McGraw-Hill, Inc., Singapore.
- Kreith, F. (1998) *The CRC Handbook of Mechanical Engineering, Second Edition*, Taylor & Francis (Handbook Series for Mechanical Engineering).

- Kumar, S. (1992) *Industrial Robots and Computer Integrated Manufacturing.*, Oxford & IBH Publishing Co, Industrial Robots and Computer Integrated Manufacturing.
- Kurfess, T. R. (2005) *Robotics and Automation Handbook*, illustrate, Taylor & Francis.
- Kusiak, A. and Heragu, S. S. (1987) ‘*The Facility Layout Problem.*’, *Eur. J. Oper. Res.*, 29, pp. 229-251.
- Lee, D. and ELMaraghy, W. (1990) ‘*ROBOSIM: a CAD-based off-line Programming and analysis system for robotic manipulators*’, *Comput. Eng. J.*, pp. 141–148.
- Leu, M. C., Elmaraghy, H. A., Nee, A. Y. C., Ong, S. K., Lanzetta, M., Putz, M., Zhu, W. Bernard, A., Khim, S. and Lanzetta, M. (2013) ‘*CAD model based virtual assembly simulation, planning and training*’, *CIRP Ann. - Manuf. Technol.*, 62, pp. 799–822.
- Li, X., Li, W., Jiang, H. and Zhao, H. (2013) ‘*Computers in Industry Automatic evaluation of machining allowance of precision castings based on plane features from 3D point cloud*’, *Comput. Ind.*, 64(9), pp. 1129–1137.
- Lilly, K. W. (1993) *Efficient Dynamic Simulation of Robotic Mechanisms*, Kluwer Academic Publishers., Boston.
- Lim, Z. Y., S.G., P. and Izui, K. (2016) ‘*Nature inspired algorithms to optimize robot workcell layouts*’, *Appl. Soft Comput.*, 49, pp. 570–589.
- Liu, H., Lai, X. and Wu, W. (2013) ‘*Time-optimal and jerk-continuous trajectory planning for robot manipulators with kinematic constraints*’, *Robot. Comput. Integr. Manuf.*, 29(2), pp. 309–317.
- Liu, W., Qu, X., Ouyang, J. and Wang, Z. (2008) ‘*Computers & Graphics Design and CAD-directed inspection planning of laser-guided measuring robot*’, 32, pp. 617–623.

- Lueth, T. C. (1992) '*New Software Environment for Design of Automated Workcells*', pp. 950–955.
- Luh, J. Y. S., Walker, M. W. and Paul, R. P. (1980) '*On-line computational scheme for mechanical manipulators.*', *J. Dyn. Syst. Meas. Control*, 102(2), pp. 69–79.
- Madehow, (2018). Available at: <http://www.madehow.com/Volume-2/Industrial-Robot.html>. Accessed: 21/06/18.
- Mahdavi, I. and Mahadevan, B. (2008) '*CLASS: An algorithm for cellular manufacturing system and layout design using sequence data*', *Robot. Comput. Integr. Manuf.*, 24(3), pp. 488–497.
- Mata, V., Provenzano, S., Valero, F. and Cuadrado, J. I. (2002) '*Serial-robot dynamics algorithms for moderately large numbers of joints*', *Mech. Mach. Theory*, 37, pp. 739–755.
- Mata, V. and Tubaileh, A. (1998) '*The machine layout problem in robot cells*', *Int. J. Prod. Res.*, 36(5), pp. 1273–1292.
- Menasri, R., Nakib, A., Daachi, B., Oulhadj, H. and Siarry, P. (2015) '*A trajectory planning of redundant manipulators based on bilevel optimization*', *Appl. Math. Comput.* Elsevier Inc., 250, pp. 934–947.
- Michel, O. (2004) '*Webots: Professional mobile robot simulation*', *Int. J. Adv. Robot. Syst.*, 1(1), pp. 39–42.
- Michniewicz, J., Reinhart, G. and Boschert, S. (2016) '*CAD-Based Automated Assembly Planning for Variable Products in Modular Production Systems*', *Procedia CIRP*, 44, pp. 44–49.

- Mineo, C., Pierce, S. G., Nicholson, P. I. and Cooper, I. (2016) '*Robotic path planning for non-destructive testing - A custom MATLAB toolbox approach*', *Robot. Comput. Integr. Manuf.* Elsevier, 37, pp. 1–12.
- Mineo, C., Pierce, S. G. and Summan, R. (2018) '*Novel algorithms for 3D surface point cloud boundary detection and edge reconstruction*', *J. Comput. Des. Eng.* Society for Computational Design and Engineering.
- Mittal, R. K. and Nagrath, I. J. (2008) *Robotics and Control*, Tata McGraw Hill, New Delhi, India.
- Morozov, M., Pierce, S. G., Macleod, C. N., Mineo, C. and Summan, R. (2018) '*Off-line scan path planning for robotic NDT*', *Measurement*, pp. 284–290.
- Nagata, F. (2007) '*CAD/CAM-based position/force controller for a mold polishing robot*', 17, pp. 207–216.
- Nageshwaranier, S. S., Khilwani, N., Tiwari, M. K., Shankar, R. and Ben-Arieh, D. (2013) '*Solving the design of distributed layout problem using forecast windows: A hybrid algorithm approach*', *Robot. Comput. Integr. Manuf.*, 29(1), pp. 128–138.
- Nee, A. Y. C., Ong, S. K., Chryssolouris, G. and Mourtzis, D. (2012) '*CIRP Annals - Manufacturing Technology Augmented reality applications in design and manufacturing*', *CIRP Ann. - Manuf. Technol.*, 61(2), pp. 657–679.
- Nelder, J. A. and Mead, R. (1965) '*A Simplex Method for Function Minimization*', *Comput. J.*, 7(4), pp. 308–313.
- Neto, P. and Mendes, N. (2013) '*Direct off-line robot programming via a common CAD package*', *Rob. Auton. Syst.*, 61(8), pp. 896–910.
- Nocedal, J. and Wright, S. J. (2006) *Numerical optimization*, Second, *Int. ADAMS user Conf.*, Springer, New York.

- Nof, S. Y. (1999) *Handbook of Industrial Robotics*, 2nd ed. John Wiley & Sons, New York.
- Orin, D. E., McGhee, R. B., Vukobratovi'c, M. and Hartoch, G.. (1979) 'Kinematic and kinetic analysis of open-chain linkages utilizing Newton-Euler methods.', *Math. Biosci.*, 43(1-2), pp. 107-130.
- Owen, W. S., Croft, E. A. and Benhabib, B. (2008) 'A multi-arm robotic system for optimal sculpting', *Robot. Comput. Integr. Manuf.*, 24(1), pp. 92-104.
- Pamanes, G. J. A. (1989) 'A criterion for the optimal placement of robotic manipulators', in *IFAC Proc. 6th Symp. Inf. Control Probl. Manuf. Technol.* Madrid, Spain.
- Pamanes, G. J. A. and Zeghloul, S. (1991) 'Optimal placement of robotic manipulators using multiple kinematic criteria.', in *IEEE Int. Conf. Robot. Autom.* Sacramento, CA.
- Papadopoulos, E. and Gonthier, Y. (1995) 'On manipulator posture for planning for large force tasks', in *IEEE Int. Conf. Robot. Autom.* Nagoya, Japan.
- Park, J. K. (2006) 'Optimal Motion Planning for Manipulator Arms Using Nonlinear Programming.', in Huat, L. K. (ed.) *Ind. Robot. Program. Simul. Appl.* InTech.
- Parsa, S. S., Daniali, H. M. and Ghaderi, R. (2010) 'Optimization of parallel manipulator trajectory for obstacle and singularity avoidances based on neural network', *Int. J. Adv. Manuf. Technol.*, 51(5-8), pp. 811-816.
- Paul, R. P., & Shimano, B. (1978) 'Kinematic control equations for simple manipulators', in *IEEE Conf. Decis. Control Incl. 17th Symp. Adapt. Process.* San Diego, California.
- Paul, R. (1972) *Modelling trajectory calculation and servoing of a computer controlled arm*, Stanford University, USA.

- Pellegrinelli, S., Pedrocchi, N., Molinari-Tosatti, L., Fischer, A. and Tolio, T. (2014) ‘*Multi-robot spot-welding cell design: Problem formalization and proposed architecture*’, *Procedia CIRP*, 21(1), pp. 324–329.
- Phung, A. S., Malzahn, J., Hoffmann, F., Bertram, T. (2011) ‘*Get Out of the Way - Obstacle Avoidance and Learning by Demonstration for Manipulation*’, *IFAC Proc.*, 44(1), pp. 11514–11519.
- Pires, J. N. and Sá Da Costa, J. M. G. (2000) ‘*Object-oriented and distributed approach for programming robotic manufacturing cells*’, *Robot. Comput. Integr. Manuf.*, 16(1), pp. 29–42.
- Potó, V., Somogyi, J. Á., Lovas, T. and Barsi, Á. (2017) ‘*Laser scanned point clouds to support autonomous vehicles*’, *Transp. Res. Procedia*, 27, pp. 531–537.
- Rao, P. N. (2004) *CAD/CAM: Principles and Applications*, 2nd ed., McGraw-Hill, New Delhi, India (Mechanical engineering series).
- Rastegar, J. and Fardanesh, B. (1990) ‘*Manipulator workspace analysis using the Monte Carlo method.*’, *Trans. ASME J. Mech. Des.*, 25(2), pp. 233–239.
- Raton, B. (1999) ‘*Robotics*’, in Kreith, F. (ed.) *Mech. Eng. Handb.* CRC Press, LLC.
- Reinhardt, A. (1988) ‘*Designing the Layout and the Control System of FMS*’, in Turksen, I. B. (ed.) *Comput. Integr. Manuf.*, Springer.
- Rubio, F. J., Valero, F. J., Suñer, J. L. and Mata, V. (2009) ‘*Simultaneous algorithm to solve the trajectory planning problem*’, *Mech. Mach. Theory*, 44(10), pp. 1910–1922.
- Saha, S. K. (1997) ‘*A decomposition of the manipulator inertia matrix*’, *IEEE Trans. Robot. Autom.*, 13(2), pp. 301–304.
- Saha, S. K. (2008) *Introduction to Robotics*, 1st ed., Tata McGraw-Hill, New Delhi, India.

- Saravanan, R., Ramabalan, S. and Balamurugan, C. (2009) '*Evolutionary multi-criteria trajectory modeling of industrial robots in the presence of obstacles*', *Eng. Appl. Artif. Intell.*, 22(2), pp. 329–342.
- Sarker, M. O. F., Dahl, T. S., Arcaute, E. and Christensen, K. (2014) '*Local interactions over global broadcasts for improved task allocation in self-organized multi-robot systems*', *Rob. Auton. Syst.*, 62(10), pp. 1453–1462.
- Shannon, R. E. (1998) '*Introduction to the art and science of simulation*', in *1998 Winter Simul. Conf.*, Washington, DC.
- Sharma, A. and Jha, A. K. (2017) '*Layout design optimisation with point cloud object modelling for multi-robot industrial working cell*', *Int. J. Ind. Syst. Eng.*
- Sharma, A., Jha, A. K. and Halder, A. (2017) '*Layout optimization of a robotic cell for foundry application by CAD based point cloud modeling – a case study*', *Ind. Robot An Int. J.*, 44(6), pp. 788–797.
- Shijun, J., Yongcong, R., Ji, Z., Xiaolong, L. and Hong, G. (2017) '*Optik An improved method for registration of point cloud*', *Opt. - Int. J. Light Electron Opt.*, 140, pp. 451–458.
- Siciliano, B., Siciliano, B., Scilavico, L., Villani, L. and Oriolo, G. (2009) *Robotics modeling, planning and control*, Springer-Verlag, London.
- Silver, D. B. (1982) '*On the equivalence of Lagrangian and Newton-Euler dynamics for manipulators*', *Int. J. Rob. Res.*, 1(2), pp. 60–70.
- Slomp, J., Chowdary, B. V. and Suresh, N. C. (2005) '*Design of virtual manufacturing cells: A mathematical programming approach*', *Robot. Comput. Integr. Manuf.*, 21(3), pp. 273–288.

- Smith, C., Karayiannidis, Y., Nalpantidis, L., Gratal, X., Qi, P., Dimarogonas, D. V. and Kragic, D. (2012) ‘*Dual arm manipulation - A survey*’, *Rob. Auton. Syst.*, 60(10), pp. 1340–1353.
- Spong, M. W. and Vidyasagar, M. (2004) *Robot Dynamics and Control*, Wiley, New York, USA.
- Tao, L. and Liu, Z. (2011) ‘*Optimization on multi-robot workcell layout in vertical plane*’, *2011 IEEE Int. Conf. Inf. Autom. ICIA 2011*, (June 2011), pp. 744–749.
- Tay, M. L. and Ngoi, B. K. A. (1996) ‘*Optimising Robot Workcell Layout*’, *Int. J.*, pp. 377–385.
- Tu, Q. and Rastegar, J. (1993) ‘*Determination of allowable manipulator link shapes; and task, installation, and obstacle spaces using the Monte Carlo Method*’, *Trans. ASME J. Mech. Des.*, 115(3), pp. 457–461.
- Uicker, J. J. (1965) *On the dynamic analysis of spatial linkages using 4 x 4 matrices.*, Northwestern University.
- Valero, F., Mata, V. and Besa, A. (2006) ‘*Trajectory planning in workspaces with obstacles taking into account the dynamic robot behaviour*’, *Mech. Mach. Theory*, 41(5), pp. 525–536.
- Waldron, K. J. and Schmiedeler, J. (2008) ‘*Kinematics*’, in Siciliano, B., and Khatib, O. (eds) *Handb. Robot.* Springer-Verlag, Heidelberg, Berlin.
- Wang, X., Wang, J. and Rao, Z. (2010) ‘*An adaptive parametric interpolator for trajectory planning*’, *Adv. Eng. Softw.*, 41(2), pp. 180–187.
- Williams, R. L. (2013) ‘*Simplified robotics joint-space trajectory generation with a via point using a single polynomial*’, *J. Robot.*, 2013.

- Womack, J. P., Jones, D. T. and Roos, D. (1990) *The machine that changed the world*, Rawson Associates Scribner, New York.
- Yamane, K. (2004) *Simulating and Generating Motions of Human Figures.*, Springer, Berlin.
- Yang, J., Wang, H. and Chen, W. (2013) ‘*Time-jerk Optimal Trajectory Planning for Robotic Manipulators*’, *Proceeding IEEE Int. Conf. Robot. Biomimetics Shenzhen, China, December 2013*, pp. 2257–2262.
- Yang, Z., Ponnambalam, S. G. and Izui, K. (2017) ‘*Knowledge-Base d Systems Multi-objective hybrid algorithms for layout optimization in multi-robot cellular manufacturing systems*’, *Knowledge-Based Syst.*, 120, pp. 87–98.
- Yu, Q. and Wang, K. (2014) ‘*A hybrid point cloud alignment method combining particle swarm optimization and iterative closest point method*’, *Adv. Manuf.*, 2(1), pp. 32–38.
- Zaritsky, A., and Sipper M. (2004) ‘*The Preservation of Favored Building Blocks in the Struggle for Fitness: The Puzzle Algorithm*’, *IEEE Trans. on Evol. Comp.* 8(5): pp.443 - 455.
- Zeid, I. and Sivasubramanian, R. (1991) *Cad/Cam Theory & Practice 2E*, Tata McGraw-Hill Education (India) Pvt Limited, New Delhi, India.
- Zha, X. F. and Chen, X. Q. (2004) ‘*Trajectory coordination planning and control for robot manipulators in automated material handling and processing*’, *Int. J. Adv. Manuf. Technol.*, 23(11–12), pp. 831–845.
- Zha, X. F. and Du, H. (2001) ‘*Generation and simulation of robot trajectories in a virtual CAD-based off-line programming environment*’, *Int. J. Adv. Manuf. Technol.*, 17(8),

pp. 610–624.

Zhihong, M. (2005) *Robotics*, Pearson Prentice Hall, Singapore.

Žlajpah, L. (1997) *Planar Manipulators Toolbox: User's Guide*, Ljubljana, Slovenija.

Žlajpah, L. (2010) 'Robot Simulation for Control Design', in Jiménez, A., and Al-Hadithi, M. B. (eds) *Robot Manip. Dev.* InTeh, Vukovar, Croatia, pp. 43–70.

Zou, Q. and Zhao, J. (2013) 'Computer-Aided Design Iso-parametric tool-path planning for point clouds', *Comput. Des.*, 45(11), pp. 1459–1468.