References

1. Aldebaran robotics, `http://www.aldebaran-robotics.com`
2. Carnegie mellon university TARTAN RESCUE, `http://www.rec.ri.cmu.edu/projects/tartanrescue/`
3. DARPA Robotics Challenge, `http://www.theroboticschallenge.org`
4. Products of Kondo Kagaku Co. Ltd. (in Japanese), `http://kondo-robot.com/product/`
5. Broad Agency Announcement DARPA Robotics Challenge, DARPA-BAA-12-39 (April 2012)
6. Takanishi, A., Ishida, M., Yamazaki, Y., Kato, I.: The realization of dynamic walking by the biped walking robot. In: Proceedings of IEEE Int. Conf. on Robotics and Automation, pp. 459–466 (1985)
7. Goswami, A., Espiau, B., Keramane, A.: Limit cycles in a passive compass gait biped and passivity-mimicking control laws. Journal of Autonomous Robots 4(3), 273–286 (1997)
8. Harashima, A.: Mechanics I, II. Shokabo (1972) (in Japanese)
9. Herdt, A., Diedam, H., Wieber, P.-B., Dimitrov, D., Mombaur, K., Diehl, M.: Online walking motion generation with automatic footstep placement. Advanced Robotics 24, 719–737 (2010)
10. Takanishi, A., Ishida, M., Yamazaki, Y., Kato, I.: The realization of dynamic walking by the biped walking robot WL-10RD. In: Proceedings of 1985 International Conference on Advanced Robotics (ICAR), pp. 459–466 (1985)
11. Takanishi, A., Egusa, Y., Tochizawa, M., Takeya, T., Kato, I.: Realization of dynamic biped walking stabilized with trunk motion. In: Proceedings of RoManSy 7: 7th CISM-IFToMM Symposium on Theory and Practice of Robots and Manipulators, pp. 68–79 (1990)
12. Cho, B.K., Park, S.S., Oh, J.H.: Controllers for running in the humanoid robot, HUBO. In: Proceedings of IEEE-RAS International Conference on Humanoid Robots, pp. 385–390 (2009)
13. Lim, B., Lee, J., Kim, J., Lee, M., Kwak, H., Kwon, S., Lee, H., Kwon, W., Roh, K.: Optimal gait primitives for dynamic bipedal locomotion. In: Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 4013–4018 (2012)
14. Thuilot, B., Goswami, A., Espiau, B.: Bifurcation and chaos in a simple passive bipedal gait. In: Proceedings of the 1997 IEEE International Conference on Robotics & Automation, pp. 792–798 (1997)

15. DLR (German Aerospace Center). The robot is complete – arms and hands for TORO, the walking machine, http://www.dlr.de/dlr/en/desktopdefault.aspx/tabid-10080/150_read-6601/year-2013/150_page-5/#gallery/9208
16. Ott, C., Baumgärtner, C., Mayr, J., Fuchs, M., Burger, R., Lee, D., Eiberger, O., Albu-Schäffer, A., Grebenstein, M., Hirzinger, G.: Development of a biped robot with torque controlled joints. In: Proceedings of IEEE-RAS International Conference on Humanoid Robots (Humanoids 2010), pp. 167–173 (2010)
17. TOYOTA MOTOR CORPORATION. Partner robot, http://www.toyota-global.com/innovation/partner_robot/
18. Craig, J.J.: Introduction to Robotics: Mechanics and Control, 2nd edn. Addison-Wesley Publishing Company, Inc. (1989)
19. Witt, D.C.: A feasibility study on powerd lower-limb prostheses. In: Proceedings of Symposium on the Basic Problems of Prehension, Movement and Control of Artificial Limbs, pp. 1–8 (1968)
20. de Garis, H.: Gennets: Genetically programmed neural net. In: Proceedings of IJCNN 1991 Singapore. In: Int. Joint Conf. on Neural Networks, pp. 1391–1396 (1991)
21. Hobbelen, D.G.E., Wisse, M.: Active lateral placement for 3D stabilization of a limit cycle walker prototype. International Journal of Humanoid Robotics 6(1), 93–116 (2009)
22. Lahr, D., Hong, D.: The development of CHARLI: A linear actuated powered full size humanoid robot. In: Proceedings of the International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2008) (November 2008)
23. Nakano, E., Komoriya, K., Yoneda, K., Takahashi, T.: Advanced Mobile Robotics. Kodansha Scientific (2004) (in Japanese)
24. Westervelt, E.R., Grizzle, J.W., Chevallereau, C., Choi, J.H., Morris, B.: Feedback Control of Dynamic Bipedal Robot Locomoation. CRC Press (2007)
25. Neo, E.S., Yokoi, K., Kajita, S., Kanehiro, F., Tanie, K.: A switching command-based whole-body operation method for humanoid robots. IEEE/ASME Tras. Mechatronics 10(5), 2569–2574 (2005)
26. Neo, E.S., Yokoi, K., Kajita, S., Tanie, K.: A framework for remote execution of whole body motions for humanoid robots. In: Proceedings of IEEE-RAS Int. Conf. Humanoid Robots, pp. 58–68 (2004)
27. Miura, H., et al.: Collected articles of biped robots (Nisoku-hokou robot siryoushuu), 2nd edn. Report of Grants-in-Aid for Scientific Research. Ministry of Education
28. Kanehiro, F., Kaneko, K., Fujiwara, K., Harada, K., Kajita, S., Yokoi, K., Hirukawa, H., Akachi, K., Isozumi, T.: The first humanoid robot that has the same size as a human and that can lie down and get up. In: Proceedings of IEEE Int. Conf. on Robotics and Automation, pp. 1633–1639 (2003)
29. Asano, F., Yamakita, M.: Virtual gravity and coupling control for robotic gait synthesis. IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans 31(6), 737–745 (2001)
30. Roy Featherstone. Robot Dynamics Algorithms. Kluwer Academic Publishers (1987)

31. Kanehiro, F., Hirukawa, H., Kajita, S.: OpenHRP: Open Architecture Humanoid Robotics Platform. The International Journal o Robotics Research 23(2), 155–165 (2004)
32. Miyazaki, F., Arimoto, S.: A control theoretic study on dynamical biped locomotion. Journal of Dynamic Systems, Measurement, and Control 102, 233–239 (1980)
33. Fujisoft, Inc. PALRO (in japanese), `http://palro.jp/`
34. Metta, G., Sandini, G., Vernon, D., Natale, L., Nori, F.: The iCub humanoid robot: an open platform for research in embodied cognition. In: Proceedings of the 8th Workshop on Performance Metrics for Intelligent Systems (PerMIS 2008), pp. 50–56 (2008)
35. Nelson, G., Saunders, A., Neville, N., Swilling, B., Bondaryk, J., Billings, D., Lee, C., Playter, R., Raibert, M.: PETMAN: A humanoid robot for testing chemical protective clothing. Journal of the Robotics Society of Japan 30(4), 372–377 (2012)
36. Goldstein, H.: Classical Mechanics, 2nd edn. Addison-Wesley (1980)
37. Goswami, A.: Posturel Stability of Biped Robots and the Foot-Rotation Indicator(FRI) Point. Int. J. of Robotics Research 18(6), 523–533 (1999)
38. Hirukawa, H., Kanehiro, F., Kaneko, K., Kajita, S., Morisawa, M.: Dinosaur robotics for entertainment applications. IEEE Robotics & Automation Magazine 14(3), 43–51 (2007)
39. Hirukawa, H., Hattori, S., Harada, K., Kajita, S., Kanehiro, F., Fujiwara, K., Morisawa, M.: A Universal Stability Criterion of the Foot Contact of Legged Robots - Adios ZMP. In: Proceedings of IEEE International Conference on Robotics and Automation (ICRA 2006), pp. 1976–1983 (2006)
40. Kondo, H., Shimizu, J., Hashimoto, K., Hattori, K., Nishikawa, K., Takezaki, Y., Hama, Y., Yoshimura, Y., Lim, H., Takanishi, A.: Realization of Walking by FFT-based Online Pattern Generation. In: Proceedings of the 12th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2009), pp. 615–622 (September 2009)
41. Miura, H., Shimoyama, I.: Dynamic walk of a biped. International Journal of Robotics Research 3(2), 60–74 (1984)
42. Hyon, S.-H.: Compliant terrain adaptation for biped humanoids without measureing ground suface and contact forces. IEEE Transactions on Robotics 25(1), 171–178 (2009)
43. Honda Motor Co. Inc. NEWS: Honda unveils all-new ASIMO with significant advancements, `http://asimo.honda.com/news/honda-unveils-all-new-asimo-with-significant-advancements/newsarticle_0125/`
44. Englsberger, J., Ott, C., Roa, M.A., Albu-Schäffer, A., Hirzinger, G.: Bipedal walking control based on capture point dynamics. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011) (2011)
45. Jet Propulsion Laboratory (Caltech). DARPA robotics challenge, RoboSimian (track A), `http://www-robotics.jpl.nasa.gov/tasks/showTask.cfm?TaskID=236&tdaID=700043`

46. Furusho, J., Sano, A.: Sensor-based control of a nine-link biped. International Journal of Robotics Research 9(2), 83–98 (1990)
47. Furusho, J., Masubuchi, M.: A theoretically motivated reduced order model for the control of dynamic biped locomotion. Journal of Dynamic Systems, Measurement, and Control 109, 155–163 (1987)
48. Kuffner, J.J., LaValle, S.M.: RRT-connect: An efficient approach to single-query path planning. In: Proceedings of IEEE Int. Conf. on Robotics & Automation, pp. 995–1001 (2000)
49. Kuffner, J., Nishiwaki, K., Kagami, S., Inaba, M., Inoue, H.: Motion planning for humanoid robots under obstacle and dynamic balance constraints. In: Proceedings of IEEE Int. Conf. on Robotics & Automation, pp. 692–698 (2001)
50. Pratt, J., Carff, J., Drakunov, S., Goswami, A.: Capture point: A step toward humanoid push recovery. In: Proceedings of IEEE-RAS International Conference on Humanoid Robots (Humanoids 2006), pp. 200–207 (2006)
51. Urata, J., Nishiwaki, K., Okada, K., Kagami, S., Inaba, M.: Online decision of foot placement using singular LQ preview regulation. In: Proceedings of IEEE-RAS International Conference on Humanoid Robots (Humanoids 2011), pp. 13–18 (2011)
52. Urata, J., Nishiwaki, K., Nakanishi, Y., Okada, K., Kagami, S., Inaba, M.: Online walking pattern generation for push recovery and minimum delay to commanded changed of direction and speed. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 3411–3416 (2012)
53. Yamaguchi, J., Soga, E., Inoue, S., Takanishi, A.: Development of a bipedal humanoid robot - control method of whole body cooperative dynamic biped walking. In: Proceedings of IEEE Int. Conf. on Robotics and Automation, pp. 368–374 (1999)
54. Aida, K., Kitamori, T.: A relation between optimal preview control and least-squares smoothing and a scheme of smoothed inverse system. Transactions of SICE 25(4), 419–426 (1989) (in Japanese)
55. Kailath, T.: Linear Systems. Prentice-Hall, Inc. (1980)
56. Kawada Industries, Inc. Humanoid robot HRP-4, `http://global.kawada.jp/mechatronics/hrp4.html`
57. Doya, K.: Walking pattern learning robot (hokou pattern gakushu robot). Journal of the Robotics Society of Japan 8(3), 117 (1990) (in Japanese)
58. Fujiwara, K., Kanehiro, F., Kajita, S., Yokoi, K., Saito, H., Harada, K., Kaneko, K., Hirukawa, H.: The first human-size humanoid that can fall over safely and stand-up again. In: Proceedings of IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, pp. 1920–1926 (2003)
59. Hara, K., Yokogawa, R., Sadao, K.: Dynamic control of biped locomotin robot for disturbance on lateral plane. In: Proceedings of the Japan Society of Machanical Engineers 72nd Kansai Meeting, vol. 38, pp. 10–37 (1998) (in Japanese)
60. Harada, K., Kajita, S., Kaneko, K., Hirukawa, H.: An analytical method for real-time gait planning for humanoid robots. International Journal of Humanoid Robotics 3(1), 1–19 (2006)

61. Hase, K., Yamazaki, N.: Computer simulation study of human locomotion with a three-dimensional entire-body neuro-musculo-skeletal model. JSME International Journal, Series C 45(4), 1040–1072 (2002)
62. Hirai, K., Hirose, M., Haikawa, Y., Takenaka, T.: The development of honda humanoid robot. In: Proceedings of the 1998 IEEE International Conference on Robotics & Automation, pp. 1321–1326 (1998)
63. Kaneko, K., Kanehiro, F., Morisawa, M., Miura, K., Nakaoka, S., Kajita, S.: Cybernetic human HRP-4C. In: Proceedings of 9th IEEE-RAS International Conference on Humanoid Robots, pp. 7–14 (2009)
64. Kaneko, K., Kanehiro, F., Morisawa, M., Tsuji, T., Miura, K., Nakaoka, S., Kajita, S., Yokoi, K.: Hardware improvement of cybernetic human HRP-4C towards entertainment use. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 4392–4399 (2011)
65. Kaneko, K., Kanehiro, F., Kajita, S., Hirukawa, H., Kawasaki, T., Hirata, M., Akachi, K., Isozumi, T.: Humanoid robot HRP-2. In: Proceedings of IEEE International Conference on Robotics and Automation, pp. 1083–1090 (2004)
66. Kaneko, K., Kanehiro, F., Kajita, S., Yokoyama, K., Akachi, K., Kawasaki, T., Ota, S., Isozumi, T.: Design of prototype humanoid robotics platform for HRP
67. Kaneko, K., Harada, K., Miyamori, G., Akachi, K.: Humanoid robot HRP-3. In: Proceedings of 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 2471–2478 (2008)
68. Koganezawa, K., Takanisi, A., Sugano, S. (eds.): Development of Waseda robot — The study of biomechanisms at Kato Laboratory, 3rd edn. Ichiro Kato Laboratory (1991) (in Japanese)
69. Miura, K., Morisawa, M., Kanehiro, F., Kajita, S., Kaneko, K., Yokoi, K.: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 4428–4435 (2011)
70. Nagasaka, K., Inaba, M., Inoue, H.: Stabilization of dynamic walk on a humanoid using torso position compliance control. In: Proceedings of 17th Annual Conference of the Robotics Society of Japan, pp. 1193–1194 (1999) (in Japenese)
71. Narioka, K., Tsugawa, S., Hosoda, K.: 3D limit cycle walking of musculoskeletal humanoid robot with flat feet. In: Proceedings of the IEEE/RSJ International Confernce on Intelligent Robots and Systems, pp. 4676–4681 (2009)
72. Nishiwaki, K., Kagami, S.: Sensor feedback modification methods that are suitable for the short cycle pattern generation of humanoid walking. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2007), pp. 4214–4220 (2007)
73. Nishiwaki, K., Kagami, S., Kuniyoshi, Y., Inaba, M., Inoue, H.: Online generation of desired walking motion on humanoid based on a fast method of motion pattern that follows desired ZMP. In: Proceedings of 19th Annual Conference of Robotics Society of Japan, pp. 985–986 (2001) (in Japanese)
74. Osuka, K., Kirihara, K.: Motion analysis and experiments of passive walking robot Quartet II. In: Proceedings of IEEE International Conferene on Robotics & Automation, pp. 3052–3056 (2000)
75. Sorao, K., Murakami, T., Ohnishi, K.: Walking control of a biped robot by impedance control. Transaction of IEE of Japan 117-D(10), 1227–1233 (1997) (in Japanese)

76. Yamane, K.: Simulating and Generating Motions of Human Figures. Springer (2004)
77. Yamane, K., Nakamura, Y.: Dynamics computation of structure-varying kinematic chains for motion synthesis of humanoid. In: Proceedings of IEEE International Conference on Robotics and Automation (ICRA1999), pp. 714–721 (1999)
78. Yamane, K., Nakamura, Y.: Efficient parallel dynamics computation of human figures. In: Proceedings of the 2002 IEEE International Conference on Robotics & Automation, pp. 530–537 (2002)
79. Yamane, K., Nakamura, Y.: Dynamics filter–concept and implementation of online motion generator for human figures. IEEE Trans. on Robotics & Automation 19(3), 421–432 (2003)
80. Yoneda, K., Hirose, S.: Tumble stability criterion of integrated locomotion and manipulation. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems 1996 (IROS 1996), pp. 870–876 (1996)
81. Vukobratović, M., Borovac, B., Surla, D., Stokić, D.: Biped Locomotion — Dynamics, Stability, Control and Application. Springer (1990)
82. Hayase, M., Ichikawa, K.: Optimal servosystem utilizing future value of desired function. Transactions of SICE 5(1), 86–94 (1969) (in Japanese)
83. Hirose, M., Takenaka, T., Gomi, H., Ozawa, N.: Humanoid robot. Journal of the Robotics Society of Japan 15(7), 983–985 (1997) (in Japenese)
84. Kumagai, M., Tomita, H., Emura, T.: Sensor-based walking of human type biped robot – 2nd report, active control of body attitude. In: Proceedings of JSME Conference on Robotics and Mechatronics (ROBOMEC 1998), pp. 2CIII1–2 (1998) (in Japanese)
85. Morisawa, M., Kanehiro, F., Kaneko, K., Mansard, N., Sola, J., Yoshida, E., Yokoi, K., Laumond, J.-P.: Combining suppression of the disturbance and reactive stepping for recovering balance. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 3150–3156 (2010)
86. Tomizuka, M., Rosenthal, D.E.: On the optimal digital state vector feedback controller with integral and preview actions. Transaction of the ASME, Journal of Dynamic Systems, Measurement, and Control 101, 172–178 (1979)
87. Uchiyama, M., Nakamura, Y.: Iwanami Lecture of Robotics 2: Robot Motion. Iwanami Shoten (2004) (in Japanse)
88. Vukobratović, M., Borovac, B.: Zero-Moment Point — Thirty Five Years on its Life. International Journal of Humanoid Robotics 1(1), 157–173 (2004)
89. Vukobratović, M., Borovac, B., Šurdilović, D.: Zero-moment point — proper interpreation and new applications. In: Proceedings of IEEE-RAS Intr. Conf. on Humanoid Robots, pp. 237–244 (2001)
90. Vukobratović, M., Stepanenko, J.: On the stability of anthropomorphic systems. Mathematical Biosciences 15, 1–37 (1972)
91. Spong, M.W., Bullo, F.: Controlled symmetries and passive walking. IEEE Transactions on Automatic Control 50(7), 1082–1085 (2005)
92. Walker, M.W., Orin, D.E.: Efficient dynamics computer simulation of robotic mechanisms. Journal of Dynamic Systems, Measurement, and Control 104, 205–211 (1982)

93. Nagasaka, K.: Whole body motion generation for humanoid robot by dynamics filter (Dourikigaku-filter niyoru ningengata-robot no zenshin-unndou seisei). The University of Tokyo (2000) (in Japanese)
94. Napoleon, N., Izu, H., Nakaura, S., Sampei, M.: An analysis of ZMP control problem of humanoid robot with compliances in sole of the foot. In: Proceedings of the 16th IFAC World Congress (2005)
95. Sugimoto, N., Morimoto, J., Hyon, S.-H., Kawato, M.: The eMOSAIC model for humanoid robot control. Neural Networks 30(0), 8–19 (2012)
96. Paul, R.P.: Robot Manipulators: Mathematics, Programming, and Control. MIT Press (1981)
97. Raibert, M.H.: Legged robots that balance. MIT Press, Cambridge (1986)
98. Featherstone, R.: A divide-and-conquer articulated-body algorithm for parallel $O(log(n))$ calculation of rigid-body dynamics. International Journal of Robotics Research 18(9), 867–892 (1999)
99. Featherstone, R.: The acceleration vector of a rigid body. The International Journal of Robotics Research 20(11), 841–846 (2001)
100. Katoh, R., Mori, M.: Control method of biped locomotion giving asymtotic stability of trajectory. Automatica 20(4), 405–414 (1984)
101. Murray, R.M., Li, Z., Sastry, S.S.: A Mathematical Introduction to Robotics Manipulation. CRC Press (1994)
102. PAL Robotics. REEM-C, `http://www.pal-robotics.com/robots/reem-c`
103. ROBOTIS. Open platform humanoid project, `http://www.robotis.com/xe/darwin_en`
104. Rockafellar, R.T.: Convex Analysis. Princeton University Press (1970)
105. Feynman, R.P., Leighton, R.B., Sands, M.L.: ch. 52. Addison-Wesley (1965)
106. Tedrake, R., Zhang, T.W., Seung, H.S.: Stochastic policy gradient reinforcement learning on a simple 3D biped. In: Proceedings of 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2004), pp. 2849–2854 (2004)
107. Hyon, S.-H., Morimoto, J., Kawato, M.: From compliant balancing to dynamic walking on humanoid robot: Integration of CNS and CPG. In: Proceedings of 2010 IEEE International Conference on Robotics and Automation, pp. 1084–1085 (2010)
108. Kajita, S., Kanehiro, F., Fujiwara, K., Harada, K., Yokoi, K., Hirukawa, H.: Resolved momentum control: Humanoid motion planning based on the linear and angular momentum. In: Proceedings of IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, pp. 1644–1650 (2003)
109. Arimoto, S., Miyazaki, F.: A hierachical control scheme for biped robots. Journal of the Robotics Society of Japan 1(3), 167–175 (1983) (in Japanese)
110. Collins, S., Ruina, A., Tedrake, R., Wisse, M.: Efficient bipedal robots based on passive-dynamic walkers. Science 307, 1082–1085 (2005)
111. Collins, S.H., Wisse, M., Ruina, A.: A three-dimensional passive-dynamic walking robot with two legs and knees. International Journal of Robotics Research 20(7), 607–615 (2001)
112. Kagami, S., Kanehiro, F., Tajima, Y., Inaba, M., Inoue, H.: Autobalancer: An online dynamic balance compensation scheme for humanoid robot. In: Proceedings of 4th Int. Workshop on Algorithmic Foundations on Robotics, pp. SA79–SA89 (2000)

113. Kagami, S., Nishiwaki, K., Kuffner Jr., J.J., Kuniyoshi, Y., Inaba, M., Inoue, H.: Design and implementation of software research platform for humanoid robotics: H7. In: Proceedings of the 2001 IEEE-RAS International Conference on Humanoid Robots, pp. 253–258 (2001)
114. Kagami, S., Nishiwaki, K., Kitagawa, T., Sugihara, T., Inaba, M., Inoue, H.: A fast generation method of a dynamically stable humanoid robot trajectory with enhanced ZMP constraint. In: Proceedings of IEEE International Conference on Humanoid Robot (2000)
115. Kajita, S., Tani, K.: Study of dynamic walk control of a biped robot on rugged terrain — derivation and application of the linear inverted pendulum mode. Journal of Robotics and Mechatronics 5(6), 516–523 (1993)
116. Kajita, S., Tani, K.: Experimental study of biped dynamic walking. IEEE Control Systems 16(1), 13–19 (1996)
117. Kajita, S., Morisawa, M., Miura, K., Nakaoka, S., Harada, K., Kaneko, K., Kanehiro, F., Yokoi, K.: Biped walking stabilization based on linear inverted pendulum tracking. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010), pp. 4489–4496 (2010)
118. Kajita, S., Matsumoto, O., Saigo, M.: Real-time 3D walking pattern generation for a biped robot with telescopic legs. In: Proceedings of the IEEE International Conference on Robotics and Automation, pp. 2299–2306 (2001)
119. Lohmeier, S., Buschmann, T., Ulbrich, H.: Humanoid robot LOLA. In: Proceedings of IEEE International Conference on Robotics and Automation, pp. 775–780 (2009)
120. Masaki, S., Shimizu, M., Endo, K., Furuta, T., Okumura, Y., Tawaara, T., Kitano, H.: A foot sensor using multiple independent force sensors for compact-sized humanoid robots. In: Proceedings of ROBOMEC (2003) (in Japanese)
121. Nakaoka, S., Nakazawa, A., Yokoi, K., Hirukawa, H., Ikeuchi, K.: Generating whole body motions for a biped humanoid robot from captured human dances. In: Proceedings of IEEE Int.Conf. on Robotics & Automation, pp. 3905–3910 (2003)
122. Nakaoka, S., Kajita, S., Yokoi, K.: Intuitive and flexible user interface for creating whole body motions of biped humanoid robots. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 1675–1682 (2010)
123. Nozaawa, S., Ueda, R., Kakiuchi, Y., Okada, K., Inaba, M.: A full-body motion control method for a humanoid robot based on on-line estimation of the operational force of an object with an unknown weight. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 2684–2691 (2010)
124. Sugihara, T.: Solvability-unconcerned inverse kinematics based on Levenberg-Marquardt method with robust damping. In: Proceedings of 9th IEEE-RAS International Conference on Humanoid Robots, pp. 555–560 (2009)
125. Sugihara, T.: Standing Stabilizability and Stepping Maneuver in Planar Bipedalism based on the Best COM-ZMP Regulator. In: IEEE International Conference on Robotics and Automation (ICRA 2009) (2009)
126. Taga, G., Yamaguchi, Y., Shimizu, H.: Self-organized control of bipedal locomotion by neural oscillators in unpredictable environment. Biological Cybernetics (65), 147–159 (1991)
127. Takano, M.: Robot Kinematics. Ohmsha (2004) (in Japanese)

128. Sheridan, T.B.: Three models of preview control. IEEE Transaction on Human Factors in Electronics 7(2), 91–108 (1966)
129. Furuta, T., Tawara, T., Okumura, Y., Shimizu, M., Shimomura, M., Endo, K., Yamanaka, S., Kitano, H.: Morph3: A compact-size humanoid robot system with acrobatic behavior capability. In: Proceedings of ROBOMEC (2003) (in Japanese)
130. Katayama, T., Ohki, T., Inoue, T., Kato, T.: Desing of an optimal controller for a discrete time system subject to previewable demand. International Journal of Control 41(3), 677–699 (1985)
131. McGeer, T.: Passive dynamic walking. The International Journal of Robotics Research 9(2), 62–82 (1990)
132. McGeer, T.: Passive walking with knees. In: Proceedings of IEEE Int. Conf. on Robotics & Automation, vol. 3, pp. 1640–1645 (1990)
133. Mita, T., Yamaguchi, T., Kashiwase, T., Kawase, T.: Realization of a high speed biped using modern control theory. International Journal of Control 40(1), 107–119 (1984)
134. Sugihara, T., Nakamura, Y., Inoue, H.: Realtime humanoid motion generation through ZMP manipulation based on inverted pendulum control. In: Proceedings of the IEEE International Conference on Robotics and Automation, pp. 1404–1409 (2002)
135. Wampler, C.W.: Manipulator inverse kinematic solutions based on vector formulations and damped least-square methods. IEEE Transactions on Systems, Man, and Cybernetics 16(1), 93–101 (1986)
136. Press, W.H., Flannery, B.P., Teukolsky, S.A., Vetterling, W.T.: Numerical Recipes in C. Cambridge University Press (1988)
137. Wieber, P.-B.: Trajectory Free Linear Model Predictive Control for Stable Walking in the Presence of Strong Perturbations, pp. 137–142 (2006)
138. Yakamura, Y., Hanafusa, H.: Inverse kinematic solutions with singularity robustness for robot manipulator control. Journal of Dynamic Systems, Measurement and Control 108, 163–171 (1986)
139. Choi, Y., Kim, D., You, B.-J.: On the walking control for humanoid robot based on the kinematic resolution of COM Jacobian with embedded motion. In: Proceedings of the 2006 IEEE International Conference on Robotics and Automation (ICRA 2006), pp. 2655–2660 (2006)
140. Fujimoto, Y., Kawamura, A.: Three dimensional digital simulation and autonomous walking control for eight-axis biped robot. In: Proceedings of IEEE International Conference on Robotics and Automation (ICRA 1995), pp. 2877–2884 (1995)
141. Ikemata, Y., Sano, A., Fujimoto, H.: A physical principle of gait generation and its stabilization derived from mechanism of fixed point. In: Proceedings of IEEE International Conference on Robotics & Automation, pp. 836–841 (2006)
142. Ogura, Y., Shimomura, K., Kondo, H., Morishima, A., Okubo, T., Momoki, S., Lim, H., Takanishi, A.: Human-like walking with knee stretched, heel-contact and toe-off motion by a humanoid robot. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 3976–3981 (2006)

143. Okumura, Y., Tawara, T., Endo, K., Furuta, T., Shimzu, M.: Realtime ZMP compensation for biped walking robot using adaptive inertia force control. In: Proceedings of the 2003 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2003), pp. 335–339 (2003)
144. Yoshikawa, T.: Foundations of Robotics: Analysis and Control. MIT Press (1990)
145. Yoshino, R.: Stabilizing control of high-speed walking robot by walking pattern regulator. Journal of the Robotics Society of Japan 18(8), 1122–1132 (2000) (in Japanese)
146. Sumi, Y., Kawai, Y., Yoshimi, T., Tomita, F.: 3D object recognition in cluttered environments by segment-based stereo vision. Int. J. Computer Vision 46(1), 5–23 (2002)
147. Tamiya, Y., Inaba, M., Inoue, H.: Realtime balance compensation for dynamic motion of full-body humanoid standing on one leg. Journal of Robotics Society Japan 17(2), 268–274 (1999) (in Japanese)
148. Peng, Z., Fu, Y., Tang, Z., Huang, Q., Xiao, T.: Online walking pattern generation and system software of humanoid BHR-2. In: Proceedings of IEEE/RSJ International Conference on Intelligent Robot and Systems, pp. 5471–5476 (2006)

Index