

DAFTAR PUSTAKA

- [1] L. Tagliavini, G. Colucci, A. Botta, P. Cavallone, L. Baglieri, and G. Quaglia, "Wheeled Mobile Robots: State of the Art Overview and Kinematic Comparison Among Three Omnidirectional Locomotion Strategies," *Journal of Intelligent and Robotic Systems: Theory and Applications*, vol. 106, no. 3, Nov. 2022, doi: 10.1007/s10846-022-01745-7.
- [2] A. Stefek, T. Van Pham, V. Krivanek, and K. L. Pham, "Energy Comparison of Controllers Used for a Differential Drive Wheeled Mobile Robot," *IEEE Access*, vol. 8, pp. 170915–170927, 2020, doi: 10.1109/ACCESS.2020.3023345.
- [3] Z. F. Li, J. T. Li, X. F. Li, Y. J. Yang, J. Xiao, and B. W. Xu, "Intelligent Tracking Obstacle Avoidance Wheel Robot Based on Arduino," *Procedia Comput Sci*, vol. 166, pp. 274–278, 2020, doi: <https://doi.org/10.1016/j.procs.2020.02.100>.
- [4] S. Liu, Z. Lin, W. Huang, and B. Yan, "Adaptive sliding mode attitude control of two-wheeled robots for planetary auxiliary: From theory to applications," *Aerosp Sci Technol*, vol. 151, p. 109332, 2024, doi: <https://doi.org/10.1016/j.ast.2024.109332>.
- [5] M. Zarei and R. Chhabra, "Advancements in autonomous mobility of planetary wheeled mobile robots: A review," *Frontiers in Space Technologies*, vol. 3, Dec. 2022, doi: 10.3389/frspt.2022.1080291.
- [6] Md. A. K. Niloy *et al.*, "Critical Design and Control Issues of Indoor Autonomous Mobile Robots: A Review," *IEEE Access*, vol. 9, pp. 35338–35370, 2021, doi: 10.1109/ACCESS.2021.3062557.
- [7] R. Raj and A. Kos, "A Comprehensive Study of Mobile Robot: History, Developments, Applications, and Future Research Perspectives," Jul. 01, 2022, *MDPI*. doi: 10.3390/app12146951.
- [8] Y. Mhanni and Y. Lagmich, "Enhanced Obstacle Avoidance and Intelligent Navigation for Mobile Robots: An Integrated Approach Using Fuzzy Logic

- and an Optimized APF Method,” *Mathematical Modelling of Engineering Problems*, vol. 10, no. 6, pp. 2111–2120, Dec. 2023, doi: 10.18280/mmep.100622.
- [9] G. Chen *et al.*, “Deep Reinforcement Learning of Map-Based Obstacle Avoidance for Mobile Robot Navigation,” *SN Comput Sci*, vol. 2, no. 6, p. 417, 2021, doi: 10.1007/s42979-021-00817-z.
- [10] C.-T. Nguyen Anh-Tu and Vu, “Obstacle Avoidance for Autonomous Mobile Robots Based on Mapping Method,” in *Proceedings of the International Conference on Advanced Mechanical Engineering, Automation, and Sustainable Development 2021 (AMAS2021)*, H. S. and I. K. and T. N. D. and P. I. A. and K. Y.-H. Long Binh Tien and Kim, Ed., Cham: Springer International Publishing, 2022, pp. 810–816.
- [11] N. Rezaei and S. Darabi, “Mobile robot monocular vision-based obstacle avoidance algorithm using a deep neural network,” *Evol Intell*, vol. 16, no. 6, pp. 1999–2014, 2023, doi: 10.1007/s12065-023-00829-z.
- [12] J. S. Ling Leong, K. T. Kin Teo, and H. P. Yoong, “Four Wheeled Mobile Robots: A Review,” in *2022 IEEE International Conference on Artificial Intelligence in Engineering and Technology (IICAJET)*, 2022, pp. 1–6. doi: 10.1109/IICAJET55139.2022.9936855.
- [13] H. Taheri and C. X. Zhao, “Omnidirectional mobile robots, mechanisms and navigation approaches,” *Mech Mach Theory*, vol. 153, p. 103958, 2020, doi: <https://doi.org/10.1016/j.mechmachtheory.2020.103958>.
- [14] G. Haddeler, J. Chan, Y. You, S. Verma, A. H. Adiwahono, and C. Meng Chew, “Explore Bravely: Wheeled-Legged Robots Traverse in Unknown Rough Environment,” in *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020, pp. 7521–7526. doi: 10.1109/IROS45743.2020.9341610.
- [15] M. Kulkarni *et al.*, “Autonomous Teamed Exploration of Subterranean Environments using Legged and Aerial Robots,” in *2022 International*

- Conference on Robotics and Automation (ICRA)*, 2022, pp. 3306–3313. doi: 10.1109/ICRA46639.2022.9812401.
- [16] J. A. Olsen and K. Alexis, “Martian Lava Tube Exploration Using Jumping Legged Robots: A Concept Study,” 2023. [Online]. Available: <https://arxiv.org/abs/2310.14876>
- [17] S. Zhang, J. Yao, Y. Wang, Z. Liu, Y. Xu, and Y. Zhao, “Design and motion analysis of reconfigurable wheel-legged mobile robot,” *Defence Technology*, vol. 18, no. 6, pp. 1023–1040, 2022, doi: <https://doi.org/10.1016/j.dt.2021.04.013>.
- [18] L. Bruzzone, S. E. Nodehi, and P. Fanghella, “Tracked Locomotion Systems for Ground Mobile Robots: A Review,” Aug. 01, 2022, *MDPI*. doi: 10.3390/machines10080648.
- [19] S. Amerttet, G. Gebresenbet, and H. M. Alwan, “Optimizing the performance of a wheeled mobile robots for use in agriculture using a linear-quadratic regulator,” *Rob Auton Syst*, vol. 174, p. 104642, 2024, doi: <https://doi.org/10.1016/j.robot.2024.104642>.
- [20] T. Guo *et al.*, “Design and dynamic analysis of jumping wheel-legged robot in complex terrain environment,” *Front Neurorobot*, vol. 16, Dec. 2022, doi: 10.3389/fnbot.2022.1066714.
- [21] Y. Gong *et al.*, “Legged robots for object manipulation: A review,” 2023, *Frontiers Media S.A.* doi: 10.3389/fmech.2023.1142421.
- [22] A. Ugenti, R. Galati, G. Mantriota, and G. Reina, “Analysis of an all-terrain tracked robot with innovative suspension system,” *Mech Mach Theory*, vol. 182, p. 105237, 2023, doi: <https://doi.org/10.1016/j.mechmachtheory.2023.105237>.
- [23] M. Fieden and J. Bałchanowski, “A mobile robot with omnidirectional tracks—Design and experimental research,” *Applied Sciences (Switzerland)*, vol. 11, no. 24, Dec. 2021, doi: 10.3390/app112411778.

- [24] S. M. Shafaei and H. Mousazadeh, "Experimental comparison of locomotion system performance of ground mobile robots in agricultural drawbar works," *Smart Agricultural Technology*, vol. 3, p. 100131, 2023, doi: <https://doi.org/10.1016/j.atech.2022.100131>.
- [25] H. Wang, T. Wang, J. Chen, X. Pei, T. Tang, and T. Hou, "Design and locomotion analysis of an arm-wheel-track multimodal mobile robot," *Intell Serv Robot*, vol. 16, no. 4, pp. 485–495, 2023, doi: 10.1007/s11370-023-00472-8.
- [26] T. Deepa, S. Angalaeswari, D. Subbulekshmi, S. Krithiga, S. Sujeeth, and R. Kathiravan, "Design and implementation of bio inspired hexapod for exploration applications," *Mater Today Proc*, vol. 37, pp. 1603–1607, 2021, doi: <https://doi.org/10.1016/j.matpr.2020.07.165>.
- [27] G. Picardi, M. Chellapurath, S. Iacoponi, S. Stefanni, C. Laschi, and M. Calisti, "Bioinspired underwater legged robot for seabed exploration with low environmental disturbance," *Sci Robot*, vol. 5, no. 42, p. eaaz1012, 2020, doi: 10.1126/scirobotics.aaz1012.
- [28] D. Kim *et al.*, "Vision Aided Dynamic Exploration of Unstructured Terrain with a Small-Scale Quadruped Robot," in *2020 IEEE International Conference on Robotics and Automation (ICRA)*, 2020, pp. 2464–2470. doi: 10.1109/ICRA40945.2020.9196777.
- [29] A. O. Hourani and M. Z. Iskandarani, "Design, Modelling, and Analysis of Legged Robot for Terrains Exploration," *Int J Adv Sci Eng Inf Technol*, vol. 13, no. 3, pp. 1127–1136, Jun. 2023, doi: 10.18517/ijaseit.13.3.19000.
- [30] P. Biswal and P. K. Mohanty, "Development of quadruped walking robots: A review," *Ain Shams Engineering Journal*, vol. 12, no. 2, pp. 2017–2031, 2021, doi: <https://doi.org/10.1016/j.asej.2020.11.005>.
- [31] Q. Zhu, R. Song, J. Wu, Y. Masaki, and Z. Yu, "Advances in legged robots control, perception and learning," *IET Cyber-Systems and Robotics*, vol. 4, no. 4, pp. 265–267, 2022, doi: <https://doi.org/10.1049/csy2.12075>.

- [32] B. Bahçeci and K. Erbatur, "Balance and Posture Control of Legged Robots: A Survey," *J Intell Robot Syst*, vol. 108, no. 2, p. 27, 2023, doi: 10.1007/s10846-023-01882-7.
- [33] C. Kouppas, M. Saada, Q. Meng, M. King, and D. Majoe, "Hybrid autonomous controller for bipedal robot balance with deep reinforcement learning and pattern generators," *Rob Auton Syst*, vol. 146, p. 103891, 2021, doi: <https://doi.org/10.1016/j.robot.2021.103891>.
- [34] H. Y. Park, J. H. Kim, and K. Yamamoto, "A New Stability Framework for Trajectory Tracking Control of Biped Walking Robots," *IEEE Trans Industr Inform*, vol. 18, no. 10, pp. 6767–6777, 2022, doi: 10.1109/TII.2021.3139909.
- [35] T. Mikolajczyk *et al.*, "Recent Advances in Bipedal Walking Robots: Review of Gait, Drive, Sensors and Control Systems," Jun. 01, 2022, *Multidisciplinary Digital Publishing Institute (MDPI)*. doi: 10.3390/s22124440.
- [36] A. K. Kashyap, D. R. Parhi, and S. Kumar, "Dynamic Stabilization of NAO Humanoid Robot Based on Whole-Body Control with Simulated Annealing," *International Journal of Humanoid Robotics*, vol. 17, no. 03, p. 2050014, 2020, doi: 10.1142/S0219843620500140.
- [37] H. Al-Shuka and A. H. Kaleel, "Whole-Body Anti-Input Saturation Control of a Bipedal Robot," *Journal Européen des Systèmes Automatisés*, vol. 57, no. 3, pp. 737–745, Jun. 2024, doi: 10.18280/jesa.570311.
- [38] J. De, J. Rubio, F. Gonzalez-Salazar, and H. Calvo, "Dynamic balance of a bipedal robot using neural network training with simulated annealing."
- [39] S. Gu, F. Meng, B. Liu, Z. Zhang, N. Sun, and M. Wang, "Stability Control of Quadruped Robot Based on Active State Adjustment," *Biomimetics*, vol. 8, no. 1, Mar. 2023, doi: 10.3390/biomimetics8010112.

- [40] Q. Hao, Z. Wang, J. Wang, and G. Chen, "Stability-guaranteed and high terrain adaptability static gait for quadruped robots," *Sensors (Switzerland)*, vol. 20, no. 17, pp. 1–26, Sep. 2020, doi: 10.3390/s20174911.
- [41] X. Chen *et al.*, "Realization of indoor and outdoor localization and navigation for quadruped robots," *Procedia Comput Sci*, vol. 209, pp. 84–92, 2022, doi: <https://doi.org/10.1016/j.procs.2022.10.102>.
- [42] J. Coelho, F. Ribeiro, B. Dias, G. Lopes, and P. Flores, "Trends in the control of hexapod robots: A survey," *Robotics*, vol. 10, no. 3, Sep. 2021, doi: 10.3390/robotics10030100.
- [43] P. Li, B. Yin, L. Zhang, and Y. Zhao, "Adaptive control algorithm for quadruped robots in unknown high-slope terrain," *Journal of Engineering Research*, 2024, doi: <https://doi.org/10.1016/j.jer.2024.05.018>.
- [44] G. Lu *et al.*, "Whole-body motion planning and control of a quadruped robot for challenging terrain," *J Field Robot*, vol. 40, no. 6, pp. 1657–1677, 2023, doi: <https://doi.org/10.1002/rob.22197>.
- [45] J. He and F. Gao, "Mechanism, Actuation, Perception, and Control of Highly Dynamic Multilegged Robots: A Review," *Chinese Journal of Mechanical Engineering*, vol. 33, no. 1, p. 79, 2020, doi: 10.1186/s10033-020-00485-9.
- [46] P. Manoonpong *et al.*, "Insect-inspired robots: Bridging biological and artificial systems," Nov. 01, 2021, *MDPI*. doi: 10.3390/s21227609.
- [47] L. Ding, G. Wang, H. Gao, G. Liu, H. Yang, and Z. Deng, "Footstep Planning for Hexapod Robots Based on 3D Quasi-static Equilibrium Support Region," *J Intell Robot Syst*, vol. 103, no. 2, p. 25, 2021, doi: 10.1007/s10846-021-01469-0.
- [48] M. Žák, J. Rozman, and F. V Zbořil, "Design and Control of 7-DOF Omni-directional Hexapod Robot," vol. 11, no. 1, pp. 80–89, 2021, doi: 10.1515/comp-2020-0189.

- [49] Y. Liu, X. Fan, L. Ding, J. Wang, T. Liu, and H. Gao, "Fault-tolerant tripod gait planning and verification of a hexapod robot," *Applied Sciences (Switzerland)*, vol. 10, no. 8, Apr. 2020, doi: 10.3390/APP10082959.
- [50] H. Li, C. Qi, F. Gao, X. Chen, Y. Zhao, and Z. Chen, "Mechanism design and workspace analysis of a hexapod robot," *Mech Mach Theory*, vol. 174, p. 104917, 2022, doi: <https://doi.org/10.1016/j.mechmachtheory.2022.104917>.
- [51] *2016 IEEE 4th Workshop on Advances in Information, Electronic and Electrical Engineering (AIEEE) : proceedings of the 4th IEEE workshop : November 10-12, 2016, Vilnius, Lithuania*. IEEE, 2016.
- [52] M. Luneckas *et al.*, "Hexapod robot gait switching for energy consumption and cost of transport management using heuristic algorithms," *Applied Sciences (Switzerland)*, vol. 11, no. 3, pp. 1–13, Feb. 2021, doi: 10.3390/app11031339.
- [53] X. Zhou, W. Wei, Y. Gao, K. Li, and R. Chen, "Research on Terrain Recognition for Gait Selection of Hexapod Robot," *IOP Conf Ser Mater Sci Eng*, vol. 611, p. 12072, Feb. 2019, doi: 10.1088/1757-899X/611/1/012072.
- [54] Y. Zhang, G. Qiao, Q. Wan, L. Tian, and D. Liu, "A Novel Double-Layered Central Pattern Generator-Based Motion Controller for the Hexapod Robot," *Mathematics*, vol. 11, no. 3, Feb. 2023, doi: 10.3390/math11030617.
- [55] Y. Yin, F. Gao, Q. Sun, Y. Zhao, and Y. Xiao, "Smart Gait: A Gait Optimization Framework for Hexapod Robots," *Chinese Journal of Mechanical Engineering (English Edition)*, vol. 37, no. 1, Dec. 2024, doi: 10.1186/s10033-024-01000-0.
- [56] "www.power-sonic.com POWER-SONIC EMEA (EMEA-EUROPE, MIDDLE EAST AND AFRICA) WHAT IS A BATTERY C RATING?," 2021. [Online]. Available: www.power-sonic.com

- [57] S. Liu, C. Wu, L. Liang, B. Zhao, and R. Sun, "Research on Vibration Suppression Methods for Industrial Robot Time-Lag Filtering," *Machines*, vol. 12, no. 4, Apr. 2024, doi: 10.3390/machines12040250.
- [58] G. Gao, F. Xu, J. Xu, and Z. Liu, "Study of Material Color Influences on Mechanical Characteristics of Fused Deposition Modeling Parts," *Materials*, vol. 15, no. 19, Oct. 2022, doi: 10.3390/ma15197039.
- [59] Z. Yu *et al.*, "Study on Effects of FDM 3D Printing Parameters on Mechanical Properties of Polylactic Acid," in *IOP Conference Series: Materials Science and Engineering*, Institute of Physics Publishing, Dec. 2019. doi: 10.1088/1757-899X/688/3/033026.
- [60] A. Kholil, E. Asyaefudin, N. Pinto, and S. Syaripuddin, "Compression Strength Characteristics of ABS and PLA Materials Affected by Layer Thickness on FDM," in *Journal of Physics: Conference Series*, Institute of Physics, 2022. doi: 10.1088/1742-6596/2377/1/012008.
- [61] P. Narkhede, S. Poddar, R. Walambe, G. Ghinea, and K. Kotecha, "Cascaded complementary filter architecture for sensor fusion in attitude estimation," *Sensors*, vol. 21, no. 6, pp. 1–18, Mar. 2021, doi: 10.3390/s21061937.
- [62] S. O. H. Madgwick, "An efficient orientation filter for inertial and inertial/magnetic sensor arrays," 2010.