DAFTAR PUSTAKA

[1] O. M. U. Eraliev, K.-H. Lee, D.-Y. Shin, and C.-H. Lee, "Sensing, perception, decision, planning and action of autonomous excavators," *Automation in Construction*, vol. 141, p. 104428, September 2022.

[2] G. Chen, Y. Lu, X. Yang, and H. Hu, "Reinforcement learning control for the swimming motions of a beaver-like, single-legged robot based on biological inspiration," *Robotics and Autonomous Systems*, vol. 154, p. 104116, August 2022.

[3] W. Qiao, D. Cao, and C. Yin, "Research on pid controller of excavator electro-hydraulic system based on improved differential evolution," *Machines*, vol. 11, no. 2, p. 143, 2023.

[4] F. H. Sheikhha, A. Afzalaghaeinaeini, and J. Seo, "Collaborative tracking control strategy for autonomous excavation of a hydraulic excavator," *Engineering Proceedings*, vol. 2021, no. 10, p. 43, 2021.

[5] B. Zhang, S. Wang, Y. Liu, and H. Yang, "Research on trajectory planning and autodig of hydraulic excavator," *Mathematical Problems in Engineering*, vol. 2017, pp. 1–10, 2017.

[6] J. M. Delgado and L. Oyedele, "Robotics in construction: A critical review of the reinforcement learning and imitation learning paradigms," *Advanced Engineering Informatics*, vol. 54, p. 101787, October 2022.

[7] X. Xu and B. G. De Soto, "Reinforcement learning with construction robots: A preliminary review of research areas, challenges and opportunities," in *ISARC. Proceedings of the International Symposium on Automation and Robotics in Construction*, vol. 39. IAARC Publications, 2022, pp. 375–382.

[8] C. Ishmatuka, I. Soesanti, and A. Ataka, "Autonomous pick-and-place using excavator based on deep reinforcement learning," in *2023 15th International Conference on Information Technology and Electrical Engineering (ICITEE)*. IEEE, 2023, pp. 19–24.

[9] G. Jiang *et al.*, "Computer vision-based deep learning for supervising excavator operations and measuring real-time earthwork productivity," *The Journal of Supercomputing*, vol. 78, pp. 11 601–11 620, 2022.

[10] A. Ataka, M. H. B. Aji, A. L. Hakim, D. Arfiantino, A. A. Nanda, G. K. Nugraha, A. D. Setyadi, A. Aji, G. Ageng, R. Candra *et al.*, "Vision-based excavator control for pick-and-place operation," in *2023 15th International Conference on Information Technology and Electrical Engineering (ICITEE)*. IEEE, 2023, pp. 31–36.

[11] A. Molaei, A. Kolu, K. Lahtinen, and M. Geimer, "Automatic recognition of excavator working cycles using supervised learning and motion data obtained from inertial measurement units (imus)," *Construction Robotics*, vol. 12, no. 1, 2024.

[12] M. Crenganis, C. Biris, and C. Girjob, "Mechatronic design of a four-wheel drive mobile robot and differential steering," in *MATEC Web of Conferences*, vol. 343. EDP Sciences, 2021, p. 08003.

[13] P. Li, H. Wang, M. Zhu, and J. Liu, "Maneuver control of a four-wheel differentially driven robot based on instantaneous center of rotation," in *2018 Chinese Control And Decision Conference (CCDC)*, 2018, pp. 4917–4922.

[14] H. Yajima, "Four-wheel-drive vehicle," May 4 2021, uS Patent 10,994,725.

[15] A. R. Enes and W. J. Book, "Optimizing point to point motion of net velocity constrained manipulators," in *49th IEEE Conference on Decision and Control (CDC)*, 2010, pp. 6415–6420.

[16] T. Izumikawa, "Excavator and construction system," 2024.

[17] Q. H. Le and S.-Y. Yang, "Study on the architecture of the remote control system for hydraulic excavator," in *2011 11th International Conference on Control, Automation and Systems*. IEEE, 2011, pp. 941–945.

[18] M. Kagoshima, "The development of an 8 tonne class hybrid hydraulic excavator sk80h," *Kobelco Technol. Rev*, vol. 31, pp. 6–11, 2012.

[19] G. Klancar, A. Zdesar, S. Blazic, and I. Skrjanc, *Wheeled mobile robotics: from fundamentals towards autonomous systems*. Butterworth-Heinemann, 2017.

[20] K. Lynch, *Modern Robotics*. Cambridge University Press, 2017.

[21] A. Haber, "Clear and detailed explanation of kinematics, equations, and geometry of motion of differential wheeled robot (differential drive robot)," 2023, accessed: 2024-09-23. [Online]. Available: https://aleksandarhaber.com/clear-and-detailed-explanation-of-kinematics-equations-and-geometry-of-motion-of-differential-wh

[22] G. Sun, Z. Weng, P. Zhao, D. Guo, Y. Tian, and L. Xiao, "Design of color recognition system based on fpga," in *2016 International Conference on Electrical, Mechanical and Industrial Engineering*. Atlantis Press, 2016, pp. 322–325.

[23] L. M. Goyal, M. Mittal, M. Kumar, B. Kaur, M. Sharma, A. Verma, and I. Kaur, "An efficient method of multicolor detection using global optimum thresholding for image analysis," *Multimedia Tools and Applications*, vol. 80, pp. 18 969–18 991, 2021.

[24] F. Islami, "Implementation of hsv-based thresholding method for iris detection," *Journal of Computer Networks, Architecture and High Performance Computing*, vol. 3, no. 1, pp. 97–104, 2021.

[25] H. V. H. Ayala, F. M. dos Santos, V. C. Mariani, and L. dos Santos Coelho, "Image thresholding segmentation based on a novel beta differential evolution approach," *Expert Systems with Applications*, vol. 42, no. 4, pp. 2136–2142, 2015.

[26] S. Ravichandiran, *Deep Reinforcement Learning with Python: Master classic RL, deep RL, distributional RL, inverse RL, and more with OpenAI Gym and TensorFlow*. Packt Publishing Ltd, 2020.

[27] J. Gu, Z. Wang, J. Kuen, L. Ma, A. Shahroudy, B. Shuai, T. Liu, X. Wang, G. Wang, J. Cai *et al.*, "Recent advances in convolutional neural networks," *Pattern recognition*, vol. 77, pp. 354–377, 2018.

[28] L. Alzubaidi, J. Zhang, A. J. Humaidi, A. Al-Dujaili, Y. Duan, O. Al-Shamma, J. Santamaría, M. A. Fadhel, M. Al-Amidie, and L. Farhan, "Review of deep learning: concepts, cnn architectures, challenges, applications, future directions," *Journal of big Data*, vol. 8, pp. 1–74, 2021.

[29] B. Liquet, S. Moka, and Y. Nazarathy, "5 convolutional neural network," Mar. 2021. [Online]. Available: https://deeplearningmath.org/convolutional-neural-networks

[30] L. G. Hafemann, R. Sabourin, and L. Oliveira, "Learning features for offline handwritten signature verification using deep convolutional neural networks," *ArXiv*, vol. abs/1705.05787, 2017. [Online]. Available: https://api.semanticscholar.org/CorpusID:10552590

[31] J. Redmon, S. Divvala, R. Girshick, and A. Farhadi, "You only look once: Unified, real-time object detection," *Proceedings of the IEEE conference on computer vision and pattern recognition*, pp. 779–788, 2016.

[32] S. Ren, K. He, R. Girshick, and J. Sun, "Faster r-cnn: Towards real-time object detection with region proposal networks," *Advances in neural information processing systems*, vol. 28, 2015.

[33] A. Aggarwal, "Yolo explained," 2020, accessed: 2024-09-17. [Online]. Available: https://medium.com/analytics-vidhya/yolo-explained-5b6f4564f31

[34] S. Zhao, Z. Xu, L. Zhang, and J. Liu, "Anchor boxes adaptive optimization algorithm for maritime object detection in video surveillance," *Frontiers in Marine Science*, vol. 2023, 2023.

[35] G. Liu, Q. Wang, T. Wang, B. Li, and X. Xi, "Vision-based excavator pose estimation for automatic control," *Automation in Construction*, vol. 157, p. 105162, 2024.

[36] D.-J. Yeom, H.-S. Yoo, J.-S. Kim, and Y. S. Kim, "Development of a vision-based machine guidance system for hydraulic excavators," *Journal of Asian Architecture and Building Engineering*, vol. 22, no. 3, pp. 1564–1581, 2023.

[37] S. Zhang and L. Zhang, "Vision-based excavator activity analysis and safety monitoring system," in *ISARC. Proceedings of the International Symposium on Automation and Robotics in Construction*, vol. 38. IAARC Publications, 2021, pp. 49–56.

[38] M. Lapan, *Deep Reinforcement Learning Hands-On: Apply modern RL methods, with deep Q-networks, value iteration, policy gradients, TRPO, AlphaGo Zero and more*. Packt Publishing Ltd, 2018.

[39] R. S. Sutton and A. G. Barto, *Reinforcement Learning: An Introduction*. MIT Press, 2018.

[40] Y. Li, "Deep reinforcement learning: An overview," *arXiv preprint arXiv:1701.07274*, 2017.

[41] V. Mnih, K. Kavukcuoglu, D. Silver, A. A. Rusu, J. Veness, M. G. Bellemare, A. Graves, M. Riedmiller, A. K. Fidjeland, G. Ostrovski, S. Petersen, C. Beattie, A. Sadik, I. Antonoglou, H. King, D. Kumaran, D. Wierstra, S. Legg, and D. Hassabis, "Human-level control through deep reinforcement

learning," *Nature*, vol. 518, no. 7540, pp. 529–533, 2015. [Online]. Available: https://doi.org/10.1038/nature14236

[42] J. Schulman, F. Wolski, P. Dhariwal, A. Radford, and O. Klimov, "Proximal policy optimization algorithms," *arXiv preprint arXiv:1707.06347*, 2017.

[43] J. Schulman, S. Levine, P. Moritz, M. Jordan, and P. Abbeel, "Trust region policy optimization," *arXiv preprint arXiv:1502.05477*, 2015.

[44] Y. Yoo, D. Jung, and S.-W. Kim, "3d operation of autonomous excavator based on reinforcement learning through independent reward for individual joints," *arXiv preprint arXiv:2406.19848*, 2024.

[45] Q. Zhao, L. Gao, D. Wu, X. Meng, J. Qi, and J. Hu, "E-gtn: Advanced terrain sensing framework for enhancing intelligent decision making of excavators," *Applied Sciences*, vol. 14, no. 16, p. 6974, 2024.

[46] S. Jin, Z. Ye, and L. Zhang, "Learning excavation of rigid objects with offline reinforcement learning," *arXiv preprint arXiv:2303.16427*, 2023.

[47] O. Michel, "Webots: Professional mobile robot simulation," *Journal of Advanced Robotics Systems*, vol. 1, no. 1, pp. 39–42, 2004. [Online]. Available: http://www.ars-journal.com/International-Journal-of-Advanced-Robotic-Systems/Volume-1/39-42.pdf

[48] Tateengs. excavatorurdf. [Online]. Available: https://github.com/Tateengs/excavatorURDF

[49] ITM Group. Complete undercarriage for excavator. [Online]. Available: https://www.group-itm.com/Media/Prodotti/Undercarriage/itm_complete_undercarriage_excavator_grid.jpg

[50] Cyberbotics Ltd., "Camera — webots documentation," https://cyberbotics.com/doc/reference/camera?tab-language=python#wb_camera_get_image, 2024, accessed: 2024-09-08.

[51] W. W. M. Abdank, M. Aburaia, "Using colour-based object detection for pick and place applications," *Annals of DAAAM & Proceedings*, 2021. [Online]. Available: https://www.daaam.info/Downloads/Pdfs/proceedings/proceedings_2021/077.pdf

[52] H.-C. Kang, H.-N. Han, H.-C. Bae, M.-G. Kim, J.-Y. Son, and Y.-K. Kim, "Hsv color-space-based automated object localization for robot grasping without prior knowledge," *Applied Sciences*, vol. 11, no. 16, p. 7593, 2021.

[53] G. Jocher *et al.*, "YOLOv8: Newest YOLO Architecture and Models," https://github.com/ultralytics/ultralytics, 2023, accessed: 2024-09-08.

[54] A. Anish, R. Sharan, A. H. Malini, and T. Archana, "Enhancing surveillance systems with yolo algorithm for real-time object detection and tracking," in *2023 2nd International Conference on Automation, Computing and Renewable Systems (ICACRS)*. IEEE, 2023, pp. 1254–1257.

[55] B. Dwyer, J. Nelson, T. Hansen, and et al., "Roboflow (version 1.0) [software]," https://roboflow.com, 2024, computer vision.

[56] N. Golmant, N. Vemuri, Z. Yao, V. Feinberg, A. Gholami, K. Rothauge, M. W. Mahoney, and J. Gonzalez, "On the computational inefficiency of large batch sizes for stochastic gradient descent," *arXiv preprint arXiv:1811.12941*, 2018.

[57] Y. Liu, X. Chen, M. Cheng, C.-J. Hsieh, and Y. You, "Concurrent adversarial learning for large-batch training," *arXiv preprint arXiv:2106.00221*, 2021.

[58] S.-B. Contributors, "Custom policy," 2023, accessed: 2024-09-12. [Online]. Available: https://stable-baselines3.readthedocs.io/en/master/guide/custom_policy.html

[59] J. Montes, T. C. Kohwalter, and E. Clua, "Slayo-rl: A target-driven deep reinforcement learning approach with slam and yolo for an enhanced autonomous agent," in *2023 Latin American Robotics Symposium (LARS), 2023 Brazilian Symposium on Robotics (SBR), and 2023 Workshop on Robotics in Education (WRE)*. IEEE, 2023, pp. 296–301.