

## REFERENCES

- [1] S. Xie, M. Zhou, C. Wang and S. Huang, "CSPPartial-YOLO: A Lightweight YOLO-Based Method for Typical Objects Detection in Remote Sensing Images," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 17, pp. 388-399, 2024, doi: 10.1109/JSTARS.2023.3329235.
- [2] X. Lu, J. Ji, Z. Xing and Q. Miao, "Attention and Feature Fusion SSD for Remote Sensing Object Detection," in *IEEE Transactions on Instrumentation and Measurement*, vol. 70, pp. 1-9, 2021, Art no. 5501309, doi: 10.1109/TIM.2021.3052575.
- [3] K. Li, G. Wan, G. Cheng, L. Meng, and J. Han, "Object detection in optical remote sensing images: A survey and a new benchmark," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 159, pp. 296-307, 2020, doi: 10.1016/j.isprsjprs.2019.11.023.
- [4] L. Shen, B. Lang and Z. Song, "CA-YOLO: Model Optimization for Remote Sensing Image Object Detection," in *IEEE Access*, vol. 11, pp. 64769-64781, 2023, doi: 10.1109/ACCESS.2023.3290480.
- [5] K. Li, G. Cheng, S. Bu, and X. You, "Rotation-insensitive and context-augmented object detection in remote sensing images," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 56, no. 4, pp. 2337–2348, 2017.
- [6] T.-Y. Lin, P. Dollár, R. Girshick, K. He, B. Hariharan, and S. Belongie, "Feature pyramid networks for object detection," in *Proc. IEEE Conf. Comput. Vision Pattern Recogn.*, Honolulu, HI, Jun. 2017, pp. 2117–2125.
- [7] M. Ju, H. Luo, Z. Wang, B. Hui, and Z. Chang, "The application of improved YOLO V3 in multi-scale target detection," *J. Appl. Sci.*, vol. 9, no. 18, pp. 3774–3375, Jan. 2019.
- [8] Y. Ren, C. Zhu, and S. Xiao, "Small object detection in optical remote sensing images via modified Faster R-CNN," *J. Appl. Sci.*, vol. 8, no. 5, pp. 813:1–813:11, 2018.

- [9] M. Mandal, M. Shah, P. Meena, S. Devi, and S. K. Vipparthi, "Avdnet: A small-sized vehicle detection network for aerial visual data," *IEEE Geosci. Remote Sens. Lett.*, pp. 494–498, 2019.
- [10] M. Mandal, M. Shah, P. Meena, and S. K. Vipparthi, "SSSDet: Simple Short and Shallow Network for Resource Efficient Vehicle Detection in Aerial Scenes," in *Proc. IEEE Int. Conf. Image Process.*, Taipei, Taiwan, Sep. 2019, pp. 3098–3102.
- [11] Z. Deng, H. Sun, S. Zhou, J. Zhao, L. Lei, and H. Zou, "Multiscale object detection in remote sensing imagery with convolutional neural networks," *ISPRS journal of photogrammetry and remote sensing*, vol. 145, pp. 3–22, 2018.
- [12] M. Sharma et al., "YOLOrs: Object Detection in Multimodal Remote Sensing Imagery," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 14, pp. 1497–1508, 2021, doi: 10.1109/JSTARS.2020.3041316.
- [13] Y. Sun, Z. Wang, X. Sun, and K. Fu, "Span: Strong scattering point aware network for ship detection and classification in large-scale SAR imagery," *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens.*, vol. 15, pp. 6083–6101, 2022.
- [14] Z. Hong et al., "Multi-scale ship detection from SAR and optical imagery via a more accurate yolov3," *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens.*, vol. 14, pp. 6083–6101, 2021.
- [15] J. Redmon, S. Divvala, R. Girshick, and A. Farhadi, "You only look once: Unified, real-time object detection," in *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, 2016, pp. 779–788.
- [16] J. Redmon and A. Farhadi, "Yolo9000: Better, faster, stronger," in *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, 2017, pp. 7263–7271.
- [17] A. Farhadi and J. Redmon, "Yolov3: An incremental improvement," in *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, 2018, pp. 1804–1804.

- [18] G. Jocher, et al., "Ultralytics/YOLOv8," GitHub repository, <https://github.com/ultralytics/yolov8>, 2023.
- [19] A. Bochkovskiy, C. -Y. Wang, and H. -Y. M. Liao, "Yolov4: Optimal speed and accuracy of object detection," 2020, arXiv:2004.10934.
- [20] Q. Xu, Y. Li and Z. Shi, "LMO-YOLO: A Ship Detection Model for Low-Resolution Optical Satellite Imagery," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 15, pp. 4117-4131, 2022, doi: 10.1109/JSTARS.2022.3176141.
- [21] A. Shafique, G. Cao, Z. Khan, M. Asad, and M. Aslam, "Deep learning based change detection in remote sensing images:Areview,"Remote Sens., vol. 14, no. 4, p. 871, 2022.
- [22] H. Yi, B. Liu, B. Zhao and E. Liu, "Small Object Detection Algorithm Based on Improved YOLOv8 for Remote Sensing," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 17, pp. 1734-1747, 2024, doi: 10.1109/JSTARS.2023.3339235.
- [23] D. Xu and Y. Wu, "Fe-YOLO:A feature enhancement network for remote sensing target detection," Remote Sens., vol. 13, no. 7, 2021, Art. no. 1311.
- [24] Y. Liu, D. Yang, T. Song, Y. Ye, and X. Zhang, "YOLO-SSP: An object detection model based on pyramid spatial attention and improved downsampling strategy for remote sensing images," Vis. Comput., vol. 40, pp. 1–18, 2024.
- [25] Z. Liu, Y. Gao, Q. Du, M. Chen, and W. Lv, "YOLO-extract: Improved YOLOv5 for aircraft object detection in remote sensing images," IEEE Access, vol. 11, pp. 1742–1751, 2023, doi: 10.1109/ACCESS.2023.3233964.
- [26] Y. Zhang, M. Ye, G. Zhu, Y. Liu, P. Guo, and J. Yan, "FFCAYOLO for small object detection in remote sensing images," IEEE Trans. Geosci. Remote Sens., vol. 62, 2024, Art. no. 5611215, doi: 10.1109/TGRS.2024.3363057.

- [27] J. Dai et al., "Deformable Convolutional Networks," 2017 IEEE International Conference on Computer Vision (ICCV), Venice, Italy, 2017, pp. 764-773, doi: 10.1109/ICCV.2017.89.
- [28] Woo, S., Park, J., Lee, J.-Y., and Kweon, I. S., "CBAM: Convolutional Block Attention Module," arXiv preprint arXiv:1807.06521, 2018. Available: <https://arxiv.org/abs/1807.06521>.
- [29] F. Najihah Muhamad Zamri, T. S. Gunawan, S. Hajar Yusoff, A. A. Alzahrani, A. Bramantoro and M. Kartiwi, "Enhanced Small Drone Detection Using Optimized YOLOv8 With Attention Mechanisms," in IEEE Access, vol. 12, pp. 90629-90643, 2024, doi: 10.1109/ACCESS.2024.3420730.
- [30] Z. Zheng, P. Wang, W. Liu, J. Li, R. Ye, and D. Ren, "Distance-IoU Loss: Faster and Better Learning for Bounding Box Regression," arXiv preprint arXiv:1911.08287, 2019. Available: <https://arxiv.org/abs/1911.08287>.
- [31] Y. Gong, Z. Chen, W. Deng, J. Tan and Y. Li, "Real-Time Long-Distance Ship Detection Architecture Based on YOLOv8," in IEEE Access, vol. 12, pp. 116086-116104, 2024, doi: 10.1109/ACCESS.2024.3445154.
- [32] J. Solawetz and Francesco. (2023). What is YOLOv8? The Ultimate Guide. [Online]. Available: <https://blog.roboflow.com/whats-new-in-yolov8/>.
- [33] C. Y. Wang, H. Y. M. Liao, and I. H. Yeh, "Designing network design strategies through gradient path analysis," J. Inf. Sci. Eng., vol. 39, no. 2, pp. 1–12, 2023.
- [34] Q. Luo, C. Wu, G. Wu, and W. Li, "A small target strawberry recognition method based on improved YOLOv8n model," IEEE Access, vol. 12, pp. 14987–14995, 2024, doi: 10.1109/ACCESS.2024.3356869.
- [35] K. He, X. Zhang, S. Ren, and J. Sun, "Deep residual learning for image recognition," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit. (CVPR), Jun. 2016, pp. 770–778, doi: 10.1109/CVPR.2016.90.
- [36] C.-Y. Wang and H.-Y. M. Liao, "YOLOv1 to YOLOv10: The fastest and most accurate real-time object detection systems," \*arXiv preprint\*,

- arXiv:2408.09332, 2024. [Online]. Available: <https://arxiv.org/abs/2408.09332>.
- [37] Y. Chen, Q. Chen, Q. Hu, and J. Cheng, "DATE: Dual assignment for end-to-end fully convolutional object detection," arXiv preprint arXiv:2211.13859, 2022.
- [38] R. Khanam and M. Hussain, "YOLOv11: An Overview of the Key Architectural Enhancements," \*arXiv preprint\*, arXiv:2410.17725, 2024. [Online]. Available: <https://arxiv.org/abs/2410.17725>.
- [39] R. Khanam, M. Hussain, R. Hill and P. Allen, "A Comprehensive Review of Convolutional Neural Networks for Defect Detection in Industrial Applications," in *IEEE Access*, vol. 12, pp. 94250-94295, 2024, doi: 10.1109/ACCESS.2024.3425166.
- [40] Satya Mallick. Yolo- learnopencv. <https://learnopencv.com/yolo11/>, 2024. Accessed: 11 November 2024.
- [41] Francesco Jacob Solawetz. What is yolov8? the ultimate guide, 2023. Accessed: 11 November 2024.
- [42] G. Xue, J. Zhang, K. Wang, D. Ma, P. Chen, S. Hu, Z. Yang, and T. Liu, "Application of YOLOv7-tiny in the detection of steel surface defects," in \*Proceedings of the 3rd International Conference on Computer, Artificial Intelligence and Control Engineering (CAICE '24) \*, Xi'an, China, 2024, pp. 718–723. [Online]. Available: <https://doi.org/10.1145/3672758.3672878>.
- [43] A. Brahms, "Representation error for real numbers in binary computer arithmetic," IEEE Computer Group Repository, Paper R-67-85.
- [44] L. Deng, Y. Gong, X. Lu, X. Yi, Z. Ma and M. Xie, "Focus-Enhanced Scene Text Recognition with Deformable Convolutions," 2019 IEEE 5th International Conference on Computer and Communications (ICCC), Chengdu, China, 2019, pp. 1685-1689, doi: 10.1109/ICCC47050.2019.9064428.
- [45] B. Benel, "YOLOv8 Gold," GitHub. [https://github.com/phd-benel/yolov8\\_gold](https://github.com/phd-benel/yolov8_gold) (accessed Nov. 23, 2023).

- [46] Zeiler, M.D., Fergus, R. (2014). Visualizing and Understanding Convolutional Networks. In: Fleet, D., Pajdla, T., Schiele, B., Tuytelaars, T. (eds) Computer Vision– ECCV 2014. ECCV 2014. Lecture Notes in Computer Science, vol 8689. Springer, Cham. [https://doi.org/10.1007/978-3-319-10590-1\\_53](https://doi.org/10.1007/978-3-319-10590-1_53).
- [47] Park, J., Woo, S., Lee, J., & Kweon, I. (2018). BAM: Bottleneck Attention Module. ArXiv, abs/1807.06514.
- [48] H. Rezatofighi, N. Tsoi, J. Gwak, A. Sadeghian, I. Reid, and S. Savarese, "Generalized Intersection over Union: A Metric and A Loss for Bounding Box Regression," arXiv preprint arXiv:1902.09630, 2019. Available: <https://arxiv.org/abs/1902.09630>.
- [49] Z. Tong, Y. Chen, Z. Xu, and R. Yu, "Wise-IoU: Bounding Box Regression Loss with Dynamic Focusing Mechanism," arXiv preprint arXiv:2301.10051, 2023. Available: <https://arxiv.org/abs/2301.10051>.
- [50] S. Ren, K. He, R. Girshick and J. Sun, "Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks," in IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 39, no. 6, pp. 1137-1149, 1 June 2017, doi: 10.1109/TPAMI.2016.2577031.
- [51] R. Girshick, "Fast R-CNN," 2015 IEEE International Conference on Computer Vision (ICCV), Santiago, Chile, 2015, pp. 1440-1448, doi: 10.1109/ICCV.2015.169.
- [52] K. He, G. Gkioxari, P. Dollár and R. Girshick, "Mask R-CNN," 2017 IEEE International Conference on Computer Vision (ICCV), Venice, Italy, 2017, pp. 2980-2988, doi: 10.1109/ICCV.2017.322.
- [53] S.-H. Bae, "Object detection based on region decomposition and assembly," in Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence and Thirty-First Innovative Applications of Artificial Intelligence Conference and Ninth AAAI Symposium on Educational Advances in Artificial Intelligence (AAAI'19/IAAI'19/EAAI'19), AAAI Press, 2019, Article 992, pp. 8094-8101. Available: <https://doi.org/10.1609/aaai.v33i01.33018094>.

- [54] J. Yu, Y. Jiang, Z. Wang, Z. Cao, and T. Huang, "UnitBox: An Advanced Object Detection Network," in Proceedings of the 24th ACM International Conference on Multimedia (MM '16), New York, NY, USA: Association for Computing Machinery, 2016, pp. 516–520. doi: 10.1145/2964284.2967274.
- [55] G. Deepti Raj and B. Prabadevi, "MoL-YOLOv7: Streamlining Industrial Defect Detection with an Optimized YOLOv7 Approach," in IEEE Access, vol. 12, pp. 117090-117101, 2024, doi: 10.1109/ACCESS.2024.3447035.
- [56] Z. Gevorgyan, "SIoU Loss: More Powerful Learning for Bounding Box Regression," arXiv preprint arXiv:2205.12740, 2022. Available: <https://arxiv.org/abs/2205.12740>.
- [57] X. Jiang and Y. Wu, "Remote Sensing Object Detection Based on Convolution and Swin Transformer," in IEEE Access, vol. 11, pp. 38643-38656, 2023, doi: 10.1109/ACCESS.2023.3267435.
- [58] G. Cheng, Y. Si, H. Hong, X. Yao, and L. Guo, "Cross-scale feature fusion for object detection in optical remote sensing images," IEEE Geosci. Remote Sens. Lett., to be published, doi: 10.1109/LGRS.2020.2975541.
- [59] S. Liu, L. Qi, H. Qin, J. Shi, and J. Jia, "Path aggregation network for instance segmentation," in Proc. IEEE/CVF Conf. Comput. Vis. Pattern Recognit., Salt Lake City, UT, Jun. 2018, pp. 8759–8768.
- [60] Y. Li, Q. Huang, X. Pei, Y. Chen, L. Jiao and R. Shang, "Cross-Layer Attention Network for Small Object Detection in Remote Sensing Imagery," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 14, pp. 2148-2161, 2021, doi: 10.1109/JS TARS.2020.3046482.
- [61] W. Xi, L. Sun, and J. Sun, "Upgrade your network in-place with deformable convolution," in Proc. 19th Int. Symp. Distrib. Comput. Appl. Bus. Eng. Sci. (DCABES), Xuzhou, China, Oct. 2020, pp. 239–242, doi: 10.1109/DCABES50732.2020.00069.