

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ

1. Jocher G., Chaurasia A., Qiu J. YOLO by Ultralytics (Version 8.0.0). *GitHub*. 2023. URL: <https://github.com/ultralytics/ultralytics> (date of access: 07.12.2025).
2. Stetsenko, I.V., Stelmakh, O. (2020). Traffic Lane Congestion Ratio Evaluation by Video Data. *Advances in Intelligent Systems and Computing* 1019, 172-181. Springer, Cham. https://doi.org/10.1007/978-3-030-25741-5_18
3. Савастру С.В., Стеценко І.В. (2023). Методи обробки даних відеокамер спостереження транспортного руху в реальному часі. *Міжвідомчий науково-технічний журнал «Адаптивні системи автоматичного управління»* 2 (43), 164-173. <https://doi.org/10.20535/1560-8956.43.2023.292269>
4. OpenCV: Open Source Computer Vision Library. URL: <https://docs.opencv.org/4.x/> (date of access: 07.12.2025).
5. Roboflow: Computer Vision Datasets & APIs. URL: <https://universe.roboflow.com/> (date of access: 07.12.2025).
6. J. Redmon, S. Divvala, R. Girshick and A. Farhadi, "You Only Look Once: Unified, Real-Time Object Detection," 2016 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Las Vegas, NV, USA, 2016, pp. 779-788, doi: 10.1109/CVPR.2016.91.
7. Ren S., He K., Girshick R., Sun J. Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks. *Advances in Neural Information Processing Systems (NIPS)*. 2015. URL: <https://arxiv.org/abs/1506.01497>.
8. He K., Gkioxari G., Dollár P., Girshick R. Mask R-CNN. *2017 IEEE International Conference on Computer Vision (ICCV)*. Venice, Italy, 2017. P. 2961–2969. URL: <https://arxiv.org/abs/1703.06870>.
9. Rother C., Kolmogorov V., Blake A. "GrabCut": interactive foreground extraction using iterated graph cuts. *ACM Transactions on Graphics (SIGGRAPH)*. 2004. Vol. 23, No. 3. P. 309–314.
10. Mukhopadhyay P., Chaudhuri B. B. A Survey of Hough Transform. *Pattern Recognition*. 2015. Vol. 48, Issue 3. P. 993–1010.

11. Lowe D. G. Distinctive Image Features from Scale-Invariant Keypoints. *International Journal of Computer Vision*. 2004. Vol. 60, No. 2. P. 91–110.
12. Rublee E., Rabaud V., Konolige K., Bradski G. ORB: An efficient alternative to SIFT or SURF. *2011 International Conference on Computer Vision*. Barcelona, Spain, 2011. P. 2564–2571. DOI: 10.1109/ICCV.2011.6126544.
13. Harris C., Stephens M. A Combined Corner and Edge Detector. *Proceedings of the 4th Alvey Vision Conference*. 1988. Vol. 15. P. 147–151.
14. What is AADT (Annual Average Daily Traffic). *StreetLight Data*. URL: <https://www.streetlightdata.com/what-is-aadt/> (date of access: 07.12.2025).
15. Von Gioi R. G., Jakubowicz J., Morel J.-M., Randall G. LSD: A Line Segment Detector. *Image Processing On Line*. 2012. Vol. 2. P. 35–55. URL: <https://doi.org/10.5201/ipol.2012.gjmr-lsd>.
16. Weisstein E. W. Laplacian. *MathWorld — A Wolfram Web Resource*. URL: <https://mathworld.wolfram.com/Laplacian.html> (date of access: 07.12.2025).
17. Data From Sky: Traffic Analysis Software. URL: <https://datafromsky.com/> (date of access: 07.12.2025).
18. TomTom: Location Technology Specialist. URL: <https://www.tomtom.com/> (date of access: 07.12.2025).
19. Python 3.12 Documentation. URL: <https://docs.python.org/3/> (date of access: 07.12.2025).
20. NumPy Documentation. URL: <https://numpy.org/> (date of access: 07.12.2025)