**KLASIFIKASI DHAKA-AI MENGGUNAKAN METODE CNN**

Dharma Hafidz Satya Nugraha 201810370311314

Bibit Pamungkas 201810370311321

Referensi utama :

[Automatic Signboard Detection and Localization in Densely Populated Developing Cities](https://arxiv.org/pdf/2003.01936.pdf)

Dataset :

[Dhaka-AI](https://www.kaggle.com/rifat963/dhakaai-dhaka-based-traffic-detection-dataset)

Referensi :

[1] V. Kulyukin, S. M.-A. Sciences, and undefined 2019, “On video analysis of omnidirectional bee traffic: Counting bee motions with motion detection and image classification,” *mdpi.com*, Accessed: Oct. 20, 2021. [Online]. Available: https://www.mdpi.com/530444.

[2] M. Karaduman, A. Cınar, H. E.-J. of I. & R. Systems, and undefined 2019, “UAV traffic patrolling via road detection and tracking in anonymous aerial video frames,” *Springer*, vol. 95, no. 2, pp. 675–690, Aug. 2019, doi: 10.1007/s10846-018-0954-x.

[3] A. Chen, Y. Chiu, M. Hsieh, … P. L.-… research part C. emerging, and undefined 2020, “Conflict analytics through the vehicle safety space in mixed traffic flows using UAV image sequences,” *Elsevier*, 2020, doi: 10.1016/j.trc.2020.102744.

[4] B. Benjdira, T. Khursheed, … A. K.-… S.-O. (UVS, and undefined 2019, “Car detection using unmanned aerial vehicles: Comparison between faster r-cnn and yolov3,” *ieeexplore.ieee.org*, 2019, Accessed: Oct. 20, 2021. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/8658300/.

[5] H. Zhang *et al.*, “Real-time detection method for small traffic signs based on Yolov3,” *ieeexplore.ieee.org*, Accessed: Oct. 20, 2021. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/9051707/.

[6] F. Shao *et al.*, “Improved faster R-CNN traffic sign detection based on a second region of interest and highly possible regions proposal network,” *mdpi.com*, 2019, doi: 10.3390/s19102288.

[7] K. Biradar, A. Gupta, … M. M. preprint arXiv, and undefined 2019, “Challenges in time-stamp aware anomaly detection in traffic videos,” *openaccess.thecvf.com*, 2019, Accessed: Oct. 20, 2021. [Online]. Available: https://openaccess.thecvf.com/content\_CVPRW\_2019/papers/AI City/Biradar\_Challenges\_in\_Time-Stamp\_Aware\_Anomaly\_Detection\_in\_Traffic\_Videos\_CVPRW\_2019\_paper.pdf.

[8] Y. Yuan, Z. Xiong, Q. W.-I. transactions on image, and undefined 2019, “VSSA-NET: vertical spatial sequence attention network for traffic sign detection,” *ieeexplore.ieee.org*, 2019, Accessed: Oct. 20, 2021. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/8632977/.

[9] J. Zhang, Z. Xie, J. Sun, X. Zou, J. W.-I. Access, and undefined 2020, “A cascaded R-CNN with multiscale attention and imbalanced samples for traffic sign detection,” *ieeexplore.ieee.org*, 2020, Accessed: Oct. 20, 2021. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/8986614/.

[10] S. Bai *et al.*, “Traffic Anomaly Detection via Perspective Map based on Spatial-temporal Information Matrix.,” *openaccess.thecvf.com*, Accessed: Oct. 20, 2021. [Online]. Available: https://openaccess.thecvf.com/content\_CVPRW\_2019/papers/AI City/Bai\_Traffic\_Anomaly\_Detection\_via\_Perspective\_Map\_based\_on\_Spatial-temporal\_Information\_CVPRW\_2019\_paper.pdf.

[11] L. Liu, Y. Wang, K. Li, J. L.-I. Access, and undefined 2020, “Focus First: Coarse-to-Fine Traffic Sign Detection With Stepwise Learning,” *ieeexplore.ieee.org*, Accessed: Oct. 20, 2021. [Online]. Available: https://ieeexplore.ieee.org/abstract/document/9200358/.

[12] L. Wu, H. Li, J. He, X. C.-J. of P. C. Series, and undefined 2019, “Traffic sign detection method based on Faster R-CNN,” *iopscience.iop.org*, p. 32045, 2019, doi: 10.1088/1742-6596/1176/3/032045.

[13] X. Wang, X. Zhao, Y. S.-J. of I. Processing, and undefined 2019, “A video traffic flow detection system based on machine vision,” *koreascience.or.kr*, 2019, doi: 10.3745/JIPS.04.0140.

[14] V. Jaiswal, V. Sharma, S. V.- Telkomnika, and undefined 2019, “An implementation of novel genetic based clustering algorithm for color image segmentation,” *pdfs.semanticscholar.org*, vol. 17, no. 3, pp. 1461–1467, 2019, doi: 10.12928/TELKOMNIKA.v17i3.10072.

[15] J. Zhao *et al.*, “Unsupervised Traffic Anomaly Detection Using Trajectories.,” *openaccess.thecvf.com*, Accessed: Oct. 20, 2021. [Online]. Available: https://openaccess.thecvf.com/content\_CVPRW\_2019/papers/AI City/Zhao\_Unsupervised\_Traffic\_Anomaly\_Detection\_Using\_Trajectories\_CVPRW\_2019\_paper.pdf.

[16] I. Belkin, S. Tkachenko, … D. Y.-I. C. on, and undefined 2019, “Traffic sign recognition on video sequence using deep neural networks and matching algorithm,” *ieeexplore.ieee.org*, doi: 10.1109/IC-AIAI48757.2019.00013.

[17] M. Koresh, J. D.-J. of I. I. P. (JIIP), and undefined 2019, “Computer vision based traffic sign sensing for smart transport,” *irojournals.com*, 2019, doi: 10.36548/jiip.2019.1.002.

[18] S. Yuan, Y. Chen, H. Huo, L. Z.- Sensors, and undefined 2020, “Analysis and synthesis of traffic scenes from road image sequences,” *mdpi.com*, Accessed: Oct. 20, 2021. [Online]. Available: https://www.mdpi.com/914162.

[19] F. Gao and C. Wang, “Hybrid strategy for traffic light detection by combining classical and self-learning detectors,” *IET Intell. Transp. Syst.*, vol. 14, no. 7, pp. 735–741, Jul. 2020, doi: 10.1049/IET-ITS.2019.0782.

[20] L. Yu, B. Zhang, and R. Li, “Detection of Unusual Targets in Traffic Images Based on One-Class Extreme Machine Learning.,” 2020, Accessed: Oct. 20, 2021. [Online]. Available: https://web.s.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=07650019&AN=148030864&h=Ik%2FNYrz3pkK0P71ZhlMp%2B7ctigarUC%2BYOG0BWzE2nf49CT3pvCvW2EITYIaBnRTvvkGRyezJ82GBC5RGgdPpXQ%3D%3D&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3Fdirect%3Dtrue%26profile%3Dehost%26scope%3Dsite%26authtype%3Dcrawler%26jrnl%3D07650019%26AN%3D148030864.

[21] G. Li, S. Eben Li, R. Zou, Y. Liao, and B. Cheng, “Detection of road traffic participants using cost-effective arrayed ultrasonic sensors in low-speed traffic situations,” *Mech. Syst. Signal Process.*, 2019, Accessed: Oct. 20, 2021. [Online]. Available: https://research.chalmers.se/publication/511483/file/511483\_Fulltext.pdf.

[22] Q. Li *et al.*, “YOLO v4 기반 혼잡도로에서의 움직이는 물체 검출 및 식별 Detection and Identification of Moving Objects at Busy Traffic Road based on YOLO v4,” vol. 21, no. 1, p. 2289, 2021, doi: 10.7236/JIIBC.2021.21.1.141.

[23] M. Al-Smadi, K. Abdulrahim, K. Seman, and R. A. Salam, “A new spatio-temporal background–foreground bimodal for motion segmentation and detection in urban traffic scenes,” *Neural Comput. Appl.*, vol. 32, no. 13, pp. 9453–9469, Jul. 2020, doi: 10.1007/S00521-019-04458-5.

[24] D. Zhao, L. Zhao, R. Ma, and X. Zhao, “Research on Traffic Sign Detection Algorithm Based on Improved YOLOv3,” *J. Phys. Conf. Ser.*, vol. 2026, p. 12050, 2021, doi: 10.1088/1742-6596/2026/1/012050.

[25] L. M, N. Jyotika, N. P, and P. A.I, “View of Traffic Light Controller using Image Processing,” *Turkish J. Comput. Math. Educ.*, pp. 405–411, 2021, Accessed: Oct. 20, 2021. [Online]. Available: https://www.turcomat.org/index.php/turkbilmat/article/view/824/615.