

## DAFTAR PUSTAKA

- Ali, N. S., Alsafo, A. F., Ali, H. D., & Taha, M. S. (2024). An effective face detection and recognition model based on improved YOLOv3 and VGG16 networks. *International Journal of Computational Methods and Experimental Measurements*, 12(2), 107–119. <https://doi.org/10.18280/ijcmem.120201>
- Allam, M., Nikhitha, A. S., Varma, U. N., & Bharathi, C. B. (2025). Advanced face and liveness detection in real-time using multi-model learning to combat spoofing attack. *6th IEEE International Conference on Recent Advances in Information Technology, RAIT 2025*. <https://doi.org/10.1109/RAIT65068.2025.11089345>
- Alya, D. S., Hendrawan, Mulyana, E., & Hermawan, W. (2023). Development of passive liveness detection system based on deep learning LivenessNet to overcome face spoofing. *Proceeding of 2023 17th International Conference on Telecommunication Systems, Services, and Applications, TSSA 2023*. <https://doi.org/10.1109/TSSA59948.2023.10366908>
- Ameen, Y. A., Badary, D. M., Abonnoor, A. E. I., Hussain, K. F., & Sewisy, A. A. (2023). Which data subset should be augmented for deep learning? a simulation study using urothelial cell carcinoma histopathology images. *BMC Bioinformatics*, 24(1). <https://doi.org/10.1186/s12859-023-05199-y>
- Anitha, P., Vasundra, E., Loganathan, E., Kandasamy, C. A., Prakash, N., & Yoganathan, A. (2025). Achieving high accuracy in face recognition: DeepFace intervention and LBPH comparison. *2025 International Conference on Computing Technologies, ICOCT 2025*. <https://doi.org/10.1109/ICOCT64433.2025.11118736>
- Aydin, M., Taskiran, M., Kahraman, N., & Dudukcu, H. V. (2023). A fusion-based deep neural networks approach for face liveness detection. *17th International Conference on INnovations in Intelligent SysTems and Applications, INISTA 2023 - Proceedings*. <https://doi.org/10.1109/INISTA59065.2023.10310519>
- Bengio, Y., Goodfellow, I., & Courville, A. (2015). *Deep Learning*. <http://www.deeplearningbook.org>
- Busch, C. (2019). Standards for biometric presentation attack detection. In *Advances in Computer Vision and Pattern Recognition* (pp. 503–514). Springer London. [https://doi.org/10.1007/978-3-319-92627-8\\_22](https://doi.org/10.1007/978-3-319-92627-8_22)
- Bustard, J. D., Carter, J. N., & Nixon, M. S. (2013). Targeted biometric impersonation. *2013 International Workshop on Biometrics and Forensics, IWBF 2013*. <https://doi.org/10.1109/IWBF.2013.6547323>

- Chen, W., Huang, H., Peng, S., Zhou, C., & Zhang, C. (2021). YOLO-face: a real-time face detector. *Visual Computer*, 37(4), 805–813. <https://doi.org/10.1007/s00371-020-01831-7>
- Das, P. K., Hu, B., Liu, C., Cui, K., Ranjan, P., & Xiong, G. (2019). A new approach for face anti-spoofing using handcrafted and deep network features. *Proceedings - IEEE International Conference on Service Operations and Logistics, and Informatics 2019, SOLI 2019*, 33–38. <https://doi.org/10.1109/SOLI48380.2019.8955089>
- Deng, J., Guo, J., Xue, N., & Zafeiriou, S. (2019). ArcFace: Additive angular margin loss for deep face recognition. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2019-June*, 4685–4694. <https://doi.org/10.1109/CVPR.2019.00482>
- Elfwing, S., Uchibe, E., & Doya, K. (2018). Sigmoid-weighted linear units for neural network function approximation in reinforcement learning. *Neural Networks*, 107, 3–11. <https://doi.org/10.1016/j.neunet.2017.12.012>
- Elhanashi, A., Dini, P., Saponara, S., & Zheng, Q. (2024). TeleStroke: real-time stroke detection with federated learning and YOLOv8 on edge devices. *Journal of Real-Time Image Processing*, 21(4). <https://doi.org/10.1007/s11554-024-01500-1>
- Firmansyah, A., Kusumasari, T. F., & Alam, E. N. (2023). Comparison of face recognition accuracy of ArcFace, FaceNet, and FaceNet512 models on DeepFace framework. *ICCoSITE 2023 - International Conference on Computer Science, Information Technology and Engineering: Digital Transformation Strategy in Facing the VUCA and TUNA Era*, 535–539. <https://doi.org/10.1109/ICCoSITE57641.2023.10127799>
- Garcea, F., Serra, A., Lamberti, F., & Morra, L. (2023). Data augmentation for medical imaging: A systematic literature review. *Computers in Biology and Medicine*, 152, 106391. <https://doi.org/10.1016/j.compbiomed.2022.106391>
- Giot, R., El-Abed, M., & Rosenberger, C. (2013). Fast computation of the performance evaluation of biometric systems: Application to multibiometrics. *Future Generation Computer Systems*, 29(3), 788–799. <https://doi.org/10.1016/j.future.2012.02.003>
- Girshick, R., Donahue, J., Darrell, T., & Malik, J. (2013). Rich feature hierarchies for accurate object detection and semantic segmentation. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, 580–587. <https://doi.org/10.1109/CVPR.2014.81>
- Gonzalez, R. C. ., & Woods, R. E. . (2018). *Digital image processing* (4th ed.). Pearson.
- Hadiprakoso, R. B., Setiawan, H., & Girinoto. (2020). Face anti-spoofing using CNN classifier for face liveness detection. *2020 3rd International Conference on Information and Communications Technology, ICOIACT 2020*, 143–147. <https://doi.org/10.1109/ICOIACT50329.2020.9331977>

- Hadiprakoso, R., & Buana, I. K. S. (2021). Deteksi serangan spoofing wajah menggunakan convolutional neural network. *Jurnal Teknik Informatika Dan Sistem Informasi*, 7(3). <https://doi.org/10.28932/jutisi.v7i3.4001>
- He, K., Zhang, X., Ren, S., & Sun, J. (2015). *Deep residual learning for image recognition*. <http://arxiv.org/abs/1512.03385>
- Jain, A. K., Ross, A., & Prabhakar, S. (2004). An introduction to biometric recognition. *IEEE Transactions on Circuits and Systems for Video Technology*, 14(1), 4–20. <https://doi.org/10.1109/TCSVT.2003.818349>
- Jocher, G., Chaurasia, A., & Qiu, J. (2023). *Ultralytics YOLOv8 docs: Performance metrics*. <https://docs.ultralytics.com/models/yolov8/>
- Juwanda, R. C., Alunjati, F. A., Elviani, U., & Hidayat, F. (2024). Comparative analysis of FaceNet and ArcFace in minimizing false positives for enhanced access control security. *11th International Conference on ICT for Smart Society: Integrating Data and Artificial Intelligence for a Resilient and Sustainable Future Living, ICISS 2024 - Proceeding*. <https://doi.org/10.1109/ICISS62896.2024.10750931>
- Kumar, P. S., & Akshay, G. (2023). *Deep learning-based spatio temporal facial feature visual speech recognition*. <http://arxiv.org/abs/2305.00552>
- Lasko, T. A., Bhagwat, J. G., Zou, K. H., & Ohno-Machado, L. (2005). The use of receiver operating characteristic curves in biomedical informatics. In *Journal of Biomedical Informatics* (Vol. 38, Number 5, pp. 404–415). <https://doi.org/10.1016/j.jbi.2005.02.008>
- Lecun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. In *Nature* (Vol. 521, Number 7553, pp. 436–444). Nature Publishing Group. <https://doi.org/10.1038/nature14539>
- Li, S., Liu, F., Liang, J., Cai, Z., & Liang, Z. (2019). Optimization of face recognition system based on azure IoT edge. *Computers, Materials and Continua*, 61(3), 1377–1389. <https://doi.org/10.32604/cmc.2019.06402>
- Luque, A., Carrasco, A., Martín, A., & de las Heras, A. (2019). The impact of class imbalance in classification performance metrics based on the binary confusion matrix. *Pattern Recognition*, 91, 216–231. <https://doi.org/10.1016/j.patcog.2019.02.023>
- Maurya, R., Aggarwal, D., Gopalakrishnan, T., & Pandey, N. N. (2023). Enhancing deep neural network convergence and performance: A hybrid activation function approach by combining ReLU and ELU activation function. *Proceedings of 2023 2nd International Conference on Informatics, ICI 2023*. <https://doi.org/10.1109/ICI60088.2023.10421353>
- Mostafa, S. A., Ravi, S., Zebari, D., Zebari, N., Abed Mohammed, M., Nedoma, J., Martinek, R., Deveci, M., & Ding, W. (2024). A YOLO-based deep learning model

- for real-time face mask detection via drone surveillance in public spaces. *Information Sciences*, 676. <https://doi.org/10.1016/j.ins.2024.120865>
- Nanthini, K., Sivabalaselvamani, D., Chitra, K., Gokul, P., Kavinkumar, S., & Kishore, S. (2023). A survey on data augmentation techniques. *Proceedings - 7th International Conference on Computing Methodologies and Communication, ICCMC 2023*, 913–920. <https://doi.org/10.1109/ICCMC56507.2023.10084010>
- Parkhi, O. M., Vedaldi, A., & Zisserman, A. (2015). *Deep Face Recognition*.
- Potdar, A., Barbhaya, P., & Nagpure, S. (2022). Face recognition for attendance system using CNN-based liveliness detection. *2022 International Conference on Advances in Computing, Communication and Materials, ICACCM 2022*. <https://doi.org/10.1109/ICACCM56405.2022.10009024>
- Ramachandra, R., & Busch, C. (2018). Presentation attack detection methods for face recognition systems: A comprehensive survey. *ACM Computing Surveys*, 50(1). <https://doi.org/10.1145/3038924>
- Redmon, J., Divvala, S., Girshick, R., & Farhadi, A. (2016). You only look once: Unified, real-time object detection. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2016-December*, 779–788. <https://doi.org/10.1109/CVPR.2016.91>
- Schroff, F., & Philbin, J. (2015). FaceNet: A unified embedding for face recognition and clustering. *IEEE Xplore*.
- Selvam, P., Saravanan, P., Marimuthu, M., Nithya, M. R., Sathiyapriya, V., & Harsha, V. N. (2024). PSDNet: A Breakthrough Parking Space Detection Network Powered by YOLOv8. *Proceedings - 3rd International Conference on Advances in Computing, Communication and Applied Informatics, ACCAI 2024*. <https://doi.org/10.1109/ACCAI61061.2024.10602434>
- Smiley, M. S., & Sam, I. S. (2025). Enhanced face anti-spoofing using a hybrid method: Combining extended LBP and MobileNet. *3rd International Conference on Networks and Advances in Computational Technologies, NetACT 2025*. <https://doi.org/10.1109/NetACT65906.2025.11188295>
- Sohan, M., Sairam, T., & Ramireddy, C. V. (2023). A review on YOLOv8 and its advancements. In I. J. Jacob, S. Piramuthu, & P. Falkowski-Gilski (Eds.), *Data intelligence and cognitive informatics*. Springer. [https://doi.org/10.1007/978-981-99-7962-2\\_39](https://doi.org/10.1007/978-981-99-7962-2_39)
- Tao, Q., & Veldhuis, R. (2007). *Biometrics Symposium, 2007 : 11-13 Sept. 2007*. IEEE Xplore.

- Toh, K. A., Kim, J., & Lee, S. (2008). Maximizing area under ROC curve for biometric scores fusion. *Pattern Recognition*, 41(11), 3373–3392.  
<https://doi.org/10.1016/j.patcog.2008.04.002>
- Tsotsos, J. K. (2006). Computer Vision. In *In Encyclopedia of cognitive science*. Wiley.
- Utiahman, S. A., Indrabayu, & Nurtanio, I. (2025). Performance evaluation of YOLOv8 to YOLOv11 for accurate detection and classification of stomata in microscopic images of herbal plants. *3rd IEEE International Conference on Networks, Multimedia and Information Technology, NMITCON 2025*.  
<https://doi.org/10.1109/NMITCON65824.2025.11188393>
- Wang, M., & Deng, W. (2021). Deep face recognition: A survey. *Neurocomputing*, 429, 215–244. <https://doi.org/10.1016/j.neucom.2020.10.081>
- Yu, L., Ding, Y., Wang, H., & Sun, W. (2018). The research of the liveness detection method based on sparse support vector machines. *Proceedings of 2018 IEEE International Conference on Mechatronics and Automation, ICMA 2018*, 2076–2080.  
<https://doi.org/10.1109/ICMA.2018.8484438>
- Zhalgas, A., Amirgaliyev, B., & Sovet, A. (2025). Robust face recognition under challenging conditions: A comprehensive review of deep learning methods and challenges. In *Applied Sciences (Switzerland)* (Vol. 15, Number 17). Multidisciplinary Digital Publishing Institute (MDPI).  
<https://doi.org/10.3390/app15179390>
- Zhou, Y., Wei, X., & Wei, J. (2021). An improved face liveness detection algorithm based on deep convolution neural network. *Proceedings of the 33rd Chinese Control and Decision Conference, CCDC 2021*, 1839–1844.  
<https://doi.org/10.1109/CCDC52312.2021.9601431>
- Zou, Z., Chen, K., Shi, Z., Guo, Y., & Ye, J. (2023). Object detection in 20 years: A survey. *Proceedings of the IEEE*, 111(3), 257–276. <http://arxiv.org/abs/1905.05055>