

## DAFTAR PUSTAKA

- [1] APJII, “Asosiasi Penyelenggara Jasa Internet Indonesia (APJII): 2024.” Accessed: Feb. 16, 2025. [Online]. Available: <https://survei.apjii.or.id/home>
- [2] A. A. Rahmadi and A. Sudaryanto, “VISUAL RECOGNITION OF GRAPHICAL USER INTERFACE COMPONENTS USING DEEP LEARNING TECHNIQUE,” Surabaya, Jan. 2020. doi: <http://dx.doi.org/10.21609/jiki:v13i1:845>.
- [3] Agus Mulyanto, Erlina Susanti, Farli Rosi, Wajiran, and Rohmat Indra Borman, “Penerapan Convolutional Neural Network (CNN) pada Pengenalan Aksara Lampung Berbasis Optical Character Recognition (OCR),” *JEPIN (Jurnal Edukasi Dan Penelitian Informatika)*, vol. 7(1), pp. 52–57, 2021, [Online]. Available: <https://colab.research.google.com>.
- [4] C. Wibisono and S. Budi, “Form Recognition dan Character Mapping Menggunakan Image Segmentation dan Optical Character Recognition,” *Jurnal Teknik Informatika dan Sistem Informasi*, vol. 7, no. 1, Apr. 2021, doi: [10.28932/jutisi.v7i1.3340](https://doi.org/10.28932/jutisi.v7i1.3340).
- [5] R. Angger Saputra and Y. Sibaroni, “Multilabel Hate Speech Classification in Indonesian Political Discourse on X using Combined Deep Learning Models with Considering Sentence Length,” *Jurnal Ilmu Komputer dan Informasi*, vol. 18, no. 1, pp. 113–125, Feb. 2025, doi: [10.21609/jiki.v18i1.1440](https://doi.org/10.21609/jiki.v18i1.1440).
- [6] B. Tjandra, O. J. Jodrian, N. S. C. Handoko, and A. F. Wicaksono, “Estimating Passenger Density in Trains through Crowd Counting Modeling,” *Jurnal Ilmu Komputer dan Informasi*, vol. 18, no. 1, pp. 67–76, Jul. 2024, doi: [10.21609/jiki.v18i1.1314](https://doi.org/10.21609/jiki.v18i1.1314).
- [7] A. Firdaus *et al.*, “Implementasi Optical Character Recognition (OCR) Pada Masa Pandemi Covid-19 \*1,” 2021.

- [8] C. H. Lin and U. Nuha, "Sentiment analysis of Indonesian datasets based on a hybrid deep-learning strategy," *J Big Data*, vol. 10, no. 1, Dec. 2023, doi: 10.1186/s40537-023-00782-9.
- [9] M. M. Hudaya, Siti Saadah, and Hendy Irawan, "Implementation of Verification and Matching E-KTP with Faster R-CNN and ORB," *Jurnal RESTI (Rekayasa Sistem dan Teknologi Informasi)*, vol. 5, no. 4, pp. 783–793, Aug. 2021, doi: 10.29207/resti.v5i4.3175.
- [10] A. N. Azhari and W. Wahyono, "Automatic Detection of Helmets on Motorcyclists Using Faster - RCNN," *IJCCS (Indonesian Journal of Computing and Cybernetics Systems)*, vol. 16, no. 4, p. 357, Oct. 2022, doi: 10.22146/ijccs.68245.
- [11] Kafka Febianto Agiharta, Bernard Renaldy Suteja, and Mewati Ayub, "Penerapan Sentence BERT Untuk Similaritas Kompetensi Pekerjaan dan Mata Kuliah," *Jurnal Teknik Informatika dan Sistem Informasi*, vol. 10, p. 449, Dec. 2024, doi: 10.28932/jutisi.vXiX.X.
- [12] Francois. Chollet, *Deep Learning with Python by Francois Chollet*. Manning Publications : [distributed by] Skillsoft Books, 2019.
- [13] R. Khalkar, A. Dikhit, and A. Goel, "Handwritten Text Recognition using Deep Learning (CNN & RNN)," *IARJSET*, vol. 8, pp. 870–881, Feb. 2021, doi: 10.17148/IARJSET.2021.86148.
- [14] B. Lin, D. Bouneffouf, and G. Cecchi, "Predicting human decision making in psychological tasks with recurrent neural networks," *PLoS One*, vol. 17, no. 5 May, May 2022, doi: 10.1371/journal.pone.0267907.
- [15] V. S. K. Delhi, R. Sankarlal, and A. Thomas, "Detection of Personal Protective Equipment (PPE) Compliance on Construction Site Using Computer Vision Based Deep Learning Techniques," *Front Built Environ*, vol. 6, Sep. 2020, doi: 10.3389/fbuil.2020.00136.
- [16] A. A. Ahmed, S. Sayed, A. Abdoulhalik, S. Moutari, and L. Oyedele, "Applications of machine learning to water resources management: A review of present status and future opportunities," Feb. 15, 2024, *Elsevier Ltd*. doi: 10.1016/j.jclepro.2024.140715.

- [17] Indranath. Chatterjee, *Machine learning and its applications : a quick guide for beginners*. Bentham Science Publishers, 2021.
- [18] I. D. Mienye and T. G. Swart, “A Comprehensive Review of Deep Learning: Architectures, Recent Advances, and Applications,” *Information (Switzerland)*, vol. 15, no. 12, Dec. 2024, doi: 10.3390/info15120755.
- [19] X. Zhao, L. Wang, Y. Zhang, X. Han, M. Deveci, and M. Parmar, “A review of convolutional neural networks in computer vision,” *Artif Intell Rev*, vol. 57, no. 4, p. 99, 2024.
- [20] A. ANHAR and R. A. PUTRA, “Perancangan dan Implementasi Self-Checkout System pada Toko Ritel menggunakan Convolutional Neural Network (CNN),” *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 11, no. 2, p. 466, Apr. 2023, doi: 10.26760/elkomika.v11i2.466.
- [21] A. Z. Syaharuddin, Z. Zainuddin, and others, “Multi-pole road sign detection based on faster region-based convolutional neural network (faster R-CNN),” in *2021 International Conference on Artificial Intelligence and Mechatronics Systems (AIMS)*, 2021, pp. 1–5.
- [22] M. N. Musa, “MRI-Based Brain Tumor Classification using ResNet-50 and Optimized Softmax Regression,” *JURNAL INFOTEL*, vol. 16, no. 3, Sep. 2024, doi: 10.20895/infotel.v16i3.1175.
- [23] V. Kumar, C. Prabha, P. Sharma, N. Mittal, S. S. Askar, and M. Abouhawwash, “Unified deep learning models for enhanced lung cancer prediction with ResNet-50–101 and EfficientNet-B3 using DICOM images,” *BMC Med Imaging*, vol. 24, no. 1, Dec. 2024, doi: 10.1186/s12880-024-01241-4.
- [24] Amelia Marshanda, B. Harijanto, and C. Rahmad, “Implementasi Optical Character Recognition (OCR) untuk Meningkatkan Akurasi dan Kecepatan Input Data di Posyandu,” *JIP (Jurnal Informatika Polinema)*, vol. Vol. 11 No. 1, Nov. 2024, doi: <https://doi.org/10.33795/jip.v11i1.6025>.

- [25] A. F. I. Setyadi and Y. A. Susetyo, "Implementasi Algoritma LSTM pada Aplikasi Optical Character Recognition Berbasis Website Menggunakan Tesseract OCR," *Jurnal Teknologi Sistem Informasi dan Aplikasi*, vol. 6, no. 2, pp. 63–71, Apr. 2023, doi: 10.32493/jtsi.v6i2.29235.
- [26] H. Gustiawan, H. Rian, and D. P. Sari, "Perancangan Sistem Informasi Pengarsipan Surat Pengajuan Berdasarkan Nomor Surat Berbasis Web," *Jurnal Teknologi Informatika dan Komputer*, vol. 10, no. 1, pp. 287–295, Mar. 2024, doi: 10.37012/jtik.v10i1.2124.
- [27] M. Li *et al.*, "Trocr: Transformer-based optical character recognition with pre-trained models," in *Proceedings of the AAAI conference on artificial intelligence*, 2023, pp. 13094–13102.
- [28] D. W. Otter, J. R. Medina, and J. K. Kalita, "A survey of the usages of deep learning for natural language processing," *IEEE Trans Neural Netw Learn Syst*, vol. 32, no. 2, pp. 604–624, 2020.
- [29] P. Krasadakis, E. Sakkopoulos, and V. S. Verykios, "A Survey on Challenges and Advances in Natural Language Processing with a Focus on Legal Informatics and Low-Resource Languages," Feb. 01, 2024, *Multidisciplinary Digital Publishing Institute (MDPI)*. doi: 10.3390/electronics13030648.
- [30] D. Khurana, A. Koli, K. Khatter, and S. Singh, "Natural language processing: state of the art, current trends and challenges," *Multimed Tools Appl*, vol. 82, no. 3, pp. 3713–3744, Jan. 2023, doi: 10.1007/s11042-022-13428-4.
- [31] J. Devlin, M.-W. Chang, K. Lee, K. T. Google, and A. I. Language, "BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding," Minneapolis, Jun. 2019. [Online]. Available: <https://github.com/tensorflow/tensor2tensor>
- [32] S. Haque, Z. Eberhart, A. Bansal, and C. McMillan, "Semantic Similarity Metrics for Evaluating Source Code Summarization," in *IEEE International Conference on Program Comprehension*, IEEE Computer Society, 2022, pp. 36–47. doi: 10.1145/nnnnnnn.nnnnnnn.

- [33] D. Reichenpfader *et al.*, “Enhancing Bidirectional Encoder Representations From Transformers (BERT) With Frame Semantics to Extract Clinically Relevant Information From German Mammography Reports: Algorithm Development and Validation,” *J Med Internet Res*, vol. 27, 2025, doi: 10.2196/68427.
- [34] J. Maharjan, J. Zhu, J. King, N. H. Phan, D. Kenne, and R. Jin, “Large-Scale Deep Learning–Enabled Infodemiological Analysis of Substance Use Patterns on Social Media: Insights From the COVID-19 Pandemic,” *JMIR Infodemiology*, vol. 5, 2025, doi: 10.2196/59076.
- [35] A. L. Timiş *et al.*, “A New Conservative Approach for Statistical Data Analysis in Surveying for Trace Elements in Solid Waste Ponds,” Mar. 03, 2025. doi: 10.20944/preprints202503.0001.v1.
- [36] S. Clara *et al.*, *Implementasi Seleksi Fitur Pada Algoritma Klasifikasi Machine Learning Untuk Prediksi Penghasilan Pada Adult Income Dataset*. 2021.
- [37] H. A. A. Putra, A. Murni Arymurthy, and D. Chahyati, “Enhancing Bounding Box Regression for Object Detection: Dimensional Angle Precision IoU-Loss,” *IEEE Access*, vol. 13, pp. 81029–81047, 2025, doi: 10.1109/ACCESS.2025.3567767.
- [38] M. Wibowo, R. Tullah, and W. Ricesa, “Studi Perbandingan Algoritma YOLO dan FOMO untuk Object Detection pada Perangkat ESP32-CAM,” *INSECT (Informatics and Security)*, vol. 11, no. 1, pp. 44–54, 2025.
- [39] A. A. RAHMAN, S. D. AGUSTIN, N. IBRAHIM, and N. C. KUMALASARI, “Perbandingan Algoritma YOLOv4 dan Scaled YOLOv4 untuk Deteksi Objek pada Citra Termal,” *MIND Journal*, vol. 7, no. 1, pp. 61–71, Jun. 2022, doi: 10.26760/mindjournal.v7i1.61-71.
- [40] C. Ciksadan, S. Soim, and N. Jami, “Desain dan Pengembangan Website untuk Mendeteksi Malware Menggunakan Framework Flask yang Diintegrasikan dengan Machine Learning,” *Jurnal Teknologi*

*Sistem Informasi dan Aplikasi*, vol. 7, no. 3, pp. 1213–1218, Jul. 2024, doi: 10.32493/jtsi.v7i3.42003.

- [41] O. M. Ma'arif and T. Kurniasih, "Perancangan Sistem Inventory Berbasis Web Menggunakan Framework Flask : PT. Gagas Mitra Jaya (Area Salatiga)," 2024. [Online]. Available: <https://journal.stmiki.ac.id>
- [42] S. Bella Agustina, S. Malini, I. Palingga Ninditama, and Y. Diana Putri, "Pelatihan Dasar Analisis Data Menggunakan Google Colab dan Python Untuk Siswa SMA di Wilayah Saboking-king Palembang Basic Training on Data Analysis Using Google Colab and Python for High School Students in the Palembang Saboking-king," *Jurnal Pengabdian Masyarakat Terapan*, pp. 46–54, May 2025, doi: 10.62951/unggulan.v2i2.1397.
- [43] J. T. Terpadu, I. Arifin, R. Fakhra Haidi, and M. Dzalhaqi, "PENERAPAN COMPUTER VISION MENGGUNAKAN METODE DEEP LEARNING PADA PERSPEKTIF GENERASI ULUL ALBAB," *Jurnal Teknologi Terpadu*, vol. 7, no. 2, pp. 98–107, 2021, [Online]. Available: <https://journal.nurulfikri.ac.id/index.php/jtt>