

DAFTAR PUSTAKA

- [1] V. Mercy Rajaselvi, J. Sanjith, S. Koshy, and G. M. Niranjana, “A Survey on Lung Disease Diagnosis using Machine Learning Techniques,” *2022 2nd Int. Conf. Adv. Comput. Innov. Technol. Eng. ICACITE 2022*, pp. 2108–2111, 2022, doi: 10.1109/ICACITE53722.2022.9823787.
- [2] S. K. H. Bukhari and L. Fahad, “Lung Disease Detection using Deep Learning,” *2022 17th Int. Conf. Emerg. Technol. ICET 2022*, pp. 154–159, 2022, doi: 10.1109/ICET56601.2022.10004651.
- [3] R. Moch Diar, R. Y. Fu’adah, and K. Usman, “Klasifikasi Penyakit Paru-Paru Berbasis Pengolahan Citra X Ray Menggunakan Convolutional Neural Network (Classification Of The Lung Diseases Based On X Ray Image Processing Using Convolutional Neural Network),” *e-Proceeding Eng.*, vol. 9, no. 2, pp. 476–484, 2022.
- [4] M. S. Ahmed *et al.*, “Joint Diagnosis of Pneumonia, COVID-19, and Tuberculosis from Chest X-ray Images: A Deep Learning Approach,” *Diagnostics*, vol. 13, no. 15, 2023, doi: 10.3390/diagnostics13152562.
- [5] A. Mardhiyah and A. Harjoko, “Metode Segmentasi Paru-paru dan Jantung Pada Citra X-Ray Thorax,” *Ijeis*, vol. 1, no. 2, pp. 35–44, 2011.
- [6] I. Chouat, A. Echioui, R. Khemakhem, W. Zouch, M. Ghorbel, and A. Ben Hamida, “Lung Disease Detection in Chest X-ray Images Using Transfer Learning,” *Int. Conf. Adv. Technol. Signal Image Process. ATSIP 2022*, 2022, doi: 10.1109/ATSIP55956.2022.9805892.
- [7] J. Yanase and E. Triantaphyllou, “A systematic survey of computer-aided diagnosis in medicine: Past and present developments,” *Expert Syst. Appl.*, vol. 138, p. 112821, 2019, doi: 10.1016/j.eswa.2019.112821.
- [8] G. M. M. Alshmrani, Q. Ni, R. Jiang, H. Pervaiz, and N. M. Elshennawy, “A deep learning architecture for multi-class lung diseases classification using chest X-ray (CXR) images,” *Alexandria Eng. J.*, vol. 64, pp. 923–935, 2023, doi: 10.1016/j.aej.2022.10.053.
- [9] M. A. Khan, “An IoT Framework for Heart Disease Prediction Based on

- MDCNN Classifier,” *IEEE Access*, vol. 8, pp. 34717–34727, 2020, doi: 10.1109/ACCESS.2020.2974687.
- [10] M. A. Khan, M. T. Quasim, N. S. Alghamdi, and M. Y. Khan, “A Secure Framework for Authentication and Encryption Using Improved ECC for IoT-Based Medical Sensor Data,” *IEEE Access*, vol. 8, pp. 52018–52027, 2020, doi: 10.1109/ACCESS.2020.2980739.
- [11] I. Tobore *et al.*, “Deep learning intervention for health care challenges: Some biomedical domain considerations,” *JMIR mHealth uHealth*, vol. 7, no. 8, 2019, doi: 10.2196/11966.
- [12] S. Sari, I. Soesanti, and N. A. Setiawan, “Best Performance Comparative Analysis of Architecture Deep Learning on CT Images for Lung Nodules Classification,” *Proc. - 2021 IEEE 5th Int. Conf. Inf. Technol. Inf. Syst. Electr. Eng. Appl. Data Sci. Artif. Intell. Technol. Glob. Challenges Dur. Pandemic Era, ICITISEE 2021*, pp. 138–143, 2021, doi: 10.1109/ICITISEE53823.2021.9655872.
- [13] F. Parvin and M. Al Mehedi Hasan, “A Comparative Study of Different Types of Convolutional Neural Networks for Breast Cancer Histopathological Image Classification,” *2020 IEEE Reg. 10 Symp. TENSYP 2020*, no. June, pp. 945–948, 2020, doi: 10.1109/TENSYP50017.2020.9230787.
- [14] T. T. Mengistie and D. Kumar, “Comparative Study of Transfer Learning techniques for Lung Disease prediction,” *IEMECON 2021 - 10th Int. Conf. Internet Everything, Microw. Eng. Commun. Networks*, 2021, doi: 10.1109/IEMECON53809.2021.9689159.
- [15] T. A. Youssef, B. Aissam, D. Khalid, B. Imane, and J. El Miloud, “Classification of chest pneumonia from x-ray images using new architecture based on ResNet,” *2020 IEEE 2nd Int. Conf. Electron. Control. Optim. Comput. Sci. ICECOCS 2020*, 2020, doi: 10.1109/ICECOCS50124.2020.9314567.
- [16] A. Manickam, J. Jiang, Y. Zhou, A. Sagar, R. Soundrapandiyam, and R. Dinesh Jackson Samuel, “Automated pneumonia detection on chest X-ray

- images: A deep learning approach with different optimizers and transfer learning architectures,” *Meas. J. Int. Meas. Confed.*, vol. 184, no. November 2020, p. 109953, 2021, doi: 10.1016/j.measurement.2021.109953.
- [17] M. Rahman, Y. Cao, X. Sun, B. Li, and Y. Hao, “Deep pre-trained networks as a feature extractor with XGBoost to detect tuberculosis from chest X-ray,” *Comput. Electr. Eng.*, vol. 93, no. May, p. 107252, 2021, doi: 10.1016/j.compeleceng.2021.107252.
- [18] S. I. Hossain, S. Alam Nipu, and M. R. Hasan, “Recognition of Tuberculosis on Medical X-Ray Images Utilizing MobileNet Transfer Learning,” *Proc. 3rd Int. Conf. Artif. Intell. Smart Energy, ICAIS 2023*, no. Icais, pp. 952–959, 2023, doi: 10.1109/ICAIS56108.2023.10073728.
- [19] M. Raihan and M. Suryanegara, “Classification of COVID-19 Patients Using Deep Learning Architecture of InceptionV3 and ResNet50,” *Proc. - 2021 4th Int. Conf. Comput. Informatics Eng. IT-Based Digit. Ind. Innov. Welf. Soc. IC2IE 2021*, pp. 46–50, 2021, doi: 10.1109/IC2IE53219.2021.9649255.
- [20] R. Hridya Krishna, K. P. Vaishnavi, M. Anagha Ramadas, N. Chanalya, A. Manoj, and J. J. Nair, “Deep Learning Approaches for Detection of Covid-19 Using Chest X-Ray Images,” *2021 4th Int. Conf. Electr. Comput. Commun. Technol. ICECCT 2021*, 2021, doi: 10.1109/ICECCT52121.2021.9616623.
- [21] L. Vogado *et al.*, “Detection of COVID-19 in chest X-ray images using transfer learning with deep convolutional neural network,” *Proc. ACM Symp. Appl. Comput.*, pp. 629–636, 2021, doi: 10.1145/3412841.3442091.
- [22] M. M. R. Khan *et al.*, “Automatic Detection of COVID-19 Disease in Chest X-Ray Images using Deep Neural Networks,” *IEEE Reg. 10 Humanit. Technol. Conf. R10-HTC*, vol. 2020-Decem, pp. 7–12, 2020, doi: 10.1109/R10-HTC49770.2020.9357034.
- [23] A. Diker, “An efficient model of residual based convolutional neural network with Bayesian optimization for the classification of malarial cell images,” *Comput. Biol. Med.*, vol. 148, no. April, 2022, doi: 10.1016/j.compbiomed.2022.105635.

- [24] H. M. Ramadhani, A. P. Pratiwi, S. C. Hidayati, and D. Herumurti, “CNN Architecture Comparison for Covid-19 Image Classification Process,” pp. 39–44, 2022, doi: 10.1109/ismode53584.2022.9743100.
- [25] A. Mahadar, P. Mangukiya, and T. Baraskar, “Comparison and Evaluation of CNN Architectures for Classification of Covid-19 and Pneumonia,” *Proc. IEEE Int. Conf. Image Inf. Process.*, vol. 2021-Novem, pp. 110–115, 2021, doi: 10.1109/ICIIP53038.2021.9702676.
- [26] M. Subramanian, J. Cho, V. E. Sathishkumar, and O. S. Naren, “Multiple Types of Cancer Classification Using CT/MRI Images Based on Learning Without Forgetting Powered Deep Learning Models,” *IEEE Access*, vol. 11, no. January, pp. 10336–10354, 2023, doi: 10.1109/ACCESS.2023.3240443.
- [27] M. F. Aslan, K. Sabanci, A. Durdu, and M. F. Unlersen, “COVID-19 diagnosis using state-of-the-art CNN architecture features and Bayesian Optimization,” *Comput. Biol. Med.*, vol. 142, no. October 2021, p. 105244, 2022, doi: 10.1016/j.compbiomed.2022.105244.
- [28] M. Mahmud, M. S. Kaiser, A. Hussain, and S. Vassanelli, “Applications of Deep Learning and Reinforcement Learning to Biological Data,” *IEEE Trans. Neural Networks Learn. Syst.*, vol. 29, no. 6, pp. 2063–2079, 2018, doi: 10.1109/TNNLS.2018.2790388.
- [29] M. K. Mahbub, M. Biswas, L. Gaur, F. Alenezi, and K. C. Santosh, “Deep features to detect pulmonary abnormalities in chest X-rays due to infectious diseaseX: Covid-19, pneumonia, and tuberculosis,” *Inf. Sci. (Ny)*, vol. 592, pp. 389–401, 2022, doi: 10.1016/j.ins.2022.01.062.
- [30] M. Al Mehedi Hasan, J. Shin, and F. Parvin, “Deep Transfer Learning Based Detection of COVID-19 from Chest X-ray Images,” *ACM Int. Conf. Proceeding Ser.*, pp. 64–70, 2021, doi: 10.1145/3460238.3460249.
- [31] Y. K. Teja and V. Jindal, “Prediction of COVID-19 and Pneumonia from CXR Images,” *Proc. 2nd Int. Conf. Electron. Sustain. Commun. Syst. ICESC 2021*, pp. 1137–1142, 2021, doi: 10.1109/ICESC51422.2021.9532943.
- [32] R. G. Mantovani, A. L. D. Rossi, J. Vanschoren, B. Bischl, and A. C. P. L. F. De Carvalho, “Effectiveness of Random Search in SVM hyper-parameter

- tuning,” *Proc. Int. Jt. Conf. Neural Networks*, vol. 2015-Septe, pp. 1–8, 2015, doi: 10.1109/IJCNN.2015.7280664.
- [33] G. Vrbancic, S. Pecnik, and V. Podgorelec, “Identification of COVID-19 X-ray Images using CNN with Optimized Tuning of Transfer Learning,” *INISTA 2020 - 2020 Int. Conf. Innov. Intell. Syst. Appl. Proc.*, 2020, doi: 10.1109/INISTA49547.2020.9194615.
- [34] L. Gao and Y. Ding, “Disease prediction via Bayesian hyperparameter optimization and ensemble learning,” *BMC Res. Notes*, vol. 13, no. 1, pp. 1–6, 2020, doi: 10.1186/s13104-020-05050-0.
- [35] F. F. Firdaus, H. A. Nugroho, and I. Soesanti, “Deep Neural Network with Hyperparameter Tuning for Detection of Heart Disease,” *Proc. - 2021 IEEE Asia Pacific Conf. Wirel. Mobile, APWiMob 2021*, pp. 59–65, 2021, doi: 10.1109/APWiMob51111.2021.9435250.
- [36] S. Agrawal and P. Agrawal, “Detection of Pneumonia Cases from X-ray Chest Images using Deep Learning Based on Transfer Learning CNN and Hyperparameter Optimization,” *ICSCCC 2023 - 3rd Int. Conf. Secur. Cyber Comput. Commun.*, pp. 37–42, 2023, doi: 10.1109/ICSCCC58608.2023.10176853.
- [37] Moore KL, Dalley AF, Agur AMR. 2014. Moore clinically oriented anatomy. Edisi ke-7. Baltimore: Lippincott Williams & Wilkins.
- [38] Tomaszewski, J. F. et al. (2008) ‘Dail and Hammar’s pulmonary pathology’, Dail and Hammar’s Pulmonary Pathology, 1(June 2009), pp. 1–1301. doi: 10.1007/978-0-387-68792-6.
- [39] D. A. Kusuma and C. Chairani, “Rancang Bangun Sistem Pakar Pendiagnosa Penyakit Paru-Paru Menggunakan Metode Case Based Reasoning,” *J. Inform. dan Elektron.*, vol. 6, no. 2, pp. 57–62, 2015, doi: 10.20895/infotel.v6i2.74.
- [40] Dadonaite, B. and Roser, M. (2020) ‘Pneumonia’, Our World in Data. Available at: <https://ourworldindata.org/pneumonia>.
- [41] I. D. Athena Anwar, “Pneumonia pada Anak Balita di Indonesia,” *Kesmas Natl. Public Heal. J.*, vol. 8, no. 8, pp. 359–365, 2014, doi:

10.21109/kesmas.v8i8.405.

- [42] M. A. Shereen, S. Khan, A. Kazmi, N. Bashir, and R. Siddique, "COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses," *J. Adv. Res.*, vol. 24, pp. 91–98, 2020, doi: 10.1016/j.jare.2020.03.005.
- [43] J. Fan, X. Liu, W. Pan, M. W. Douglas, and S. Bao, "Epidemiology of coronavirus disease in Gansu Province, China, 2020," *Emerg. Infect. Dis.*, vol. 26, no. 6, pp. 1257–1265, 2020, doi: 10.3201/EID2606.200251.
- [44] N. H. Muchtar, D. Herman, and Y. Yulistini, "Gambaran Faktor Risiko Timbulnya Tuberkulosis Paru pada Pasien yang Berkunjung ke Unit DOTS RSUP Dr. M. Djamil Padang Tahun 2015," *J. Kesehat. Andalas*, vol. 7, no. 1, p. 80, 2018, doi: 10.25077/jka.v7i1.783.
- [45] Putra, D. Pengolahan citra digital. Penerbit Andi. 2010.
- [46] M. Gambato *et al.*, "Chest X-ray Interpretation: Detecting Devices and Device-Related Complications," *Diagnostics*, vol. 13, no. 4, 2023, doi: 10.3390/diagnostics13040599.
- [47] A. M. Speets *et al.*, "Chest radiography in general practice: Indications, diagnostic yield and consequences for patient management," *Br. J. Gen. Pract.*, vol. 56, no. 529, pp. 574–578, 2006.
- [48] M. A. Wikanargo and A. P. Thenata, "Image Segmentation of Chest X-Rays for Abnormality Pattern Recognition in Lungs Using Fuzzy C-Means Method," *J. Terap. Teknol. Inf.*, vol. 2, no. 2, pp. 101–111, 2018, doi: 10.21460/jutei.2018.22.98.
- [49] J. McCarthy, "The Philosophy of AI and the AI of Philosophy," *Philos. Inf.*, pp. 711–740, 2008, doi: 10.1016/B978-0-444-51726-5.50022-4.
- [50] Nasri, "Kecerdasan buatan (Artificial Intelligence)," *Artif. Intell.*, vol. 1, no. 2, pp. 1–10, 2014.
- [51] Livingstone, David J., ed. Artificial neural networks: methods and applications. Totowa, NJ, USA: Humana Press, 2008.
- [52] Hermawan, Arief. Jaringan Saraf Tiruan: Teori dan Aplikasi. 2006.
- [53] Y. Lecun, Y. Bengio, and G. Hinton, "Deep learning," *Nature*, vol. 521, no. 7553, pp. 436–444, 2015, doi: 10.1038/nature14539.

- [54] The Mathworks, “Introducing Deep Learning with MATLAB: ‘What is Deep Learning?,’” *MathWorks, Inc. MATLAB Simulink are Regist. trademarks MathWorks, Inc*, pp. 1–14, 2018.
- [55] W. S. Eka Putra, “Klasifikasi Citra Menggunakan Convolutional Neural Network (CNN) pada Caltech 101,” *J. Tek. ITS*, vol. 5, no. 1, 2016, doi: 10.12962/j23373539.v5i1.15696.
- [56] K. He, X. Zhang, S. Ren, and J. Sun, “Deep residual learning for image recognition,” *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, vol. 2016-Decem, pp. 770–778, 2016, doi: 10.1109/CVPR.2016.90.
- [57] N. A. Al-Humaidan and M. Prince, “A Classification of Arab Ethnicity Based on Face Image Using Deep Learning Approach,” *IEEE Access*, vol. 9, no. March, pp. 50755–50766, 2021, doi: 10.1109/ACCESS.2021.3069022.
- [58] C. Szegedy, V. Vanhoucke, S. Ioffe, J. Shlens, and Z. Wojna, “Rethinking the Inception Architecture for Computer Vision,” *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, vol. 2016-Decem, pp. 2818–2826, 2016, doi: 10.1109/CVPR.2016.308.
- [59] M. Sandler, A. Howard, M. Zhu, and A. Zhmoginov, “Sandler_MobileNetV2_Inverted_Residuals_CVPR_2018_paper.pdf,” *arXiv*, pp. 4510–4520, 2018.
- [60] S. J. Pan and Q. Yang, “A survey on transfer learning,” *IEEE Trans. Knowl. Data Eng.*, vol. 22, no. 10, pp. 1345–1359, 2010, doi: 10.1109/TKDE.2009.191.
- [61] E. C. Too, L. Yujian, S. Njuki, and L. Yingchun, “A comparative study of fine-tuning deep learning models for plant disease identification,” *Comput. Electron. Agric.*, vol. 161, no. February 2018, pp. 272–279, 2019, doi: 10.1016/j.compag.2018.03.032.
- [62] T. Tan *et al.*, “Optimize Transfer Learning for Lung Diseases in Bronchoscopy Using a New Concept: Sequential Fine-Tuning,” *IEEE J. Transl. Eng. Heal. Med.*, vol. 6, no. May, pp. 1–8, 2018, doi: 10.1109/JTEHM.2018.2865787.

- [63] A. Gupta, "A Comprehensive Guide on Optimizers in Deep Learning," *Analytics Vidhya*, vol. 2, 2022.
- [64] D. P. Kingma and J. L. Ba, "Adam: A method for stochastic optimization," *3rd Int. Conf. Learn. Represent. ICLR 2015 - Conf. Track Proc.*, pp. 1–15, 2015.
- [65] T. Yu and H. Zhu, "Hyper-Parameter Optimization: A Review of Algorithms and Applications," pp. 1–56, 2020, [Online]. Available: <http://arxiv.org/abs/2003.05689>
- [66] L. Yang and A. Shami, "On hyperparameter optimization of machine learning algorithms: Theory and practice," *Neurocomputing*, vol. 415, pp. 295–316, 2020, doi: 10.1016/j.neucom.2020.07.061.
- [67] J. Wang, J. Xu, and X. Wang, "Combination of Hyperband and Bayesian Optimization for Hyperparameter Optimization in Deep Learning," 2018, [Online]. Available: <http://arxiv.org/abs/1801.01596>
- [68] M. I. Sameen, B. Pradhan, and S. Lee, "Application of convolutional neural networks featuring Bayesian optimization for landslide susceptibility assessment," *Catena*, vol. 186, no. October 2019, p. 104249, 2020, doi: 10.1016/j.catena.2019.104249.
- [69] M. Rafał, "Cross validation methods: Analysis based on diagnostics of thyroid cancer metastasis," *ICT Express*, vol. 8, no. 2, pp. 183–188, 2022, doi: 10.1016/j.icte.2021.05.001.
- [70] A. Andriani, "Penerapan Algoritma C4.5 Pada Program Klasifikasi Mahasiswa Dropout," *Semin. Nas. Mat. 2012*, pp. 139–147, 2012.
- [71] D. S. Kermany *et al.*, "Identifying Medical Diagnoses and Treatable Diseases by Image-Based Deep Learning," *Cell*, vol. 172, no. 5, pp. 1122–1131.e9, 2018, doi: 10.1016/j.cell.2018.02.010.
- [72] T. Rahman *et al.*, "Exploring the effect of image enhancement techniques on COVID-19 detection using chest X-ray images," *Computers in Biology and Medicine*, vol. 132, 2021, doi: 10.1016/j.combiomed.2021.104319.
- [73] T. Rahman *et al.*, "Reliable tuberculosis detection using chest X-ray with deep learning, segmentation and visualization," *IEEE Access*, vol. 8, pp.

191586–191601, 2020, doi: 10.1109/ACCESS.2020.3031384.

- [74] K. Swersky, J. Snoek, and R. P. Adams, “Multi-task Bayesian optimization,” *Adv. Neural Inf. Process. Syst.*, pp. 1–9, 2013.
- [75] M. Habibzadeh Motlagh, M. Jannesari, Z. Rezaei, M. Totonchi, and H. Baharvand, “Automatic white blood cell classification using pre-trained deep learning models: ResNet and Inception,” no. February 2019, p. 105, 2018, doi: 10.1117/12.2311282.