



DAFTAR PUSTAKA

- [1] “WHO Coronavirus (COVID-19) Dashboard.” Diakses: 13 Maret 2023. [Daring]. Tersedia pada: <https://covid19.who.int/>
- [2] Z. Y. Zu *dkk.*, “Coronavirus Disease 2019 (COVID-19): A Perspective from China,” *Radiology*, vol. 296, no. 2. Radiological Society of North America Inc., hlm. E15–E25, 1 Agustus 2020. doi: 10.1148/radiol.2020200490.
- [3] Y. Fang *dkk.*, “Sensitivity of chest CT for COVID-19: Comparison to RT-PCR,” *Radiology*, vol. 296, no. 2. Radiological Society of North America Inc., hlm. E115–E117, 1 Agustus 2020. doi: 10.1148/radiol.2020200432.
- [4] P. Huang *dkk.*, “Use of chest CT in combination with negative RT-PCR assay for the 2019 novel coronavirus but high clinical suspicion,” *Radiology*, vol. 295, no. 1. Radiological Society of North America Inc., hlm. 22–23, 2020. doi: 10.1148/radiol.2020200330.
- [5] V. A. Yulianto, N. Effendy, dan A. Arif, “Finger vein identification system using capsule networks with hyperparameter tuning,” *IAES International Journal of Artificial Intelligence*, vol. 12, no. 4, hlm. 1636–1643, Des 2023, doi: 10.11591/ijai.v12.i4.pp1636-1643.
- [6] N. Effendy, D. Ruhyadi, R. Pratama, D. F. Rabba, A. F. Aulia, dan A. Y. Atmadja, “Forest quality assessment based on bird sound recognition using convolutional neural networks,” *International Journal of Electrical and Computer Engineering*, vol. 12, no. 4, hlm. 4235–4242, Agu 2022, doi: 10.11591/ijece.v12i4.pp4235-4242.
- [7] L. Alzubaidi *dkk.*, “Review of deep learning: concepts, CNN architectures, challenges, applications, future directions,” *J Big Data*, vol. 8, no. 1, Des 2021, doi: 10.1186/s40537-021-00444-8.
- [8] “Diagnostic testing for SARS-CoV-2.” Diakses: 10 Maret 2024. [Daring]. Tersedia pada: <https://www.who.int/publications/i/item/diagnostic-testing-for-sars-cov-2>
- [9] J. Ma, J. Yin, Y. Qian, dan Y. Wu, “Prolonged virus shedding even after seroconversion in a patient with COVID-19,” *Journal of Infection*, vol. 81, no. 2. W.B. Saunders Ltd, hlm. 329–331, 1 Agustus 2020. doi: 10.1016/j.jinf.2020.04.006.
- [10] J. K. Frediani *dkk.*, “The New Normal: Delayed Peak SARS-CoV-2 Viral Loads Relative to Symptom Onset and Implications for COVID-19 Testing





- Programs,” *Clinical Infectious Diseases*, vol. 78, no. 2, hlm. 301–307, Feb 2024, doi: 10.1093/cid/ciad582.
- [11] A. Borakati, A. Perera, J. Johnson, dan T. Sood, “Diagnostic accuracy of X-ray versus CT in COVID-19: A propensity-matched database study,” *BMJ Open*, vol. 10, no. 11, Nov 2020, doi: 10.1136/bmjopen-2020-042946.
- [12] H. Mary Shyni dan E. Chitra, “A comparative study of X-ray and CT images in COVID-19 detection using image processing and deep learning techniques,” *Computer Methods and Programs in Biomedicine Update*, vol. 2, hlm. 100054, 2022, doi: 10.1016/j.cmpbup.2022.100054.
- [13] L. Marie Fayad, “CT Scan Versus MRI Versus X-Ray: What Type of Imaging Do I Need?” Diakses: 15 September 2023. [Daring]. Tersedia pada: <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/ct-vs-mri-vs-xray>
- [14] M. Cellina, M. Orsi, T. Toluian, C. Valenti Pittino, dan G. Oliva, “False negative chest X-Rays in patients affected by COVID-19 pneumonia and corresponding chest CT findings,” *Radiography*, vol. 26, no. 3, hlm. e189–e194, Agu 2020, doi: 10.1016/j.radi.2020.04.017.
- [15] M. Y. Ng *dkk.*, “Imaging profile of the covid-19 infection: Radiologic findings and literature review,” *Radiol Cardiothorac Imaging*, vol. 2, no. 1, Feb 2020, doi: 10.1148/ryct.2020200034.
- [16] S. C. Bushong, *Radiologic Science for Technologists: Physics, Biology, and Protection*. 2017.
- [17] E. Benmalek, J. Elmhamdi, dan A. Jilbab, “Comparing CT scan and chest X-ray imaging for COVID-19 diagnosis,” *Biomedical Engineering Advances*, vol. 1, hlm. 100003, Jun 2021, doi: 10.1016/j.bea.2021.100003.
- [18] S. Asy Syifa dan I. Amelia Dewi, “MIND (Multimedia Artificial Intelligent Networking Database Arsitektur Resnet-152 dengan Perbandingan Optimizer Adam dan RMSProp untuk Mendeteksi Penyakit Paru-Paru,” *Journal MIND Journal | ISSN*, vol. 7, no. 2, hlm. 139–150, 2022, doi: 10.26760/mindjournal.v7i2.139-150.
- [19] Y. D. Zhang, S. C. Satapathy, X. Zhang, dan S. H. Wang, “COVID-19 Diagnosis via DenseNet and Optimization of Transfer Learning Setting,” *Cognit Comput*, 2021, doi: 10.1007/s12559-020-09776-8.
- [20] A. Ashraf, A. Malik, dan Z. Khan, “POSTER: Diagnosis of COVID-19 through Transfer Learning Techniques on CT Scans: A Comparison of Deep Learning Models,” dalam *Proceedings - 2022 2nd International Conference of Smart Systems and Emerging Technologies, SMARTTECH*





- 2022, Institute of Electrical and Electronics Engineers Inc., 2022, hlm. 12–13. doi: 10.1109/SMARTTECH54121.2022.00018.
- [21] W. Swastika dan P. Korespondensi, “STUDI AWAL DETEKSI COVID-19 MENGGUNAKAN CITRA CT BERBASIS DEEP LEARNING PRELIMINARY STUDY OF COVID-19 DETECTION USING CT IMAGE BASED ON DEEP LEARNING,” vol. 7, no. 3, hlm. 629–634, 2020, doi: 10.25126/jtiik.202073399.
- [22] M. Umair *dkk.*, “Detection of COVID-19 using transfer learning and grad-cam visualization on indigenously collected X-ray dataset,” *Sensors*, vol. 21, no. 17, Sep 2021, doi: 10.3390/s21175813.
- [23] N. Hasan, Y. Bao, A. Shawon, dan Y. Huang, “DenseNet Convolutional Neural Networks Application for Predicting COVID-19 Using CT Image,” *SN Comput Sci*, vol. 2, no. 5, Sep 2021, doi: 10.1007/s42979-021-00782-7.
- [24] A. Thakur dan A. R. Gosthipaty, “Simple Ways to Tackle Class Imbalance.” Diakses: 3 Oktober 2023. [Daring]. Tersedia pada: <https://wandb.ai/authors/class-imbalance/reports/Simple-Ways-to-Tackle-Class-Imbalance--VmlldzoxODA3NTk>
- [25] P. Surmenok, “Estimating an Optimal Learning Rate For a Deep Neural Network.” Diakses: 6 Oktober 2023. [Daring]. Tersedia pada: <https://towardsdatascience.com/estimating-optimal-learning-rate-for-a-deep-neural-network-ce32f2556ce0>
- [26] “ReduceLRonPlateau.” Diakses: 29 September 2023. [Daring]. Tersedia pada: https://keras.io/api/callbacks/reduce_lr_on_plateau/
- [27] “ReduceLRonPlateau.” Diakses: 11 Oktober 2023. [Daring]. Tersedia pada: <https://hasty.ai/docs/mp-wiki/scheduler/reducelronplateau>
- [28] F. Chollet, *Deep Learning with Python*. 2021.
- [29] M. Cascella, M. Rajnik, A. Cuomo, S. C. Dulebohn, dan R. Di Napoli, “Features, Evaluation and Treatment Coronavirus (COVID-19).” 2020. [Daring]. Tersedia pada: <https://www.ncbi.nlm.nih.gov/books/NBK554776/?report=printable>
- [30] Y. C. Wu, C. S. Chen, dan Y. J. Chan, “The outbreak of COVID-19: An overview,” *Journal of the Chinese Medical Association*, vol. 83, no. 3. Wolters Kluwer Health, hlm. 217–220, 2020. doi: 10.1097/JCMA.0000000000000270.
- [31] M. Lotfi, M. R. Hamblin, dan N. Rezaei, “COVID-19: Transmission, prevention, and potential therapeutic opportunities,” *Clinica Chimica Acta*,





- vol. 508. Elsevier B.V., hlm. 254–266, 1 September 2020. doi: 10.1016/j.cca.2020.05.044.
- [32] “Coronavirus disease (COVID-19) pandemic.” Diakses: 28 September 2023. [Daring]. Tersedia pada: <https://www.who.int/europe/emergencies/situations/covid-19>
- [33] “Media Statement on confirmed COVID-19 cases.” Diakses: 26 September 2023. [Daring]. Tersedia pada: <https://www.who.int/indonesia/news/detail/02-03-2020-media-statement-on-covid-19>
- [34] N. Wilson, S. Corbett, dan E. Tovey, “Airborne transmission of covid-19,” *The BMJ*, vol. 370. BMJ Publishing Group, 20 Agustus 2020. doi: 10.1136/bmj.m3206.
- [35] “Advice for the public: Coronavirus disease (COVID-19).” Diakses: 26 September 2023. [Daring]. Tersedia pada: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
- [36] X. Xie, Z. Zhong, W. Zhao, C. Zheng, F. Wang, dan J. Liu, “Chest CT for Typical Coronavirus Disease 2019 (COVID-19) Pneumonia: Relationship to Negative RT-PCR Testing,” *Radiology*, vol. 296, no. 2, hlm. E41–E45, Agu 2020, doi: 10.1148/radiol.2020200343.
- [37] S. Zhou, Y. Wang, T. Zhu, dan L. Xia, “CT features of coronavirus disease 2019 (COVID-19) pneumonia in 62 patients in Wuhan, China,” *American Journal of Roentgenology*, vol. 214, no. 6, hlm. 1287–1294, Jun 2020, doi: 10.2214/AJR.20.22975.
- [38] Z. Ye, Y. Zhang, Y. Wang, Z. Huang, dan B. Song, “Chest CT manifestations of new coronavirus disease 2019 (COVID-19): a pictorial review”, doi: 10.1007/s00330-020-06801-0/Published.
- [39] L. W. Goldman, “Principles of CT and CT technology,” *Journal of Nuclear Medicine Technology*, vol. 35, no. 3. hlm. 115–128, September 2007. doi: 10.2967/jnmt.107.042978.
- [40] “What Is DICOM, PACS, and Workstation?” Diakses: 9 November 2023. [Daring]. Tersedia pada: <https://ibnmedical.com/what-is-dicom-pacs-workstation/>
- [41] D. R. Dance, S. Christofides, A. D. A. Maidment, I. D. McLean, dan K. H. Ng, *Diagnostic Radiology Physics: A Handbook for Teachers and Students*. Vienna, 2014.





- [42] T. Flohr, M. Petersilka, A. Henning, S. Ulzheimer, J. Ferda, dan B. Schmidt, “Photon-counting CT review,” *Physica Medica*, vol. 79. Associazione Italiana di Fisica Medica, hlm. 126–136, 1 November 2020. doi: 10.1016/j.ejmp.2020.10.030.
- [43] A. Studen, “Physics of Imaging in Nuclear Medicine,” dalam *Imaging in Nuclear Medicine*, A. Giussani dan C. Hoeschen, Ed., 2013. doi: 10.1007/978-3-642-31415-5.
- [44] M. Zvolský, E. Garutti, dan F. Grüner, “Tomographic Image Reconstruction: An Introduction.” 2014. Diakses: 6 November 2023. [Daring]. Tersedia pada: https://www.desy.de/~garutti/LECTURES/BioMedical/Lecture7_ImageReconstruction.pdf
- [45] F. H. Fahey, “Data Acquisition in PET Imaging,” *J Nucl Med Technol*, vol. 30, hlm. 39–49, 2002.
- [46] M. A. Al-masni, M. A. Al-antari, dan T.-S. Kim, “Lossless Full-Resolution Deep Learning Convolutional Networks for Skin Lesion Boundary Segmentation,” dalam *Deep Learning in Computer Vision: Principles and Applications*, M. Hassaballah dan A. I. Awad, Ed., Taylor & Francis, 2020.
- [47] P. Baheti, “Train Test Validation Split: How To & Best Practices [2023].” Diakses: 12 Oktober 2023. [Daring]. Tersedia pada: <https://www.v7labs.com/blog/train-validation-test-set#h3>
- [48] S. Mazumder, “5 Techniques to Handle Imbalanced Data For a Classification Problem.” Diakses: 5 Oktober 2023. [Daring]. Tersedia pada: <https://www.analyticsvidhya.com/blog/2021/06/5-techniques-to-handle-imbalanced-data-for-a-classification-problem/>
- [49] J. Patterson dan A. Gibson, *Deep Learning: A Practitioner’s Approach*. 2017.
- [50] A. Sarkar, “Deep Learning in Healthcare — X-Ray Imaging (Part 5-Data Augmentation and Image Normalization).” Diakses: 10 Oktober 2023. [Daring]. Tersedia pada: <https://towardsdatascience.com/deep-learning-in-healthcare-x-ray-imaging-part-5-data-augmentation-and-image-normalization-1ead1c02cfe3>
- [51] R. Romano, “How Data Augmentation can Improve ML Model Accuracy.” Diakses: 11 Oktober 2023. [Daring]. Tersedia pada: <https://www.qwak.com/post/how-data-augmentation-can-improve-ml-model-accuracy>





- [52] “tf.keras.preprocessing.image.ImageDataGenerator.” Diakses: 9 Oktober 2023. [Daring]. Tersedia pada: https://www.tensorflow.org/api_docs/python/tf/keras/preprocessing/image/ImageDataGenerator
- [53] “Deep Learning vs Machine Learning: The Ultimate Battle.” Diakses: 18 Oktober 2023. [Daring]. Tersedia pada: <https://www.turing.com/kb/ultimate-battle-between-deep-learning-and-machine-learning>
- [54] F. Rosenblatt, “The perceptron: A probabilistic model for information storage and organization in the brain.,” *Psychol Rev*, vol. 65, no. 6, hlm. 386–408, 1958, doi: 10.1037/h0042519.
- [55] B. Aglaé, B. Grant, dan J. Krohn, *Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence*. 2020.
- [56] G. Huang, Z. Liu, L. Van Der Maaten, dan K. Q. Weinberger, “Densely connected convolutional networks,” dalam *Proceedings - 30th IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2017*, Institute of Electrical and Electronics Engineers Inc., Nov 2017, hlm. 2261–2269. doi: 10.1109/CVPR.2017.243.
- [57] “Keras Applications.” Diakses: 17 Oktober 2023. [Daring]. Tersedia pada: <https://keras.io/api/applications/>
- [58] A. Riasatian *dkk.*, “Fine-Tuning and training of densenet for histopathology image representation using TCGA diagnostic slides,” *Med Image Anal*, vol. 70, Mei 2021, doi: 10.1016/j.media.2021.102032.
- [59] J. D. Seo, “[ICLR 2015] Striving for Simplicity: The All Convolutional Net with Interactive Code [Manual Back Prop with TF].” Diakses: 22 Oktober 2023. [Daring]. Tersedia pada: <https://towardsdatascience.com/iclr-2015-striving-for-simplicity-the-all-convolutional-net-with-interactive-code-manual-b4976e206760>
- [60] “CNN | Introduction to Pooling Layer.” Diakses: 18 Oktober 2023. [Daring]. Tersedia pada: <https://www.geeksforgeeks.org/cnn-introduction-to-pooling-layer/>
- [61] S. Saxena, “Introduction to Batch Normalization.” Diakses: 18 Oktober 2023. [Daring]. Tersedia pada: <https://www.analyticsvidhya.com/blog/2021/03/introduction-to-batch-normalization/>
- [62] H. Rashed, S. Yogamani, A. El-Sallab, M. Hassaballah, dan M. ElHelw, “Deep Semantic Segmentation in Autonomous Driving,” dalam *Deep*





Learning in Computer Vision: Principles and Applications, M. Hassaballah dan A. I. Awad, Ed., Taylor & Francis, 2020.

- [63] N. Srivastava, G. Hinton, A. Krizhevsky, dan R. Salakhutdinov, “Dropout: A Simple Way to Prevent Neural Networks from Overfitting,” *Journal of Machine Learning Research*, vol. 15, hlm. 1929–1958, 2014, doi: 10.5555/2627435.2670313.
- [64] A. Thakur, “Keras Dense Layer: How to Use It Correctly.” Diakses: 23 Oktober 2023. [Daring]. Tersedia pada: <https://wandb.ai/ayush-thakur/keras-dense/reports/Keras-Dense-Layer-How-to-Use-It-Correctly--Vmlldzo0MjAzNDY1#effect-of-kernel-regularization>
- [65] G. Özden, M. Ö. Öteyaka, dan F. M. Cabrera, “Modeling of cutting parameters in turning of PEEK composite using artificial neural networks and adaptive-neural fuzzy inference systems,” *Journal of Thermoplastic Composite Materials*, 2021, doi: 10.1177/08927057211013070.
- [66] S. Saxena, “Introduction to Softmax for Neural Network.” Diakses: 25 Oktober 2023. [Daring]. Tersedia pada: <https://www.analyticsvidhya.com/blog/2021/04/introduction-to-softmax-for-neural-network/>
- [67] M. Kalirena, “Gradient Descent vs. Backpropagation: What’s the Difference?” Diakses: 25 Oktober 2023. [Daring]. Tersedia pada: <https://www.analyticsvidhya.com/blog/2023/01/gradient-descent-vs-backpropagation-whats-the-difference/>
- [68] S. Vieira, W. H. Lopez Pinaya, R. Garcia-Dias, dan A. Mechelli, *Deep neural networks*. Academic Press, 2020. doi: 10.1016/B978-0-12-815739-8.00009-2.
- [69] “CS231n: Convolutional Neural Networks for Visual Recognition.” Diakses: 12 Oktober 2023. [Daring]. Tersedia pada: <https://cs231n.github.io/>
- [70] L. N. Smith, “Cyclical learning rates for training neural networks,” dalam *Proceedings - 2017 IEEE Winter Conference on Applications of Computer Vision, WACV 2017*, Institute of Electrical and Electronics Engineers Inc., Mei 2017, hlm. 464–472. doi: 10.1109/WACV.2017.58.
- [71] S. Menzli, “RMSprop Explained: a Dynamic learning rate.” Diakses: 26 Oktober 2023. [Daring]. Tersedia pada: <https://pub.towardsai.net/rmsprop-explained-a-dynamic-learning-rate-69c240847882>
- [72] “RMSprop.” Diakses: 25 Oktober 2023. [Daring]. Tersedia pada: <https://keras.io/api/optimizers/rmsprop/>





- [73] S. Haykin, *Neural Networks and Learning Machines*, 3rd ed. Pearson Prentice Hall, 2009.
- [74] M. Ibrahim, "Understanding the Difference in Performance Between Binary Cross-Entropy and Categorical Cross-Entropy." Diakses: 25 Oktober 2023. [Daring]. Tersedia pada: <https://wandb.ai/mostafaibrahim17/ml-articles/reports/Understanding-the-Difference-in-Performance-Between-Binary-Cross-Entropy-and-Categorical-Cross-Entropy--Vmlldzo0Nzk4NDI2>
- [75] M. K. Abd-Ellah, A. I. Awad, A. A. M. Khalaf, dan H. F. A. Hamed, "Deep Convolutional Neural Networks: Foundations and Applications in Medical Imaging," dalam *Deep Learning in Computer Vision: Principles and Applications*, M. Hassaballah dan A. I. Awad, Ed., Taylor & Francis, 2020.
- [76] A. Lekhtman, "Data Science in Medicine — Precision & Recall or Specificity & Sensitivity?" Diakses: 14 Oktober 2023. [Daring]. Tersedia pada: <https://towardsdatascience.com/should-i-look-at-precision-recall-or-specificity-sensitivity-3946158aace1>
- [77] H. Gunraj, A. Sabri, D. Koff, dan A. Wong, "COVID-Net CT-2: Enhanced Deep Neural Networks for Detection of COVID-19 From Chest CT Images Through Bigger, More Diverse Learning," *Front Med (Lausanne)*, vol. 8, Mar 2022, doi: 10.3389/fmed.2021.729287.
- [78] H. Gunraj, "COVIDx CT." Diakses: 16 November 2022. [Daring]. Tersedia pada: <https://www.kaggle.com/datasets/hgunraj/covidxct>
- [79] H. Gunraj, L. Wang, dan A. Wong, "COVIDNet-CT: A Tailored Deep Convolutional Neural Network Design for Detection of COVID-19 Cases From Chest CT Images," *Front Med (Lausanne)*, vol. 7, Des 2020, doi: 10.3389/fmed.2020.608525.

