

DAFTAR PUSTAKA

- [1] I. B. L. M. Suta, M. Sudarma, and I. N. Satya Kumara, "Segmentasi Tumor Otak Berdasarkan Citra Magnetic Resonance Imaging Dengan Menggunakan Metode U-NET," *Maj. Ilm. Teknol. Elektro*, vol. 19, no. 2, p. 151, 2020, doi: 10.24843/mite.2020.v19i02.p05.
- [2] P. Laksono, H. Harliana, and T. Prabowo, "Deteksi Tumor Otak Melalui Penerapan GLCM dan Naïve Bayes Classification," *J. Ilm. Intech Inf. Technol. J. UMUS*, vol. 5, no. 1, pp. 41–48, 2023, doi: 10.46772/intech.v5i1.1286.
- [3] Kemenkes, "Panduan Penatalaksanaan Tumor Otak," *Natl. Cancer Combat Comm.*, pp. 1–96, 2017, [Online]. Available: <http://kanker.kemkes.go.id/guidelines.php?id=5>.
- [4] J. Ferlay *et al.*, "Cancer statistics for the year 2022: An overview," *Int. J. Cancer*, vol. 149, no. 4, pp. 778–789, 2022, doi: 10.1002/ijc.33588.
- [5] N. S. Emril, D. R., Fajri, N., & Rahayu, "The New Concept of Cancer Pain Management: Should We Modify the WHO's Step Ladder? The Challenges Of Neurological Development In 4.0 Generation Of Industrial Revolutionary Era," vol. 3, no. 1, p. 296, 2020.
- [6] Mukhlis Akhadi, "Sinar-X Menjawab Masalah Kesehatan," *Deepublish*, 2020.
- [7] A. S. Febrianti, T. A. Sardjono, and A. F. Babgei, "Klasifikasi Tumor Otak pada Citra Magnetic Resonance Image dengan Menggunakan Metode Support Vector Machine," *J. Tek. ITS*, vol. 9, no. 1, 2020, doi: 10.12962/j23373539.v9i1.51587.
- [8] F. Ullah, A. Salam, M. Abrar, and F. Amin, "Brain Tumor Segmentation Using a Patch-Based Convolutional Neural Network: A Big Data Analysis Approach," *Mathematics*, vol. 11, no. 7, pp. 1–18, 2023, doi: 10.3390/math11071635.
- [9] K. Munir, F. Frezza, and A. Rizzi, "Deep learning for brain tumor segmentation," *Stud. Comput. Intell.*, vol. 908, pp. 189–201, 2021, doi: 10.1007/978-981-15-6321-8_11.

- [10] A. M. Al-Zoghby, E. M. K. Al-Awadly, A. Moawad, N. Yehia, and A. I. Ebada, "Dual Deep CNN for Tumor Brain Classification," *Diagnostics*, vol. 13, no. 12, 2023, doi: 10.3390/diagnostics13122050.
- [11] W. J. 'Mahony N., Campbell S., Carvalho A., Harapanahalli S., Hernandez G.V., Krpalkova K., Riordan D., "Deep learning vs. traditional computer vision Advances in Computer Vision: Proceedings of the 2019 Computer Vision Conference (CVC)," 2020, pp. 128–144.
- [12] W. Ayadi, I. Charfi, W. Elhamzi, and M. Atri, "Brain tumor classification based on hybrid approach," *Vis. Comput.*, vol. 38, no. 1, pp. 107–117, 2022, doi: 10.1007/s00371-020-02005-1.
- [13] A. Peryanto, A. Yudhana, and R. Umar, "Rancang Bangun Klasifikasi Citra Dengan Teknologi Deep Learning BerbPeryanto, A., Yudhana, A., & Umar, R. (2020). Rancang Bangun Klasifikasi Citra Dengan Teknologi Deep Learning Berbasis Metode Convolutional Neural Network. Format : Jurnal Ilmiah Teknik I," *Format J. Ilm. Tek. Inform.*, vol. 8, no. 2, p. 138, 2020.
- [14] T. A. Soomro *et al.*, "Deep Learning Models for Retinal Blood Vessels Segmentation: A Review," *IEEE Access*, vol. 7, pp. 71696–71717, 2019, doi: 10.1109/ACCESS.2019.2920616.
- [15] D. Daimary, M. B. Bora, K. Amitab, and D. Kandar, "Brain Tumor Segmentation from MRI Images using Hybrid Convolutional Neural Networks," *Procedia Comput. Sci.*, vol. 167, no. 2019, pp. 2419–2428, 2020, doi: 10.1016/j.procs.2020.03.295.
- [16] T. Naraloka, L. I. Kesuma, A. Sukmawati, and M. Cristianti, "Arsitektur U-Net pada Segmentasi Citra Hati sebagai Deteksi Dini Kanker Liver," *Techno.Com*, vol. 21, no. 4, pp. 753–764, 2022, doi: 10.33633/tc.v21i4.6669.
- [17] A. C. A. D. I. Lubis, "Segmentasi sel tumor otak dengan kombinasi arsitektur 3d u-net dan attention gate pada citra hasil magnetic resonance imaging (mri) otak," 2024.
- [18] G. Mianda *et al.*, "Modifikasi Arsitektur 3D Double U-Net Dalam Segmentasi Tumor Otak Pada Citra Hasil Magnetic Resonance Imaging Otak," *Univ. Gajah Mada*, 2024.
- [19] D,Rika Ihsan, "Segmentasi Gambar MRI Tumor Otak Glioma dengan U-

- Net++,” *AT-TAWASSUTH J. Ekon. Islam*, vol. VIII, no. I, pp. 1–19, 2023.
- [20] A. H. Nizamani, Z. Chen, A. A. Nizamani, and U. A. Bhatti, “Advance brain tumor segmentation using feature fusion methods with deep U-Net model with CNN for MRI data,” *J. King Saud Univ. - Comput. Inf. Sci.*, vol. 35, no. 9, p. 101793, 2023, doi: 10.1016/j.jksuci.2023.101793.
- [21] A. F. Adinegoro, G. N. Sutapa, A. A. N. Gunawan, N. K. N. Anggarani, P. Suardana, and I. G. A. Kasmawan, “Classification and Segmentation of Brain Tumor Using EfficientNet-B7 and U-Net,” *Asian J. Res. Comput. Sci.*, vol. 15, no. 3, pp. 1–9, 2023, doi: 10.9734/ajrcos/2023/v15i3320.
- [22] J. Walsh, A. Othmani, M. Jain, and S. Dev, “Using U-Net network for efficient brain tumor segmentation in MRI images,” *Healthc. Anal.*, vol. 2, no. August, p. 100098, 2022, doi: 10.1016/j.health.2022.100098.
- [23] C. Qin, Y. Wu, W. Liao, J. Zeng, S. Liang, and X. Zhang, “Improved U-Net3+ with stage residual for brain tumor segmentation,” *BMC Med. Imaging*, vol. 22, no. 1, pp. 1–15, 2022, doi: 10.1186/s12880-022-00738-0.
- [24] P. Zheng, X. Zhu, and W. Guo, “Brain tumour segmentation based on an improved U-Net,” *BMC Med. Imaging*, vol. 22, no. 1, pp. 1–9, 2022, doi: 10.1186/s12880-022-00931-1.
- [25] M. Aghalari, A. Aghagolzadeh, and M. Ezoji, “Brain tumor image segmentation via asymmetric/symmetric UNet based on two-pathway-residual blocks,” *Biomed. Signal Process. Control*, vol. 69, no. May, p. 102841, 2021, doi: 10.1016/j.bspc.2021.102841.
- [26] R. Ranjbarzadeh, A. Bagherian Kasgari, S. Jafarzadeh Ghouschi, S. Anari, M. Naseri, and M. Bendeche, “Brain tumor segmentation based on deep learning and an attention mechanism using MRI multi-modalities brain images,” *Sci. Rep.*, vol. 11, no. 1, pp. 1–17, 2021, doi: 10.1038/s41598-021-90428-8.
- [27] Suprpto, *Bahan Ajar Modul Biomedik Dasar Kep . ok2020*, no. September. 2020.
- [28] Alodokter, “Ketahui Fungsi Otak Kiri dan Otak Kanan,” *Alodokter*, 2023. <https://www.alodokter.com/apa-yang-membedakan-otak-kiri-dan-otak-kanan> (accessed Dec. 18, 2024).

- [29] Miftahul Jannah, “PERKEMBANGAN OTAK PADA MASA ANAK USIA DINI: KAJIAN DASAR NEUROLOGI DAN ISLAM,” p. 6, 2023.
- [30] T. Pipit Mulyah, Dyah Aminatun, Sukma Septian Nasution, Tommy Hastomo, Setiana Sri Wahyuni Sitepu, “Anatomi Otak,” *J. GEEJ*, vol. 7, no. 2, pp. 6–35, 2020.
- [31] J. C. A. Vinay Kumar, Abul K. Abbas, *Robbins and Cotran’s pathologic basis of disease*, 9th ed. Elsevier, 2020.
- [32] American Association of neural Surgeons, “Brain tumors,,” *AANS*, vol. 31, no. 11, pp. 380–387, 2024, [Online]. Available: <https://www.aans.org/patients/conditions-treatments/brain-tumors/>.
- [33] F. A. Razi, A. Bustamam, A. L. Latifah, and S. Ahmad, “Automated Classification of Multiclass Brain Tumor MRI Images using Enhanced Deep Learning Technique,” *Int. J. Adv. Comput. Sci. Appl.*, vol. 14, no. 11, pp. 1181–1190, 2023, doi: 10.14569/IJACSA.2023.01411120.
- [34] Cancer Council, “Understanding Brain Tumours,” *Cancer Counc.*, vol. 11, no. 2, pp. 86–108, 2024.
- [35] A. Delaidelli and A. Moiraghi, “Recent Advances in the Diagnosis and Treatment of Brain Tumors,” *Brain Sci.*, vol. 14, no. 3, 2024, doi: 10.3390/brainsci14030224.
- [36] American Oncology Institute, “Brain Tumours: Early Detection and Treatment by the American Oncology Institute, Hyderabad,” 2024. <https://www.americanoncology.com/blogs/brain-tumours-early-detection-and-treatment-by-the-american-oncology-institute-hyderabad> (accessed Dec. 16, 2024).
- [37] P. Prita, I. M. L. Prasetya, and R. Restiana, “Prosedur Pemeriksaan Magnetic Resonance Imaging (Mri) Pelvis Menggunakan Kontras Pada Kasus Fistula,” *J. Ilmu Kedokt. dan Kesehat.*, vol. 10, no. 10, pp. 2955–2963, 2023, doi: 10.33024/jikk.v10i10.11798.
- [38] A. R. Triwoto, “Segmentasi Citra Magnetic Resonance Imaging (Mri) Abdomen Untuk Identifikasi Polip Pada Saluran Pencernaan Dengan Menggunakan Metode Chan-Vese,” p. 55, 2023.
- [39] O. Di, R. Wahidin, and S. Makassar, “Magnetic Resonance Imaging (MRI)

Kepala Pada Pasien Meningoensefalokel Untuk Memprediksi Keterlibatan Sinus Venosus Sebelum Tindakan Operasi Di RSUP Wahidin Sudirohusodo Makassar,” 2020.

- [40] Brain Injury Law of Seattle, “Volumetric Analysis of the Brain,” *Online*, 2024. <https://www.braininjurylawofseattle.com/what-is-a-volumetric-analysis-of-the-brain/> (accessed Dec. 19, 2024).
- [41] Y. Yu *et al.*, “Techniques and Challenges of Image Segmentation: A Review,” *Electron.*, vol. 12, no. 5, 2023, doi: 10.3390/electronics12051199.
- [42] K. Nuresa Qodri, D. Al Banna, dan Muhammad Zulfikhar Al-Baihaqi, F. Kesehatan dan Teknologi Informasi, U. Muhammadiyah Klaten Jl Ir Soekarno Km, and B. Klaten, “Pemanfaatan Sam Dan Yolov8 Untuk Deteksi Dan Segmentasi Pada Citra Mri Tumor Otak (Utilization of Sam and Yolov8 To Detection and Segmentation of Brain Tumor on Mri Image),” *Juni*, vol. 5, no. 1, pp. 82–89, 2024.
- [43] M. A. I. Fahim and S. A. Tumpa, “Image Augmentation Techniques: Enhancing Deep Learning Performance,” no. June, pp. 1–7, 2023, doi: 10.13140/RG.2.2.17295.97448.
- [44] G. Kaur, P. S. Rana, and V. Arora, *State-of-the-art techniques using pre-operative brain MRI scans for survival prediction of glioblastoma multiforme patients and future research directions*, vol. 10, no. 4. Springer International Publishing, 2022.
- [45] M. Xu, S. Yoon, A. Fuentes, and D. S. Park, “A Comprehensive Survey of Image Augmentation Techniques for Deep Learning,” *Pattern Recognit.*, vol. 137, p. 109347, 2023, doi: 10.1016/j.patcog.2023.109347.
- [46] E. S. Eriana and D. A. Zein, “Artificial Intelligence,” *Angew. Chemie Int. Ed.*, vol. 6(11), p. 1, 2023.
- [47] E. A. Andika and R. Renaldy, “IN-FEST 2024 Perkembangan Sistem Berbasis Artificial Intelligence di Bidang Kesehatan IN-FEST 2024,” vol. 2, pp. 593–598, 2024.
- [48] Wijoyo A, Saputra A, Ristanti S, Sya’ban S, Amalia M, and Febriansyah R, “Pembelajaran Machine Learning,” *OKTAL (Jurnal Ilmu Komput. dan Sci.*, vol. 3, no. 2, pp. 375–380, 2024, [Online]. Available:

- <https://journal.mediapublikasi.id/index.php/oktal/article/view/2305>.
- [49] K. Gronwald, “Machine Learning, Deep Learning und Artificial Intelligence. In: Data Management.,” *Springer Vieweg*, 2024, doi: https://doi.org/10.1007/978-3-662-68668-3_6.
 - [50] A. Roihan, P. A. Sunarya, and A. S. Rafika, “Pemanfaatan Machine Learning dalam Berbagai Bidang: Review paper,” *IJCIT (Indonesian J. Comput. Inf. Technol.*, vol. 5, no. 1, pp. 75–82, 2020, doi: 10.31294/ijcit.v5i1.7951.
 - [51] M. Z. Alom *et al.*, “A state-of-the-art survey on deep learning theory and architectures,” *Electron.*, vol. 8, no. 3, 2019, doi: 10.3390/electronics8030292.
 - [52] M. Karlik and B. Karlik, “Prediction of Student’s Performance with Deep Neural Networks,” *Int. J. Artif. Intell. Expert Syst.*, vol. 9, no. 2, pp. 39–47, 2020.
 - [53] A. ANHAR and R. A. PUTRA, “Perancangan dan Implementasi Self-Checkout System pada Toko Ritel menggunakan Convolutional Neural Network (CNN),” *ELKOMIKA J. Tek. Energi Elektr. Tek. Telekomun. Tek. Elektron.*, vol. 11, no. 2, p. 466, 2023, doi: 10.26760/elkomika.v11i2.466.
 - [54] P. Raghav, “Understanding of Convolutional Neural Network (CNN) — Deep Learning,” *Medium*, 2018. <https://medium.com/@RaghavPrabhu/understanding-of-convolutional-neural-network-cnn-deep-learning-99760835f148>.
 - [55] N. Siddique, S. Paheding, C. P. Elkin, and V. Devabhaktuni, “U-Net and Its Variants for Medical Image Segmentation: A Review of Theory and Applications,” *IEEE Access*, vol. 9, no. January 2021, pp. 82031–82057, 2021, doi: 10.1109/ACCESS.2021.3086020.
 - [56] Y. Ding, F. Chen, Y. Zhao, Z. Wu, C. Zhang, and D. Wu, “A Stacked Multi-Connection Simple Reducing Net for Brain Tumor Segmentation,” *IEEE Access*, vol. 7, pp. 104011–104024, 2019, doi: 10.1109/ACCESS.2019.2926448.
 - [57] O. Ronneberger, P. Fischer, and T. Brox, “2015-U-Net,” *arXiv*, pp. 1–8, 2015, [Online]. Available: <http://lmb.informatik.uni-freiburg.de/%0Aarxiv:1505.04597v1>.

- [58] A. I. Aramendia, “The U-Net: A Complete Guide,” *Medium*, 2024. <https://medium.com/@alejandro.itoaramendia/decoding-the-u-net-a-complete-guide-810b1c6d56d8> (accessed Dec. 19, 2024).
- [59] Domino data lab, “Ground Truth,” 2024. <https://domino.ai/data-science-dictionary/ground-truth> (accessed Dec. 19, 2024).
- [60] H. Azam, H. Tariq, D. Shehzad, S. Akbar, H. Shah, and Z. A. Khan, “Fully Automated Skull Stripping from Brain Magnetic Resonance Images Using Mask RCNN-Based Deep Learning Neural Networks,” *Brain Sci.*, vol. 13, no. 9, 2023, doi: 10.3390/brainsci13091255.
- [61] J. Jordan, “Evaluating image segmentation models.,” *Jeremy Jordan Data Science*, 2018. <https://www.jeremyjordan.me/evaluating-image-segmentation-models/> (accessed Dec. 19, 2024).
- [62] T. Diwan, G. Anirudh, and J. V. Tembhurne, “Object detection using YOLO: challenges, architectural successors, datasets and applications,” *Multimed. Tools Appl.*, vol. 82, no. 6, pp. 9243–9275, 2023, doi: 10.1007/s11042-022-13644-y.
- [63] R. Padilla, S. L. Netto, and E. A. B. Silva, “Proceedings of the 2020 International Conference on Systems, Signals and Image Processing, IWSSIP 2020,” *Int. Conf. Syst. Signals, Image Process.*, vol. 2020-July, pp. 237–242, 2020.
- [64] C. H. Sudre, W. Li, T. Vercauteren, S. Ourselin, and M. Jorge Cardoso, “Generalised dice overlap as a deep learning loss function for highly unbalanced segmentations,” *Lect. Notes Comput. Sci. (including Subser. Lect. Notes Artif. Intell. Lect. Notes Bioinformatics)*, vol. 10553 LNCS, pp. 240–248, 2017, doi: 10.1007/978-3-319-67558-9_28.
- [65] H. Rezatofighi, N. Tsoi, J. Gwak, A. Sadeghian, I. Reid, and S. Savarese, “Generalized intersection over union: A metric and a loss for bounding box regression,” *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, vol. 2019-June, pp. 658–666, 2019, doi: 10.1109/CVPR.2019.00075.
- [66] D. W. Ayu and G. A. Pradipta, “Analisis Performansi Parameter pada Arsitektur U-Net untuk Segmentasi Nukleus pada Citra Kanker Serviks,” *J. Sist. dan Inform.*, vol. 18, no. 2, pp. 131–138, 2024, doi:

10.30864/jsi.v18i2.607.

- [67] S. Jadon, “A survey of loss functions for semantic segmentation,” *2020 IEEE Conf. Comput. Intell. Bioinforma. Comput. Biol. CIBCB 2020*, 2020, doi: 10.1109/CIBCB48159.2020.9277638.