



DAFTAR PUSTAKA

- [1] Q. A. G.-G. W. H.-F. K. Juan Li, Pan Jiang, “Medical image identification methods: A review,” *Computers in Biology and Medicine*, vol. 169, p. 107777, 2024. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0010482523012428>
- [2] A. Noorian, A. Harounabadi, and M. Hazratifard, “A sequential neural recommendation system exploiting bert and lstm on social media posts,” *Complex Intelligent Systems*, vol. 10, 08 2023.
- [3] S. Kinger, D. Kinger, S. Thakkar, and D. Bhake, “Towards smarter hiring: resume parsing and ranking with yolov5 and distilbert,” *Multimedia Tools and Applications*, vol. 83, pp. 82 069–82 087, 03 2024.
- [4] W. Zhou and T. A. Miller, “Generalizable clinical note section identification with large language models,” *JAMIA Open*, vol. 7, no. 3, p. ooae075, 08 2024. [Online]. Available: <https://doi.org/10.1093/jamiaopen/ooae075>
- [5] M. R. Hossain, S. Mahabub, A. Al Masum, and I. Jahan, “Natural language processing (nlp) in analyzing electronic health records for better decision making,” *Journal of Computer Science and Technology Studies*, vol. 6, no. 5, p. Article 18, 2024. [Online]. Available: <https://www.al-kindipublisher.com/index.php/jcsts/article/view/6180>
- [6] S. Ariani and R. D. Yuliani, “Tantangan dalam integrasi data kesehatan dari berbagai sistem electronic health record dalam sistem kesehatan nasional,” *Vitamin : Jurnal Ilmu Kesehatan Umum*, vol. 3, pp. 229–236, 1 2025.
- [7] A. Savkov, J. Carroll, R. Koeling, and J. Cassell, “Annotating patient clinical records with syntactic chunks and named entities: the harvey corpus,” *Language Resources and Evaluation*, vol. 50, no. 3, pp. 523–548, 2016.
- [8] “Bert based clinical knowledge extraction for biomedical knowledge graph construction and analysis,” *Computer Methods and Programs in Biomedicine Update*, vol. 1, p. 100042, 2021. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2666990021000410>
- [9] T.-T. Kuo, J. Huh, J. Kim, R. E. El-Kareh, S. Singh, S. F. Feupe, V. Kuri, G. Lin, M. E. Day, L. Ohno-Machado, and C.-N. Hsu, “The impact of automatic pre-annotation in clinical note data element extraction - the clean tool,” *ArXiv*, vol. abs/1808.03806, 2018. [Online]. Available: <https://api.semanticscholar.org/CorpusID:51985809>
- [10] A. Mascio, Z. Kraljevic, D. Bean, R. J. B. Dobson, R. Stewart, R. Bendayan, and A. Roberts, “Comparative analysis of text classification approaches in electronic health records,” *CoRR*, vol. abs/2005.06624, 2020. [Online]. Available: <https://arxiv.org/abs/2005.06624>
- [11] N. A. Hindiyeh, D. Riskin, K. Alexander *et al.*, “Development and validation of a novel model for characterizing migraine outcomes within real-world data,” *The Journal of Headache and Pain*, vol. 23, no. 1, p. 124, 2022. [Online]. Available: <https://doi.org/10.1186/s10194-022-01493-x>



- [12] J. Frei, I. Soto-Rey, and F. Krämer, “Drnote: An open medical annotation service,” *PLOS Digital Health*, vol. 1, no. 8, p. e0000086, 2022. [Online]. Available: <https://doi.org/10.1371/journal.pdig.0000086>
- [13] T. A. Koleck, N. P. Tatonetti, S. Bakken, S. Mitha, M. M. Henderson, M. George, C. Miaskowski, A. Smaldone, and M. Topaz, “Identifying symptom information in clinical notes using natural language processing,” *Nursing Research*, vol. 70, pp. 173–183, 5 2021, bisa utk Tinjauan Pustaka/Perbandingan Hasil.
- [14] Y. Wang, S. Sohn, S. Liu, and H. Liu, “A clinical text classification paradigm using weak supervision and deep representation,” *BMC Medical Informatics and Decision Making*, vol. 19, no. 1, p. 1, 2019, published: January 7, 2019. [Online]. Available: <https://doi.org/10.1186/s12911-018-0723-6>
- [15] Q. Wei, Z. Ji, Y. Si, J. Du, J. Bian, F. Tiryaki, S. Wu, C. Tao, K. Roberts, and H. Xu, “Relation extraction from clinical narratives using pre-trained language models,” in *Proceedings of the AMIA Annual Symposium*, vol. 2019. American Medical Informatics Association, 2019, pp. 1236–1245, published in 2020.
- [16] M. S. Asyaky, M. Al-Husaini, and H. H. Lukmana, “Sentiment analysis on short social media texts using distilbert,” *Journal of Computer Networks, Architecture and High Performance Computing*, vol. 7, no. 2, pp. 524–533, April 2025, accepted: May 8, 2025; Published: May 10, 2025. [Online]. Available: <https://doi.org/10.47709/cnahpc.v7i2.5836>
- [17] X. Jiao, Y. Yin, L. Shang, X. Jiang, X. Chen, L. Li, F. Wang, and Q. Liu, “Tinybert: Distilling bert for natural language understanding,” in *Findings of the Association for Computational Linguistics: EMNLP 2020*. Online: Association for Computational Linguistics, Nov. 2020, pp. 4163–4174. [Online]. Available: <https://aclanthology.org/2020.findings-emnlp.372/>
- [18] K. Huang, J. Altosaar, and R. Ranganath, “Clinicalbert: Modeling clinical notes and predicting hospital readmission,” *CoRR*, vol. abs/1904.05342, 2019. [Online]. Available: <http://arxiv.org/abs/1904.05342>
- [19] M. Jiang, “Annotating sparse risk factors in clinical records with bert,” Stanford University, Tech. Rep., 2021, stanford CS224N Custom Project. [Online]. Available: https://web.stanford.edu/class/archive/cs/cs224n/cs224n.1214/reports/final_reports/report086.pdf
- [20] A. Salam and S. R. Sidiq, “Scibert optimisation for named entity recognition on ncbi disease corpus with hyperparameter tuning,” *Journal of Applied Informatics and Computing*, vol. 9, no. 2, pp. 432–441, Apr. 2025, cCBY-SA 4.0 licensed. [Online]. Available: <https://doi.org/10.30871/jaic.v9i2.9283>
- [21] J. Liu, X. Duan, R. Zhang, Y. Sun, L. Guan, and B. Lin, “Relation classification via bert with piecewise convolution and focal loss,” *PloS one*, vol. 16, no. 9, p. e0257092, 2021.
- [22] M. Agarwal and A. Saxena, “An overview of natural language processing,” *International Journal for Research in Applied Science & Engineering Technology*



(IJRASET), vol. 7, no. V, pp. 1100–1103, 2019, available at <https://www.ijraset.com/files/serve.php?FID=19852>.

- [23] S. Canchila, C. Meneses-Eraso, J. Casanoves-Boix, P. Cortes-Pellicer, and F. Castello-Sirvent, “Natural language processing: An overview of models, transformers and applied practices,” *Computer Science and Information Systems*, vol. 21, pp. 31–31, 01 2024.
- [24] R. Patil, S. Boit, V. Gudivada, and J. Nandigam, “A survey of text representation and embedding techniques in nlp,” *IEEE Access*, vol. 11, pp. 36 120–36 146, 2023.
- [25] H. S. M. Muslim, D. Javed, M. R. M. Riaz, and H. S. A. Qasim, “Unpacking text representation in nlp: A comparative study of models and methods,” *COJ Robotics Artificial Intelligence*, vol. 4, no. 3, 2025, published: March 10, 2025. Submitted: November 22, 2024.
- [26] E. Nur Hidayanti, C. Novita Harianja, R. Sari, Asrahapiza, R. Balqis, and P. Hana Pebriana, “Semantic issues and their resolution in linguistic studies,” *TOFEDU: The Future of Education Journal*, vol. 4, no. 6, pp. 1847–1853, 2025. [Online]. Available: <https://doi.org/10.61445/tofedu.v4i6.627>
- [27] E. Dotan, G. Jaschek, T. Pupko, and Y. Belinkov, “Effect of tokenization on transformers for biological sequences,” *Bioinformatics*, vol. 40, no. 4, p. btae196, 2024. [Online]. Available: <https://doi.org/10.1093/bioinformatics/btae196>
- [28] T. Dang, Y. Sakai, T. Tabaru, and A. Kasagi, “Regularizing data for improving execution time of nlp model,” in *Proceedings of the International FLAIRS Conference (FLAIRS-35)*, vol. 35. Kawasaki, Japan: Florida Artificial Intelligence Research Society, May 2022.
- [29] J. Pawelek, K. Baca-Motes, J. A. Pandit, B. B. Berk, and E. Ramos, “The power of patient engagement with electronic health records as research participants,” *JMIR Medical Informatics*, vol. 10, no. 7, p. e39145, 2022. [Online]. Available: <https://medinform.jmir.org/2022/7/e39145>
- [30] Y. Gao, D. Mahajan, Özlem Uzuner, and M. Yetisgen, “Clinical natural language processing for secondary uses,” *Journal of Biomedical Informatics*, vol. 150, p. 104596, 2024. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S1532046424000145>
- [31] J. A. Nichols, H. W. H. Chan, and M. A. B. Baker, “Machine learning: applications of artificial intelligence to imaging and diagnosis,” *Biophysical Reviews*, vol. 11, no. 1, pp. 111–118, 2019. [Online]. Available: <https://doi.org/10.1007/s12551-018-0449-9>
- [32] M. I. M. Yusoff, “Machine learning: An overview,” *Open Journal of Modelling and Simulation*, vol. 12, pp. 89–99, 2024.
- [33] D. Ph.D, G. Y. S. Reddy, and H. Pathak, “The understanding of deep learning: A comprehensive review,” *Mathematical Problems in Engineering*, vol. 2021, pp. 1–15, 04 2021.



- [34] A. Teso-Fz-Betoño, E. Zulueta, M. Cabezas-Olivenza, D. Teso-Fz-Betoño, and U. Fernandez-Gamiz, “A study of learning issues in feedforward neural networks,” *Mathematics*, vol. 10, no. 17, 2022. [Online]. Available: <https://www.mdpi.com/2227-7390/10/17/3206>
- [35] R. Qamar and B. Zardari, “Artificial neural networks: An overview,” *Mesopotamian Journal of Computer Science*, vol. 2023, pp. 130–139, 08 2023.
- [36] H. Wang, J. Li, H. Wu, E. Hovy, and Y. Sun, “Pre-trained language models and their applications,” *Engineering*, vol. 25, pp. 51–65, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2095809922006324>
- [37] S. Zhao, F. You, and Z. Liu, “Leveraging pre-trained language model for summary generation on short text,” *IEEE Access*, vol. PP, pp. 1–1, 12 2020.
- [38] M. A. K. Raiaan, M. S. H. Mukta, K. Fatema, N. M. Fahad, S. Sakib, M. M. J. Mim, J. Ahmad, M. E. Ali, and S. Azam, “A review on large language models: Architectures, applications, taxonomies, open issues and challenges,” *IEEE Access*, vol. 12, 2024.
- [39] S. R. Choi and M. Lee, “Transformer architecture and attention mechanisms in genome data analysis: A comprehensive review,” *Biology*, vol. 12, no. 7, p. 1033, 2023. [Online]. Available: <https://doi.org/10.3390/biology12071033>
- [40] Y. Li, N. Miao, L. Ma, F. Shuang, and X. Huang, “Transformer for object detection: Review and benchmark,” *Engineering Applications of Artificial Intelligence*, vol. 126, p. 107021, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0952197623012058>
- [41] E. Sibilano, D. Buongiorno, M. Lassi, A. Grippo, V. Bessi, S. Sorbi, A. Mazzoni, V. Bevilacqua, and A. Brunetti, “Understanding the role of self-attention in a transformer model for the discrimination of scd from mci using resting-state eeg,” *IEEE Journal of Biomedical and Health Informatics*, vol. 28, no. 6, pp. 3422–3433, 2024.
- [42] J. Devlin, M.-W. Chang, K. Lee, and K. Toutanova, “BERT: Pre-training of deep bidirectional transformers for language understanding,” in *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers)*, J. Burstein, C. Doran, and T. Solorio, Eds. Minneapolis, Minnesota: Association for Computational Linguistics, Jun. 2019, pp. 4171–4186. [Online]. Available: <https://aclanthology.org/N19-1423/>
- [43] N. M. Gardazi, A. Daud, M. K. Malik *et al.*, “Bert applications in natural language processing: a review,” *Artificial Intelligence Review*, vol. 58, p. 166, 2025. [Online]. Available: <https://doi.org/10.1007/s10462-025-11162-5>
- [44] S. Viswanath, N. Shahapure, R. P M, N. B, P. Khandelwal, A. Anand, P. Agrawal, and V. Srivastava, “The distilbert model: A promising approach to improve machine reading comprehension models,” *International Journal on Recent and Innovation Trends in Computing and Communication*, vol. 11, pp. 293–309, 09 2023.



- [45] J. Terven, D. M. Cordova-Esparza, J. A. Romero-González *et al.*, “A comprehensive survey of loss functions and metrics in deep learning,” *Artificial Intelligence Review*, vol. 58, p. 195, 2025. [Online]. Available: <https://doi.org/10.1007/s10462-025-11198-7>
- [46] J. Ilemobayo, O. Durodola, O. Alade, O. Awotunde, T. Adewumi, O. Falana, A. Ogungbire, A. Osinuga, D. Ogunbiyi, I. Odezuligbo, O. Edu, and A. Ifeanyi, “Hyperparameter tuning in machine learning: A comprehensive review,” *Journal of Engineering Research and Reports*, vol. 26, pp. 388–395, 06 2024.
- [47] D. Belete and M. D H, “Grid search in hyperparameter optimization of machine learning models for prediction of hiv/aids test results,” *International Journal of Computers and Applications*, vol. 44, pp. 1–12, 09 2021.
- [48] L. Wegmeth, T. Vente, L. Purucker, and J. Beel, “The effect of random seeds for data splitting on recommendation accuracy,” in *Perspectives on the Evaluation of Recommender Systems Workshop (PERSPECTIVES 2023)*, ser. CEUR Workshop Proceedings, A. Said, E. Zangerle, and C. Bauer, Eds., vol. 3476, Sep. 2023.
- [49] M. Hossin and S. M.N, “A review on evaluation metrics for data classification evaluations,” *International Journal of Data Mining Knowledge Management Process*, vol. 5, pp. 01–11, 03 2015.
- [50] M. Xu, D. Fralick, J. Zheng, B. Wang, X. M. Tu, and C. Feng, “The differences and similarities between two-sample t-test and paired t-test,” *Shanghai Archives of Psychiatry*, vol. 29, no. 3, pp. 184–188, 2017. [Online]. Available: <https://doi.org/10.11919/j.issn.1002-0829.217070>
- [51] T. K. Kim, “Understanding one-way anova using conceptual figures,” *Korean Journal of Anesthesiology*, vol. 70, no. 1, pp. 22–26, 2017. [Online]. Available: <https://doi.org/10.4097/kjae.2017.70.1.22>
- [52] I. Majid, V. Mishra, R. Ravindranath, and S. Y. Wang, “Evaluating the performance of large language models for named entity recognition in ophthalmology clinical free-text notes,” in *AMIA Annual Symposium Proceedings*, 2025, pp. 778–787, eCollection 2024.
- [53] A. Turchin, S. Masharsky, and M. Zitnik, “Comparison of bert implementations for natural language processing of narrative medical documents,” *Informatics in Medicine Unlocked*, vol. 36, p. 101139, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2352914822002763>
- [54] G. Michalopoulos, Y. Wang, H. Kaka, H. Chen, and A. Wong, “UmlsBERT: Clinical domain knowledge augmentation of contextual embeddings using the Unified Medical Language System Metathesaurus,” in *Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, K. Toutanova, A. Rumshisky, L. Zettlemoyer, D. Hakkani-Tur, I. Beltagy, S. Bethard, R. Cotterell, T. Chakraborty, and Y. Zhou, Eds. Association for Computational Linguistics, Jun. 2021, pp. 1744–1753. [Online]. Available: <https://aclanthology.org/2021.naacl-main.139/>



- [55] V. Saketos, D.-A. Pantazi, and M. Koubarakis, “The large language model GreekLegalRoBERTa,” in *Proceedings of the 13th Hellenic Conference on Artificial Intelligence (SETN '24)*, ser. SETN '24. Greece: Association for Computing Machinery, 2024, pp. 1–7, article No. 18; Published 27 December 2024.
- [56] X. Liu, G. L. Hersch, I. Khalil, and M. Devarakonda, “Clinical trial information extraction with bert,” in *Proceedings of the 28th International Conference on Computational Linguistics (COLING)*. Barcelona, Spain (Online): International Committee on Computational Linguistics, 2020, pp. 58–68. [Online]. Available: <https://aclanthology.org/2020.coling-main.6/>
- [57] “Exploring the influence of focal loss on transformer models for imbalanced maintenance data in industry 4.0,” *IFAC-PapersOnLine*, vol. 54, no. 1, pp. 1023–1028, 2021, 17th IFAC Symposium on Information Control Problems in Manufacturing INCOM 2021. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2405896321008776>
- [58] L. A. Ha, Maggie, R. Holbrook, and V. Yaneva, “Nbme - score clinical patient notes,” 2022. [Online]. Available: <https://kaggle.com/competitions/nbme-score-clinical-patient-notes>