

References

- [1] F. Z. Emeraldien, R. J. Sunarsono, and R. Alit, "TWITTER SEBAGAI PLATFORM KOMUNIKASI POLITIK DI INDONESIA," *Scan: Jurnal Teknologi Informasi dan Komunikasi*, vol. 14, no. 1, pp. 21–30, 2019, doi: 10.33005/SCAN.V14I1.1457.
- [2] S. Kemp, "TWITTER USERS, STATS, DATA & TRENDS," DataReportal.
- [3] T. Wilson, J. Wiebe, and P. Hoffmann, "Recognizing Contextual Polarity in Phrase-Level Sentiment Analysis," *Proceedings of Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing (HLT/EMNLP)*, pp. 347–354, 2005.
- [4] B. Gupta, P. Prakasam, and T. Velmurugan, "Integrated BERT embeddings, BiLSTM-BiGRU and 1-D CNN model for binary sentiment classification analysis of movie reviews," *Multimed Tools Appl*, vol. 81, no. 23, pp. 33067–33086, Sep. 2022, doi: 10.1007/s11042-022-13155-w.
- [5] D. A. J. Daniel and M. J. Meena, "Deep learning-based hybrid sentiment analysis with feature selection using optimization algorithm," *Multimed Tools Appl*, vol. 82, no. 28, pp. 43273–43296, Nov. 2023, doi: 10.1007/s11042-023-14767-6.
- [6] G. Kamil and E. B. Setiawan, "Aspect-Level Sentiment Analysis on Social Media Using Gated Recurrent Unit (GRU)," *Building of Informatics, Technology and Science (BITS)*, vol. 4, no. 4, Mar. 2023, doi: 10.47065/bits.v4i4.3105.
- [7] G. Xu, Y. Meng, X. Qiu, Z. Yu, and X. Wu, "Sentiment Analysis of Comment Texts Based on BiLSTM," *IEEE Access*, vol. 7, pp. 51522–51532, Apr. 2019, doi: 10.1109/ACCESS.2019.2909919.
- [8] S. Cahyaningtyas, D. Hatta Fudholi, and A. Fathan Hidayatullah, "Deep Learning for Aspect-Based Sentiment Analysis on Indonesian Hotels Reviews," *Kinetik: Game Technology, Information System, Computer Network, Computing, Electronics, and Control*, vol. 6, no. 3, pp. 239–248, Aug. 2021, doi: 10.22219/kinetik.v6i3.1300.
- [9] J. N. Hakim, Y. Sibaroni, and S. S. Prasetyowati, "Sentiment Analysis of the Indonesia Presidential Election 2024 with Ensemble Learning for Reducing Disinformation on Social Media," in *2023 11th International Conference on Information and Communication Technology (ICoICT)*, Melaka, Malaysia: IEEE, Aug. 2023, pp. 563–568. doi: 10.1109/ICoICT58202.2023.10262584.
- [10] G. Buntoro, R. Arifin, G. Syaifuddiin, A. Selamat, O. Krejcar, and F. Hamido, "THE IMPLEMENTATION OF THE MACHINE LEARNING ALGORITHM FOR THE SENTIMENT ANALYSIS OF INDONESIA'S 2019 PRESIDENTIAL ELECTION," *IJUM Engineering Journal*, vol. 22, no. 1, pp. 78–92, Jan. 2021, doi: 10.31436/iiumej.v22i1.1532.
- [11] B. Pranata and Susanti, "Support Vector Machine untuk Sentiment Analysis Bakal Calon Presiden Republik Indonesia 2024," *Indonesian Journal of Computer Science*, vol. 12, no. 3, pp. 1335–1349, Jul. 2023, doi: 10.33022/ijcs.v12i3.3231.
- [12] A. I. Ramadhan and E. B. Setiawan, "Aspect-based Sentiment Analysis on Social Media Using Convolutional Neural Network (CNN) Method," *Building of Informatics, Technology and Science (BITS)*, vol. 4, no. 4, Mar. 2023, doi: 10.47065/bits.v4i4.3103.
- [13] A. A. I. A. Maharani, S. S. Prasetyowati, and Y. Sibaroni, "Classification of Public Sentiment on Fuel Price Increases Using CNN," *Sinkron*, vol. 8, no. 3, pp. 1630–1637, Jul. 2023, doi: 10.33395/sinkron.v8i3.12609.
- [14] W. Yue and L. Li, "Sentiment Analysis using Word2vec-CNN-BiLSTM Classification," in *2020 Seventh International Conference on Social Networks Analysis, Management and Security (SNAMS)*, Paris, France: IEEE, Dec. 2020, pp. 1–5. doi: 10.1109/SNAMS52053.2020.9336549.
- [15] M. Rhanoui, M. Mikram, S. Yousfi, and S. Barzali, "A CNN-BiLSTM Model for Document-Level Sentiment Analysis," *Mach Learn Knowl Extr*, vol. 1, no. 3, pp. 832–847, Jul. 2019, doi: 10.3390/make1030048.
- [16] E. B. Setiawan, D. H. Widyantoro, and K. Surendro, "Feature Expansion for Sentiment Analysis in Twitter," in *2018 5th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI)*, Malang, Indonesia: IEEE, Oct. 2018, pp. 509–513. doi: 10.1109/EECSI.2018.8752851.
- [17] I. Kaibi, E. H. Nfaoui, and H. Satori, "A Comparative Evaluation of Word Embeddings Techniques for Twitter Sentiment Analysis," in *2019 International Conference on Wireless Technologies, Embedded and Intelligent Systems (WITS)*, Fez, Morocco: IEEE, Apr. 2019, pp. 1–4. doi: 10.1109/WITS.2019.8723864.
- [18] R. Cai and Q. Tao, "A Intelligent CNN-BiLSTM Approach for Chinese Sentiment Analysis on Spark," in *2020 IEEE 6th International Conference on Computer and Communications (ICCC)*, IEEE, Dec. 2020, pp. 1689–1693. doi: 10.1109/ICCC51575.2020.9344910.
- [19] Li Xiaoyan, Rodolfo C. Raga, and Shi Xuemei, "GloVe-CNN-BiLSTM Model for Sentiment Analysis on Text Reviews," *J Sens*, vol. 2022, May 2022.

- [20] N. Hayatin, G. I. Marthasari, and L. Nuraini, "Optimization of Sentiment Analysis for Indonesian Presidential Election using Naïve Bayes and Particle Swarm Optimization," *Jurnal Online Informatika*, vol. 5, no. 1, 2020.
- [21] I. A. Asqolani and E. B. Setiawan, "Hybrid Deep Learning Approach and Word2Vec Feature Expansion for Cyberbullying Detection on Indonesian Twitter," *Ingénierie des systèmes d'information*, vol. 28, no. 4, pp. 887–895, Aug. 2023, doi: 10.18280/isi.280410.
- [22] D. Ramyachitra and P. Manikandan, "Imbalanced dataset classification and solutions: a review," *International Journal of Computing and Business Research (IJCBR)*, vol. 5, no. 4, pp. 1--29, 2014.
- [23] M. A. S. Nasution and E. B. Setiawan, "Enhancing Cyberbullying Detection on Indonesian Twitter: Leveraging FastText for Feature Expansion and Hybrid Approach Applying CNN and BiLSTM," *Revue d'Intelligence Artificielle*, vol. 37, no. 4, pp. 929–936, Aug. 2023, doi: 10.18280/ria.370413.
- [24] Q. Liu, J. Wang, D. Zhang, Y. Yang, and N. Wang, "Text Features Extraction based on TF-IDF Associating Semantic," in *2018 IEEE 4th International Conference on Computer and Communications (ICCC)*, Chengdu, China: IEEE, Dec. 2018, pp. 2338–2343. doi: 10.1109/CompComm.2018.8780663.
- [25] I. Gede Bagus Janardana Abasan and E. B. Setiawan, "Empowering hate speech detection: leveraging linguistic richness and deep learning," *Bulletin of Electrical Engineering and Informatics*, vol. 13, no. 2, pp. 1371–1382, Apr. 2024, doi: 10.11591/eei.v13i2.6938.
- [26] M. Umer *et al.*, "Impact of convolutional neural network and FastText embedding on text classification," *Multimed Tools Appl*, vol. 82, no. 4, pp. 5569–5585, Feb. 2023, doi: 10.1007/s11042-022-13459-x.
- [27] E. B. Setiawan, D. H. Widyantoro, and K. Surendro, "Feature expansion using word embedding for tweet topic classification," in *2016 10th International Conference on Telecommunication Systems Services and Applications (TSSA)*, IEEE, Oct. 2016, pp. 1–5. doi: 10.1109/TSSA.2016.7871085.
- [28] A. Z. R. Adam and E. B. Setiawan, "Social Media Sentiment Analysis using Convolutional Neural Network (CNN) dan Gated Recurrent Unit (GRU)," *Jurnal Ilmiah Teknik Elektro Komputer dan Informatika*, vol. 9, no. 1, 2023.
- [29] J. Kennedy and R. Eberhart, "Particle swarm optimization," in *Proceedings of ICNN'95 - International Conference on Neural Networks*, IEEE, 2002, pp. 1942–1948. doi: 10.1109/ICNN.1995.488968.
- [30] F. Rahmad, Y. Suryanto, and K. Ramli, "Performance Comparison of Anti-Spam Technology Using Confusion Matrix Classification," *IOP Conf Ser Mater Sci Eng*, vol. 879, no. 1, p. 012076, Jul. 2020, doi: 10.1088/1757-899X/879/1/012076.
- [31] M. K. Hasan and E. B. Setiawan, "Sentiment Analysis of Twitter Data on Bank Central Asia Stocks (BBCA) Using RNN and CNN Model with GloVe Feature Expansion," in *2023 IEEE International Conference on Communication, Networks and Satellite (COMNETSAT)*, IEEE, Nov. 2023, pp. 195–200. doi: 10.1109/COMNETSAT59769.2023.10420731.