

Daftar Pustaka

- [1] L. D. Sanga and Y. Wangdra, "Pendidikan Adalah Faktor Penentu Daya Saing Bangsa," *SNISTEK*, vol. 5, pp. 84–90, 2023.
- [2] M. F. Amirudin, "Hubungan Pendidikan dan Daya Saing Bangsa," *BELAJEA: Jurnal Pendidikan Islam*, vol. 4, no. 1, pp. 35–48, Jun. 2019, doi: 10.29240/belajea.v4i1.723.
- [3] Dwi Ratnawati, Kurnia Dewi Kusumaningrum, and Taufik Muhtarom, "Analisis Perbandingan Komparasi Pendidikan Negara Maju untuk Kemajuan Pendidikan Sekolah Dasar di Indonesia," *Jurnal Bintang Pendidikan Indonesia*, vol. 2, no. 3, pp. 110–118, Jun. 2024, doi: 10.55606/jubpi.v2i3.3048.
- [4] Suyahman, "Pendidikan untuk Semua antara Harapan dan Kenyataan (Studi Kasus Permasalahan Pendidikan di Indonesia)," *PROSIDING SEMINAR NASIONAL PENDIDIKAN UNS*, 2015.
- [5] S. H. Simanjuntak and W. Widodo, "Analisis Pengaruh Perubahan Struktural Ekonomi dalam Sistem Multiregional di Indonesia," *JIMBE*, vol. 3, no. 1, pp. 28–41, 2025, [Online]. Available: <https://malaqbipublisher.com/index.php/JIMBE>
- [6] I. R. Hasanah, "Pelaksanaan Hak Dan Kewajiban Warga Negara Indonesia Di Dalam Bidang Pendidikan Tinjauan Dari Pasal 31 Undang-Undang Dasar Tahun 1945," *Pamulang Law*, vol. 5, no. 1, pp. 77–84, 2022.
- [7] F. Siswajanthi, K. A. Shiva, N. Salsabila, S. A. S. Putry, and S. M. I. Putri, "Analisis Dampak Kebijakan Fiskal terhadap Pertumbuhan Ekonomi: Studi Kasus Indonesia," *Jurnal Pendidikan Tambusai*, vol. 8, no. 1, pp. 4360–4369, 2024.
- [8] A. Muiz, R. Anisah, U. Khoiruddin, and E. Indrioko, "Kebijakan Pendidikan Dalam Mengatasi Masalah Kualitas, Kuantitas Efektivitas dan Efisiensi," *IHSAN : Jurnal Pendidikan Islam*, vol. 2, no. 3, pp. 46–64, 2024, [Online]. Available: <http://ejournal.yayasanpendidikandzurriyatulquran.id/index.php/ihsan>
- [9] Kompas, "Pemangkasan Anggaran Pendidikan Tinggi Bisa Picu Biaya Kuliah Naik." Accessed: May 04, 2025. [Online]. Available: <https://www.kompas.id/artikel/efisiensi-anggaran-pendidikan-tinggi-bisa-berdampak-pada-kenaikan-biaya-kuliah-di-ptn-dan-pts>
- [10] H. C. Husada and A. S. Paramita, "Analisis Sentimen Pada Maskapai Penerbangan di Platform Twitter Menggunakan Algoritme Support Vector Machine (SVM)," *Teknika*, vol. 10, no. 1, pp. 18–26, Feb. 2021, doi: 10.34148/teknika.v10i1.311.
- [11] A. L. Fairuz, R. D. Ramadhani, and N. A. F. Tanjung, "Analisis Sentimen Masyarakat Terhadap COVID-19 Pada Media Sosial Twitter," *Jurnal of Dinda: Data Science*,

- Information Technology, and Data Analytics*, vol. 1, no. 1, 2021, [Online]. Available: <http://journal.ittelkom-pwt.ac.id/index.php/dinda>
- [12] Data Reportal, "Digital 2024: Indonesia." Accessed: Feb. 18, 2025. [Online]. Available: <https://datareportal.com/reports/digital-2024-indonesia>
- [13] A. Amelia and R. Yusuf, "Analisis Sentimen Masyarakat Indonesia Pada Platform X Terhadap Isu fufufafa Menggunakan Bidirectional Encoder Representations From Transformers," *JINTEKS*, vol. 7, no. 1, pp. 72–80, 2025.
- [14] The Social Shepherd, "21 Essential Twitter (X) Statistics You Need to Know in 2025." Accessed: Feb. 18, 2025. [Online]. Available: <https://thesocialshepherd.com/blog/twitter-statistics>
- [15] O. Grljević and Z. Bošnjak, "Sentiment Analysis of Customer Data," *STRATEGIC MANAGEMENT*, vol. 23, no. 3, pp. 38–049, 2018.
- [16] P. H. Prastyo, I. Ardiyanto, and R. Hidayat, "Indonesian Sentiment Analysis: An Experimental Study of Four Kernel Functions on SVM Algorithm with TF-IDF," in *2020 International Conference on Data Analytics for Business and Industry: Way Towards a Sustainable Economy, ICDABI 2020*, Institute of Electrical and Electronics Engineers Inc., Oct. 2020. doi: 10.1109/ICDABI51230.2020.9325685.
- [17] D. E. Cahyani and I. Patasik, "Performance Comparison Of TF-IDF And Word2Vec Models For Emotion Text Classification," *Bulletin of Electrical Engineering and Informatics*, vol. 10, no. 5, pp. 2780–2788, Oct. 2021, doi: 10.11591/eei.v10i5.3157.
- [18] Styawati, N. Hendrastuty, A. R. Isnain, and A. Y. Rahmadhani, "Analisis Sentimen Masyarakat Terhadap Program Kartu Prakerja Pada Twitter Dengan Metode Support Vector Machine," *Jurnal Pengembangan IT (JPIT)*, vol. 6, no. 3, 2021, [Online]. Available: <http://situs.com>
- [19] A. Driyani and J. W. Jeyakumar, "Twitter Sentiment Analysis of Mobile Reviews using kernelized SVM," *Turkish Journal of Computer and Mathematics Education*, vol. 12, no. 10, pp. 765–768, 2021.
- [20] P. K. Hm and S. Bhat, "A Complex Algorithms and Artificial Intelligence," *International Research Journal of Innovations in Engineering and Technology (IRJIET)*, vol. 8, no. 11, pp. 167–172, 2024, doi: 10.47001/IRJIET/2024.811018.
- [21] A. Tripathy and S. K. Rath, "Classification of Sentiment of Reviews using Supervised Machine Learning Techniques," *International Journal of Rough Sets and Data Analysis*, vol. 4, no. 1, pp. 56–74, Oct. 2016, doi: 10.4018/ijrsda.2017010104.

- [22] R. Talib, M. K. Hanif, S. Ayesha, and F. Fatima, "Text Mining: Techniques, Applications and Issues," *IJACSA) International Journal of Advanced Computer Science and Applications*, vol. 7, no. 11, 2016, [Online]. Available: www.ijacsa.thesai.org
- [23] S. Xiong, W. Tian, H. Si, G. Zhang, and L. Shi, "A Survey of the Applications of Text Mining for the Food Domain," *Algorithms*, vol. 17, no. 5, May 2024, doi: 10.3390/a17050176.
- [24] A. Altamimi, "Harnessing The Integration of Chat GPT in Higher Education: The Evaluation of Stakeholders Sentiments Using NLP Techniques," *Discover Sustainability*, vol. 5, no. 1, Dec. 2024, doi: 10.1007/s43621-024-00774-6.
- [25] H. Q. Low, P. Keikhosrokiani, and M. Pourya Asl, "Decoding violence against women: analysing harassment in middle eastern literature with machine learning and sentiment analysis," *Humanit Soc Sci Commun*, vol. 11, no. 1, Dec. 2024, doi: 10.1057/s41599-024-02908-7.
- [26] M. Nokkaew *et al.*, "Analyzing online public opinion on Thailand-China high-speed train and Laos-China railway mega-projects using advanced machine learning for sentiment analysis," *Soc Netw Anal Min*, vol. 14, no. 1, Dec. 2024, doi: 10.1007/s13278-023-01168-8.
- [27] A. Haleem, M. Javaid, M. A. Qadri, R. P. Singh, and R. Suman, "Artificial intelligence (AI) applications for marketing: A literature-based study," *International Journal of Intelligent Networks*, vol. 3, pp. 119–132, Jan. 2022, doi: 10.1016/j.ijin.2022.08.005.
- [28] Q. Liu and H. Son, "Data Selection And Collection For Constructing Investor Sentiment From Social Media," *Humanit Soc Sci Commun*, vol. 11, no. 1, Dec. 2024, doi: 10.1057/s41599-024-03316-7.
- [29] O. Narushynska, V. Teslyuk, A. Doroshenko, and M. Arzubov, "Data Sorting Influence on Short Text Manual Labeling Quality for Hierarchical Classification," *Big Data and Cognitive Computing*, vol. 8, no. 4, Apr. 2024, doi: 10.3390/bdcc8040041.
- [30] F. Thabtah, S. Hammoud, F. Kamalov, and A. Gonsalves, "Data Imbalance In Classification: Experimental Evaluation," *Inf Sci (N Y)*, vol. 513, pp. 429–441, Mar. 2020, doi: 10.1016/j.ins.2019.11.004.
- [31] B. Mahesh, "Machine Learning Algorithms - A Review," *International Journal of Science and Research (IJSR)*, vol. 9, no. 1, pp. 381–386, Jan. 2020, doi: 10.21275/art20203995.
- [32] B. Charbuty and A. Abdulazeez, "Classification Based on Decision Tree Algorithm for Machine Learning," *Journal of Applied Science and Technology Trends*, vol. 2, no. 01, pp. 20–28, Mar. 2021, doi: 10.38094/jastt20165.

- [33] D. K. Jain *et al.*, "An Approach for Hyperspectral Image Classification by Optimizing SVM Using Self Organizing Map," *J Comput Sci*, vol. 25, pp. 252–259, Mar. 2018, doi: 10.1016/j.jocs.2017.07.016.
- [34] C. Cortes, V. Vapnik, and L. Saitta, "Support-Vector Networks," *Machine Learning*, vol. 20, pp. 273–297, 1995.
- [35] D. A. Otchere, T. O. Arbi Ganat, R. Gholami, and S. Ridha, "Application of Supervised Machine Learning Paradigms in The Prediction of Petroleum Reservoir Properties: Comparative Analysis of ANN and SVM Models," *J Pet Sci Eng*, vol. 200, May 2021, doi: 10.1016/j.petrol.2020.108182.
- [36] Ö. F. Arar and K. Ayan, "A Feature Dependent Naive Bayes Approach And Its Application to The Software Defect Prediction Problem," *Applied Soft Computing Journal*, vol. 59, pp. 197–209, Oct. 2017, doi: 10.1016/j.asoc.2017.05.043.
- [37] Ž. Vujović, "Classification Model Evaluation Metrics," *International Journal of Advanced Computer Science and Applications*, vol. 12, no. 6, pp. 599–606, 2021, doi: 10.14569/IJACSA.2021.0120670.
- [38] S. Nazir, M. Asif, M. Rehman, and S. Ahmad, "Machine Learning Based Framework For Fine-Grained Word Segmentation And Enhanced Text Normalization For Low Resourced language," *PeerJ Comput Sci*, vol. 10, 2024, doi: 10.7717/peerj-cs.1704.
- [39] U. E. Chigbu, S. O. Atiku, and C. C. Du Plessis, "The Science of Literature Reviews: Searching, Identifying, Selecting, and Synthesising," *Publications*, vol. 11, no. 1, Mar. 2023, doi: 10.3390/publications11010002.
- [40] G. Business and M. Research, "Global Business and Management Research," *Global Business and Management Research: An International Journal*, vol. 16, no. 4, 2024.
- [41] A. A. Pratiwi and M. Kamayani, "Perbandingan Pelabelan Data dalam Analisis Sentimen Kurikulum Proyek di platform TikTok: Pendekatan Naïve Bayes," *Jurnal Eksplora Informatika*, vol. 14, no. 1, pp. 96–107, Sep. 2024, doi: 10.30864/eksplora.v14i1.1093.
- [42] M. Uppal, Y. Gulzar, D. Gupta, J. Uppal, M. Kumar, and S. Saini, "Enhancing Accuracy Through Ensemble Based Machine Learning for Intrusion Detection And Privacy Preservation Over The Network of Smart Cities," *Discover Internet of Things*, vol. 5, no. 1, Dec. 2025, doi: 10.1007/s43926-025-00101-z.
- [43] N. V. Pusean, N. Charibaldi, and B. Santosa, "Comparison of Scenario Pre-processing Performance on Support Vector Machine and Naïve Bayes Algorithms for Sentiment Analysis," *Inform : Jurnal Ilmiah Bidang Teknologi Informasi dan Komunikasi*, vol. 8, no. 1, pp. 57–63, Jan. 2023, doi: 10.25139/inform.v8i1.5667.

- [44] M. Bagas, D. Putra, and E. Setiawan, "Metode Lexicon Based Untuk Analisis Sentimen Pengguna Twitter Terhadap Kinerja ISP (Studi Kasus : Indihome, Biznet, MyRepublic)," *Jurnal Mahasiswa Teknik Informatika*, vol. 8, no. 6, 2024, [Online]. Available: <http://dev.twitter.com>
- [45] T. Almutairi, S. Saifuddin, R. Alotaibi, S. Sarhan, and S. Nassif, "Preprocessing Techniques for Clustering Arabic Text: Challenges and Future Directions," *IJACSA International Journal of Advanced Computer Science and Applications*, vol. 15, no. 8, 2024, [Online]. Available: <https://github.com/ARBML/tkseem>
- [46] B. T. Pham *et al.*, "A Novel Hybrid Soft Computing Model Using Random Forest And Particle Swarm Optimization For Estimation of Undrained Shear Strength of Soil," *Sustainability (Switzerland)*, vol. 12, no. 6, pp. 1–16, Mar. 2020, doi: 10.3390/su12062218.
- [47] S. Song, Y. Ma, X. Jiang, D. Li, X. Ma, and S. Qiu, "Non-Linear Support Vector Machine Prediction of the Mechanical Properties of Asphalt Binders Subjected to Varying Temperatures and Frequencies Based on SARA," *Coatings*, vol. 15, no. 1, Jan. 2025, doi: 10.3390/coatings15010062.
- [48] R. Jadhav, R. Kale, S. Kadam, S. Jadhav, and T. Gund, "Skin Cancer Detection Using Image Processing," *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, vol. 11, pp. 2321–9653, 2023, [Online]. Available: www.ijraset.com
- [49] R. Gelar Guntara, "Visualisasi Data Laporan Penjualan Toko Online Melalui Pendekatan Data Science Menggunakan Google Colab," *Jurnal Ilmiah Multidisiplin*, vol. 2, no. 6, 2023.
- [50] F. V. Ryzhkov, Y. E. Ryzhkova, and M. N. Elinson, "Python in Chemistry: Physicochemical Tools," *Processes*, vol. 11, no. 10, Oct. 2023, doi: 10.3390/pr11102897.
- [51] S. M. Mohammad, "A Practical Guide to Sentiment Annotation: Challenges and Solutions," in *Proceedings of the 7th Workshop on Computational Approaches to Subjectivity*, 2016, pp. 174–179.
- [52] D. I. H. Farias and P. Rosso, "Irony, Sarcasm, and Sentiment Analysis," in *Sentiment Analysis in Social Networks*, Elsevier Inc., 2017, pp. 113–128. doi: 10.1016/B978-0-12-804412-4.00007-3.
- [53] M. O. Ibrohim and I. Budi, "Multi-label Hate Speech and Abusive Language Detection in Indonesian Twitter," in *Proceedings of the Third Workshop on Abusive Language Online*, Florence, Italy: Association for Computational Linguistics, Aug. 2019, pp. 46–57. doi: 10.18653/v1/W19-3506.

- [54] F. Z. Tala, "A Study of Stemming Effects on Information Retrieval in Bahasa Indonesia," Universiteti van Amsterdam The Netherlands, 2003.
- [55] CNN Indonesia, "Mahasiswa Bali Geruduk DPRD, Tolak Pemotongan Anggaran Pendidikan ." Accessed: May 20, 2025. [Online]. Available: <https://www.cnnindonesia.com/nasional/20250217135126-20-1199215/mahasiswa-bali-geruduk-dprd-tolak-pemotongan-anggaran-pendidikan>
- [56] detikEdu, "JPPI Ungkap 5 Dampak Efisiensi Anggaran Pendidikan, Siswa Terancam Putus Sekolah." Accessed: May 20, 2025. [Online]. Available: <https://www.detik.com/edu/edutainment/d-7774928/jppi-ungkap-5-dampak-efisiensi-anggaran-pendidikan-siswa-terancam-putus-sekolah>

