

## DAFTAR PUSTAKA

- [1] Datareportal.com, “Digital 2020: Indonesia,” *datareportal.com*, 2020. <https://datareportal.com/reports/digital-2020-indonesia> (accessed Dec. 11, 2020).
- [2] Detik.com, “Pengguna Twitter Indonesia Makin Rajin Cuap-cuap di Tengah Pandemi,” *detik.com*, 2020. <https://inet.detik.com/cyberlife/d-5132641/pengguna-twitter-indonesia-makin-rajin-cuap-cuap-di-tengah-pandemi> (accessed Dec. 11, 2020).
- [3] katadata.co.id, “Obesitas Regulasi jadi Alasan Jokowi Bentuk Omnibus Law,” *katadata.co.id*, 2020. <https://katadata.co.id/ekarina/berita/5e9a498ee7480/obesitas-regulasi-jadi-alasan-jokowi-bentuk-omnibus-law> (accessed Dec. 11, 2020).
- [4] Inews.id, “Jokowi Ungkap 3 Alasan Pemerintah Terbitkan Omnibus Law,” *www.inews.id*, 2020. <https://www.inews.id/news/nasional/jokowi-ungkap-3-alasan-pemerintah-terbitkan-omnibus-law> (accessed Dec. 11, 2020).
- [5] Tirto.id, “Dampak Omnibus Law UU Cipta Kerja: Rugikan Buruh hingga Abaikan HAM,” *Tirto.id*, 2020. <https://tirto.id/dampak-omnibus-law-uu-cipta-kerja-rugikan-buruh-hingga-abaikan-ham-f5Cs> (accessed Dec. 11, 2020).
- [6] Katadata.co.id, “Bahaya Pasal-Pasal Omnibus Law UU Ciptaker yang Ancam Lingkungan Hidup,” *Katadata.co.id*, 2020. <https://katadata.co.id/sortatobing/ekonomi-hijau/5f7c3f0e25cc1/bahaya-pasal-pasal-omnibus-law-uu-ciptaker-yang-ancam-lingkungan-hidup> (accessed Dec. 11, 2020).
- [7] G. A. Buntoro, “Analisis Sentimen Calon Presiden Indonesia 2014 Dengan Lima Class Attribute,” Universitas Gadjah Mada, 2015.
- [8] J. Serrano-Guerrero, J. A. Olivas, F. P. Romero, and E. Herrera-Viedma, “Sentiment analysis: A review and comparative analysis of web services,” *Inf. Sci. (Ny)*, vol. 311, pp. 18–38, 2015, doi: 10.1016/j.ins.2015.03.040.
- [9] R. Shahid, S. T. Javed, and K. Zafar, “Feature Selection Based Classification of Sentiment Analysis using Biogeography Optimization Algorithm,” in *2017 International Conference on Innovations in Electrical Engineering and Computational Technologies (ICIEECT)*, 2017, pp. 1–5, doi: 10.1109/ICIEECT.2017.7916549.
- [10] D. Zeng, J. Peng, S. Fong, Y. Qiu, and R. Wong, “Medical data mining in sentiment analysis based on optimized swarm search feature selection,” *Australas. Phys. Eng.*

*Sci. Med.*, vol. 41, no. 4, pp. 1087–1100, 2018, doi: 10.1007/s13246-018-0674-3.

- [11] W. Tian, J. Li, and H. Li, “A Method of Feature Selection Based on Word2Vec in Text Categorization,” in *2018 37th Chinese Control Conference (CCC)*, 2018, pp. 9452–9455.
- [12] T. Parlar, S. A. Özel, and F. Song, “QER: a new feature selection method for sentiment analysis,” *Human-centric Comput. Inf. Sci.*, vol. 8, no. 10, pp. 1–19, 2018, doi: 10.1186/s13673-018-0135-8.
- [13] N. Bidi and Z. Elberrichi, “Feature Selection For Text Classification Using Genetic Algorithms,” in *2016 8th International Conference on Modelling, Identification and Control (ICMIC)*, 2016, pp. 806–810, doi: 10.1109/ICMIC.2016.7804223.
- [14] S. Widya Sihwi, I. Prasetya Jati, and R. Anggrainingsih, “Twitter Sentiment Analysis of Movie Reviews Using Information Gain and Naïve Bayes Classifier,” in *Proceedings - 2018 International Seminar on Application for Technology of Information and Communication: Creative Technology for Human Life, iSemantic 2018*, 2018, pp. 190–195, doi: 10.1109/ISEMANTIC.2018.8549757.
- [15] Nurhayati, A. E. Putra, L. K. Wardhani, and Busiman, “Chi-Square Feature Selection Effect On Naive Bayes Classifier Algorithm Performance For Sentiment Analysis Document,” in *2019 7th International Conference on Cyber and IT Service Management (CITSM)*, 2019, pp. 1–7.
- [16] D. A. Kristiyanti, Normah, and A. H. Umam, “Prediction of Indonesia Presidential Election Results for the 2019-2024 Period Using Twitter Sentiment Analysis,” in *2019 5th International Conference on New Media Studies*, 2019, pp. 36–42, doi: 10.1109/conmedia46929.2019.8981823.
- [17] D. A. Muthia, D. A. Putri, H. Rachmi, and A. Surniandari, “Implementation of Text Mining in Predicting Consumer Interest on Digital Camera Products,” in *2018 6th International Conference on Cyber and IT Service Management (CITSM)*, 2018, pp. 1–7, doi: 10.1109/CITSM.2018.8674063.
- [18] I. Kurniawati and H. F. Pardede, “Hybrid Method of Information Gain and Particle Swarm Optimization for Selection of Features of SVM-Based Sentiment Analysis,” *2018 Int. Conf. Inf. Technol. Syst. Innov. ICITSI 2018 - Proc.*, pp. 1–5, 2019, doi: 10.1109/ICITSI.2018.8695953.
- [19] P. H. Prastyo, I. Ardiyanto, and R. Hidayat, “A Review of Feature Selection Techniques in Sentiment Analysis Using Filter, Wrapper, or Hybrid Methods,” in *6th International Conference on Science and Technology (ICST)*, 2020, pp. 1–6, doi: 10.3233/IDA-173763.

- [20] Y. Zhai, W. Song, X. Liu, L. Liu, and X. Zhao, "A Chi-square Statistics Based Feature Selection Method in Text Classification," in *2018 IEEE 9th International Conference on Software Engineering and Service Science (ICSESS)*, 2018, pp. 160–163.
- [21] A. S. Manek, P. D. Shenoy, M. C. Mohan, and V. K. R., "Aspect term extraction for sentiment analysis in large movie reviews using Gini Index feature selection method and SVM classifier," *World Wide Web*, vol. 20, pp. 135–154, 2017, doi: 10.1007/s11280-015-0381-x.
- [22] B. V. G. Bispo and T. N. Rios, "Statera : A Balanced Feature Selection Method for Text Classification," in *2018 7th Brazilian Conference on Intelligent Systems*, 2018, pp. 260–265, doi: 10.1109/BRACIS.2018.00052.
- [23] D. A. Kristiyanti and M. Wahyudi, "Feature Selection Based on Genetic Algorithm , Particle Swarm Optimization and Principal Component Analysis for Opinion Mining Cosmetic Product Review," in *2017 5th International Conference on Cyber and IT Service Management (CITSM)*, 2017, pp. 1–6.
- [24] O. Gokalp, E. Tasci, and A. Ugur, "A novel wrapper feature selection algorithm based on iterated greedy metaheuristic for sentiment classification," *Expert Syst. Appl.*, vol. 146, pp. 1–10, 2020, doi: 10.1016/j.eswa.2020.113176.
- [25] M. A. Hassonah, R. Al-sayyed, A. Rodan, A. M. Al-zoubi, I. Aljarah, and H. Faris, "An efficient hybrid filter and evolutionary wrapper approach for sentiment analysis of various topics on Twitter," *Knowledge-Based Syst.*, vol. 192, pp. 1–19, 2019, doi: 10.1016/j.knosys.2019.105353.
- [26] L. Zheng, H. Wang, and S. Gao, "Sentimental feature selection for sentiment analysis of Chinese online reviews," *Int. J. Mach. Learn. Cybern.*, vol. 9, pp. 75–84, 2015, doi: 10.1007/s13042-015-0347-4.
- [27] J. Ding and L. Fu, "A Hybrid Feature Selection Algorithm Based on Information Gain and Sequential Forward Floating Search," *J. Intell. Comput.*, vol. 9, no. 3, pp. 93–101, 2018, doi: 10.6025/jic/2018/9/3/93-101.
- [28] Z. Zhen, H. Wang, Y. Xing, and L. Han, "Text Feature Selection Approach by Means of Class Difference," in *2016 12th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD)*, 2016, pp. 1582–1586, doi: 10.1109/FSKD.2016.7603412.
- [29] Mihuandayani, E. Utami, and E. T. Luthfi, "Text mining based on tax comments as big data analysis using SVM and feature selection," in *2018 International Conference on Information and Communications Technology, ICOIACT 2018*, 2018, pp. 537–542, doi: 10.1109/ICOIACT.2018.8350743.

- [30] A. W. Haryanto and E. K. Mawardi, "Influence of Word Normalization and Chi-squared Feature Selection on Support Vector Machine ( SVM ) Text Classification," *2018 Int. Semin. Appl. Technol. Inf. Commun.*, pp. 229–233, 2018.
- [31] U. Widodo Wijayanto and R. Sarno, "An Experimental Study of Supervised Sentiment Analysis Using Gaussian Naïve Bayes," *Proc. - 2018 Int. Semin. Appl. Technol. Inf. Commun. Creat. Technol. Hum. Life, iSemantic 2018*, pp. 476–481, 2018, doi: 10.1109/ISEMANTIC.2018.8549788.
- [32] F. R. S. Rangkuti, M. A. Fauzi, Y. A. Sari, and E. D. L. Sari, "Sentiment Analysis on Movie Reviews Using Ensemble Features and Pearson Correlation Based Feature Selection," in *2018 International Conference on Sustainable Information Engineering and Technology (SIET)*, 2018, pp. 88–91.
- [33] Y. D. Setiyaningrum, A. F. Herdajanti, C. Supriyanto, and Muljono, "Classification of twitter contents using chi-square and K-nearest neighbour algorithm," in *Proceedings - 2019 International Seminar on Application for Technology of Information and Communication: iSemantic 2019*, 2019, pp. 78–81, doi: 10.1109/ISEMANTIC.2019.8884290.
- [34] A. A. Aliane, H. Aliane, M. Ziane, and N. Bensaou, "A Genetic Algorithm Feature Selection Based Approach for Arabic Sentiment Classification," in *2016 IEEE/ACS 13th International Conference of Computer Systems and Applications (AICCSA)*, 2016, pp. 1–6, doi: 10.1109/AICCSA.2016.7945661.
- [35] S. Ernawati, E. R. Yulia, Friyadie, and Samudi, "Implementation of the Naïve Bayes Algorithm with Feature Selection using Genetic Algorithm for Sentiment Review Analysis of Fashion Online Companies," in *2018 6th International Conference on Cyber and IT Service Management, CITSM 2018*, 2018, pp. 6–10, doi: 10.1109/CITSM.2018.8674286.
- [36] T. N. Fatyanosa, F. A. Bachtiar, and M. Data, "Feature Selection using Variable Length Chromosome Genetic Algorithm for Sentiment Analysis," in *2018 International Conference on Sustainable Information Engineering and Technology (SIET)*, 2018, pp. 27–32.
- [37] G. Ansari, T. Ahmad, and M. N. Doja, "Hybrid Filter – Wrapper Feature Selection Method for Sentiment Classification," *Arab. J. Sci. Eng.*, vol. 44, no. 11, pp. 9191–9208, 2019, doi: 10.1007/s13369-019-04064-6.
- [38] B. Liu, "Sentiment analysis and subjectivity," *Handb. Nat. Lang. Process. Second Ed.*, pp. 627–666, 2010.
- [39] W. T. H. Putri and R. Hendrowati, "Penggalian Teks Dengan Model Bag of Words

- Terhadap Data Twitter,” *J. Muara Sains, Teknol. Kedokteran, dan Ilmu Kesehat.*, vol. 2, no. 1, pp. 129–138, 2018.
- [40] T. Tokunaga, T. Tokunaga, I. Makoto, and I. Makoto, “Text categorization based on weighted inverse document frequency,” *Spec. Interes. Groups Inf. Process Soc. Japan (SIG-IPSI)*, 1994, [Online]. Available: <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.49.7015>.
  - [41] M. M. Mironczuk and J. Protasiewicz, “A recent overview of the state-of-the-art elements of text classification,” *Expert Syst. Appl.*, vol. 106, pp. 36–54, 2018, doi: 10.1016/j.eswa.2018.03.058.
  - [42] T. Parlar and S. A. Ozel, “A new feature selection method for sentiment analysis of Turkish reviews,” in *Proceedings of the 2016 International Symposium on INnovations in Intelligent SysTems and Applications, INISTA 2016*, 2016, pp. 4–9, doi: 10.1109/INISTA.2016.7571833.
  - [43] M. Tubishat, N. Idris, L. Shuib, M. A. M. Abushariah, and S. Mirjalili, “Improved Salp Swarm Algorithm based on opposition based learning and novel local search algorithm for feature selection,” *Expert Syst. Appl.*, vol. 145, pp. 1–10, 2020, doi: 10.1016/j.eswa.2019.113122.
  - [44] Z. Zuhri, *Algoritma Genetika: Metode Komputasi Evolusioner untuk Menyelesaikan Masalah Optimasi*. Yogyakarta: Andi, 2014.
  - [45] E. Cox, *Fuzzy Modeling and Genetic Algorithm for Data Mining and Exploration*. San Francisco: Morgan Kaufmann Publisher, 2005.
  - [46] L. Almira, “Penggunaan Algoritma Genetika Sebagai Seleksi Fitur dalam Pengenalan Ucapan pada Orang Penderita Dysarthria,” Universitas Gadjah Mada, 2018.
  - [47] P. E. Masudia, “Optimasi Cluster Algoritme Fuzzy C-Mean dengan Algoritme Genetika untuk Menentukan Nilai Akhir Kuliah,” Universitas Gadjah Mada, 2012.
  - [48] C. J. Santana, M. Macedo, H. Siqueira, A. Gokhale, and C. J. A. Bastos-Filho, “A novel binary artificial bee colony algorithm,” *Futur. Gener. Comput. Syst.*, vol. 98, pp. 180–196, 2019, doi: 10.1016/j.future.2019.03.032.
  - [49] N. A. Aziz, “Implementasi Algoritma Genetika untuk Optimasi Penjadwalan Perkuliahan di D-3 Komsis Sekolah Vokasi UGM,” Universitas Gadjah Mada, 2017.
  - [50] I. Cholisodin, *Buku Ajar Swarm Intelligence*. 2016.
  - [51] J. Kennedy and R. C. Eberhart, “A discrete binary version of the particle swarm

- algorithm,” in *1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation*, Oct. 1997, pp. 4104–4108, doi: 10.1109/ICSMC.1997.637339.
- [52] A. M. Rahat, A. Kahir, and A. K. M. Masum, “Comparison of Naive Bayes and SVM Algorithm based on Sentiment Analysis Using Review Dataset,” in *8th International Conference on System Modeling & Advancement in Research Trends*, 2020, pp. 266–270, doi: 10.1109/smart46866.2019.9117512.
  - [53] S. Rana and A. Singh, “Comparative analysis of sentiment orientation using SVM and Naive Bayes techniques,” in *2nd International Conference on Next Generation Computing Technologies*, 2016, pp. 106–111, doi: 10.1109/NGCT.2016.7877399.
  - [54] U. Kumari, A. K. Sharma, and D. Soni, “Sentiment Analysis of Smart Phone Product Review Using SVM Classification Technique,” in *International Conference on Energy, Communication, Data Analytics and Soft Computing*, 2017, pp. 1469–1474.
  - [55] B. Shamantha Rai, S. M. Shetty, and P. Rai, “Sentiment analysis using Machine learning classifiers: Evaluation of performance,” in *2019 IEEE 4th International Conference on Computer and Communication Systems, ICCCS 2019*, 2019, pp. 21–25, doi: 10.1109/CCOMS.2019.8821650.
  - [56] M. Wongkar and A. Angdresey, “Sentiment Analysis Using Naive Bayes Algorithm Of The Data Crawler: Twitter,” in *Proceedings of 2019 4th International Conference on Informatics and Computing, ICIC 2019*, 2019, pp. 1–5, doi: 10.1109/ICIC47613.2019.8985884.
  - [57] P. Juneja and U. Ojha, “Casting online votes: To predict offline results using sentiment analysis by machine learning classifiers,” in *8th International Conference on Computing, Communications and Networking Technologies, ICCCNT 2017*, 2017, pp. 1–6, doi: 10.1109/ICCCNT.2017.8203996.
  - [58] M. I. Zul, F. Yulia, and D. Nurmallasari, “Social media sentiment analysis using K-means and naïve bayes algorithm,” in *Proceedings - 2018 2nd International Conference on Electrical Engineering and Informatics*, 2018, pp. 24–29, doi: 10.1109/ICon-EEI.2018.8784326.
  - [59] S. L. Ramdhani, R. Andreswari, and M. A. Hasibuan, “Sentiment Analysis of Product Reviews using Naive Bayes Algorithm: A Case Study,” in *Proceedings - 2nd East Indonesia Conference on Computer and Information Technology: Internet of Things for Industry, EIconCIT 2018*, 2018, pp. 123–127, doi: 10.1109/EIconCIT.2018.8878528.
  - [60] N. D. Mentari, M. A. Fauzi, and L. Muflikhah, “Analisis Sentimen Kurikulum 2013



Pada Sosial Media Twitter Menggunakan Metode K-Nearest Neighbor dan Feature Selection Query Expansion Ranking,” *J. Pengemb. Teknol. Inf. dan Ilmu Komput. Univ. Brawijaya*, vol. 2, no. 8, pp. 2739–2743, 2018.

- [61] B. Santosa and A. Umam, *Data Mining dan Big Data Analytics*, 2nd ed. Penebar Media Pustaka, 2018.
- [62] M. A. Nanda, K. B. Seminar, D. Nandika, and A. Maddu, “A comparison study of kernel functions in the support vector machine and its application for termite detection,” *Inf.*, vol. 9, no. 1, pp. 1–14, 2018, doi: 10.3390/info9010005.
- [63] C. D. Manning, P. Raghavan, and H. Schütze, *An Introduction to Information Retrieval*. New York: Cambridge University Press, 2009.
- [64] E. Prasetyo, *Data Mining - Mengolah Data Menjadi Informasi Menggunakan Matlab*. Penerbit Andi, 2014.
- [65] R. Shier, “Paired t-test,” in *Statistics*, vol. 5, no. 3, Mathematics Learning Support Centre, 2004, pp. 1–3.
- [66] Dmitry Mottl, “GetOldTweets3,” 2019. <https://pypi.org/project/GetOldTweets3/> (accessed May 20, 2020).
- [67] S. A. Wulandari, H. Kuswara, and N. Palasara, “Analisis Penerapan Data Mining pada Penjualan Kerupuk Rambak Menggunakan Metode Naïve Bayes Classifier untuk Optimasi Strategi Pemasaran,” *Sitech*, vol. Vol 1, No, pp. 1–6, 2018.
- [68] R. D. Adyati, Y. N. Nasution, and S. Wahyuningsih, “Klasifikasi Probabilistic Neural Network ( PNN ) pada Data Diagnosa Penyakit Demam Berdarah,” in *Prosiding Seminar Nasional Matematika, Statistika, dan Aplikasinya*, 2019, pp. 15–21.
- [69] D. P. Wigandi, N. J. Rohmah, and S. A. Putri, “Implementasi Metode Tam pada Analisis Penerimaan Transaksi Uang Elektronik di MRT,” *Sist. Inf.*, vol. 14, no. 1, pp. 205–210, 2019.
- [70] A. Nikoyan, L. O. Alwi, and Yasnani, “Analisis Kinerja Pemberdayaan Masyarakat Dalam Program Corporate Social Responsibility: Studi Kasus PT. Antam TBK di Desa Hakatutobu, Kecamatan Pomalaa, Kabupaten Kolaka, Provinsi Sulawesi Tenggara,” *J. Sos. Ekon. Pertan.*, vol. 15, no. 2, p. 173, 2019.
- [71] Sastrawi, “Sastrawi Library,” 2020. <https://pypi.org/project/Sastrawi/> (accessed Nov. 05, 2020).
- [72] S. M. Vieira and L. F. Mendonc, “Modified binary PSO for feature selection using

SVM applied to mortality prediction of septic patients,” *Appl. Soft Comput.*, vol. 13, pp. 3494–3504, 2013, doi: 10.1016/j.asoc.2013.03.021.

- [73] Pyswarms, “Pyswarms library.” <https://pyswarms.readthedocs.io/en/latest/> (accessed Nov. 01, 2020).
- [74] Scikit Learn, “Sklearn.svm.SVC.” <https://scikit-learn.org/stable/modules/generated/sklearn.svm.SVC.html> (accessed Sep. 11, 2020).
- [75] Scikit-learn.org, “scklearn.model\_selection.GridSearchCV.” [https://scikit-learn.org/stable/modules/generated/sklearn.model\\_selection.GridSearchCV.html](https://scikit-learn.org/stable/modules/generated/sklearn.model_selection.GridSearchCV.html) (accessed Oct. 02, 2020).
- [76] Scikit-learn.org, “Sklearn.naive\_bayes.MultinomialNB.” [https://scikit-learn.org/stable/modules/generated/sklearn.naive\\_bayes.MultinomialNB.html](https://scikit-learn.org/stable/modules/generated/sklearn.naive_bayes.MultinomialNB.html) (accessed Oct. 02, 2020).
- [77] joblib, “Joblib Library.” <https://joblib.readthedocs.io/en/latest/> (accessed Nov. 20, 2020).