

DAFTAR PUSTAKA

- [1] S. B. Jang dan M. Kim, "Digital Fitness Revolution: User Perspectives on Fitbit's Role in Health Management," *Behav. Sci.*, vol. 15, no. 2, pp. 231, 2025, DOI: 10.3390/bs15020231.
- [2] M. Abdelhamid, "Fitness tracker information and privacy management: Empirical study," *J Med Internet Res*, vol. 23, no. 11, 2021, DOI: 10.2196/23059.
- [3] Statista Market Insights, "Users in the fashion e-commerce market in Indonesia from 2017 to 2029," *statista*, [Online]. Tersedia: <https://www.statista.com/forecasts/1436215/number-of-users-digital-fitness-well-being-digital-health-market-indonesia/> (akses pada: 18 Oktober 2025).
- [4] T. A. Sandy, "Optimizing health outcomes: a detailed comparison of features and user sentiment in popular fitness tracking applications," *Retos*, vol. 68, pp. 432-444, 2025, DOI: 10.47197/retos.v68.114746.
- [5] J. C. Polese, dkk., "Google fit smartphone application or Gt3X Actigraph: Which is better for detecting the stepping activity of individuals with stroke? A validity study," *Journal of Bodywork and Movement Therapies*, vol. 23, no. 3, pp. 461-465, 2019, DOI: 10.1016/j.jbmt.2019.01.011.
- [6] Google LLC, "Google Fit: Memantau Aktivitas," *Google Play Store*, [Online]. Tersedia: <https://play.google.com/store/apps/details?id=com.google.android.apps.fitness&hl=id> (akses pada: 16 Juli 2026).
- [7] Y. H. Lai, F. F. Huang, dan P. Y. Chiou, "Analysis of user feedback in the mobile app store using text mining: A case study of Google Fit," *2017 IEEE 8th International Conference on Awareness Science and Technology (iCAST)*, Taichung, Taiwan, 2017, pp. 50-54. DOI: 10.1109/ICAwST.2017.8256508.
- [8] O. R. Ajibade, dkk., "Online Customer Reviews and their Effect on the Download of Mobile Applications," *J. Inf. Technol. Comput.*, vol. 4, no. 2, pp. 39-52, 2023, DOI: 10.48185/jitc.v4i2.852.
- [9] H. Ahn dan E. Park, "Motivations for user satisfaction of mobile fitness applications: An analysis of user experience based on online review comments," *Humanit. Soc. Sci. Commun.*, vol. 10, no. 3, 2023, DOI: 10.1057/s41599-022-01452-6.
- [10] J. N. Anggiyanti dan F. S. Papilaya, "Implementasi Pemodelan Topik BERTopic dan Analisis Sentimen BERT terhadap Ulasan Aplikasi Satusehat Berbasis Natural Language Processing Lanjutan," *JlPI (Jurnal Ilm. Penelit. dan Pembelajaran Informatika)*, vol. 11, no. 1, pp. 165-177, 2026, DOI: 10.29100/jipi.v11i1.7633.
- [11] M. R. Nur, Y. Wibisono, dan R. Megasari, "Analisis Sentimen dan Pemodelan Topik pada Post tentang Merek Teknologi di X Menggunakan Fine-tuning IndoBERT dan BERTopic," *Jurnal Komputer Teknologi Informasi Sistem Komputer (JUKTISI)*, vol. 4, no. 2, pp. 743-750, 2025, DOI: 10.62712/juktisi.v4i2.508.
- [12] N. A. Adrielvino dan A. T. Ayunda, "PENERAPAN INDOBERT DAN BERTOPIC DALAM ABSA UNTUK EVALUASI KUALITAS APLIKASI E-GOVERNMENT INDONESIA," *Rabit Jurnal Teknologi dan Sistem Informasi Univrab*, vol. 11, no. 1, pp. 847-868, 2026, DOI: 10.36341/rabit.v11i1.7143.
- [13] W. M. Sihombing dan T. Widiyaningtyas, "Sentiment Analysis and Topic Modelling Using IndoBERTweet and BERTopic for Public Health Issues," *Indones. J. Innov. Stud.*, vol. 26, no. 4, 2025, DOI: 10.21070/ijins.v26i4.1833.
- [14] D. Hayati, dkk., "ANALISIS KUALITAS APLIKASI KESEHATAN MENGGUNAKAN MODEL OVERALL USER EXPERIENCE (UX) DAN

- KONSEP CONTINUANCE INTENTION,” *JPP (Jurnal Kesehat. Poltekkes Palembang)*, vol. 16, no. 2, pp. 81–86, 2021, DOI: 10.36086/jpp.v16i1.489.
- [15] M. Karthan, dkk., “Enhancing mHealth data collection applications with sensing capabilities,” *Front. Public Health*, vol. 10, 2022, DOI: 10.3389/fpubh.2022.926234.
- [16] M. A. Brown, dkk., “Web scraping for research: Legal, ethical, institutional, and scientific considerations,” *Big Data & Society.*, vol. 12, no. 4, 2025, DOI: 10.1177/20539517251381686.
- [17] S. Rahayu, dkk., “Implementasi Metode K-Nearest Neighbor (K-NN) untuk Analisis Sentimen Kepuasan Pengguna Aplikasi Teknologi Finansial FLIP,” *Edumatic J. Pendidik. Inform.*, vol. 6, no. 1, pp. 98-106, 2022, DOI: 10.29408/edumatic.v6i1.5433.
- [18] R. C. Rivaldi dan T.D. Wismarini, “Analisis Sentimen Pada Ulasan Produk Dengan Metode Natural Language Processing (NLP),” *Elkom J. Elektron. dan Komput.*, vol. 17, no. 1, pp. 120-128, 2024, DOI: 10.51903/elkom.v17i1.1680.
- [19] N. M. Gardazi, dkk., “BERT applications in natural language processing: a review,” *Artif. Intell. Rev.*, vol. 58, no. 166, 2025, DOI: 10.1007/s10462-025-11162-5.
- [20] A. Joshy dan S. Sundar, “Analyzing the Performance of Sentiment Analysis using BERT, DistilBERT, and RoBERTa,” *2022 IEEE International Power and Renewable Energy Conference, IPRECON 2022*, Kollam, India, 2022. DOI: 10.1109/IPRECON55716.2022.10059542.
- [21] M. Grootendorst, “BERTopic: Neural topic modeling with a class-based TF-IDF procedure,” *ResearchGate*, [Online]. Tersedia: https://www.researchgate.net/publication/359208013_BERTopic_Neural_topic_modeling_with_a_class-based_TF-IDF_procedure (akses pada: 18 Oktober 2025).
- [22] R. Egger dan J. Yu, “A Topic Modeling Comparison Between LDA, NMF, Top2Vec, and BERTopic to Demystify Twitter Posts,” *Front. Sociol.*, vol. 7, 2022, DOI: 10.3389/fsoc.2022.886498.
- [23] B. R. N. Listyawan, N. Y. Setiawan, dan M. C. Saputra, “Topic modelling pada aktivitas pengembangan perangkat lunak menggunakan BERTopic,” *J. Pengemb. Teknol. Inf. dan Ilmu Komput.*, vol. 8, no. 8, 2024.
- [24] M. N. Kursiyanto, B. S. Rintyarna, dan Q. A’yun, “Analisis Sentimen Presepsi Masyarakat Dalam Menghadapi Resesi 2023 Pada Twitter Dengan Metode Bidirectional Encoder Representations From Transformers (BERT),” *Jurnal Apl. Sist. Inf. dan Elektron.*, vol. 6, no. 1, pp. 61-73, 2024.
- [25] N. Sikana, dkk., “Analisis Sentimen untuk Ulasan Produk E-Commerce Shopee Menggunakan BERT,” *J. Sifo Mikroskil*, vol. 26, no. 2, 2025, DOI: 10.55601/jsm.v26i2.1796.
- [26] N. P. Adam, R. Gernowo, dan B. Surarso, “Integration of BERTopic and IndoBERTweet for Aspect-Based Sentiment Analysis (ABSA) on Short Text Data: A Case Study of Responses to Government Policies in 2025,” *J. Econ. Technol. Bus.*, vol. 5, no. 1, pp. 37–53, 2026, DOI: doi.org/10.57185/k9s34530.
- [27] D. Khurana, dkk., “Natural language processing: state of the art, current trends and challenges,” *Multimed. Tools Appl.*, vol. 82, no. 3, pp. 3713-3744, 2023, DOI: 10.1007/s11042-022-13428-4.
- [28] R. Egger dan E. Gokce, “Natural Language Processing (NLP): An Introduction,” *Applied data science in tourism: Interdisciplinary approaches, methodologies, and applications*, pp. 307-334, 2022. DOI: 10.1007/978-3-030-88389-8_15.
- [29] A. Gudivada, D. L. Rao, dan V. N. Gudivada, “*Linguistics: Core Concepts and Principles*,” vol. 38, Elsevier, Amsterdam, 2018. DOI: 10.1016/bs.host.2018.07.005.
- [30] A. Joshi, dkk., “Natural Language Processing for Dialects of a Language: A Survey,”

- ACM Comput. Surv.*, vol. 57, no. 6, pp. 1-37, 2025, DOI: 10.1145/3712060.
- [31] M. Canonico dan L. De Russis, "A Comparison and Critique of Natural Language Understanding Tools," *CLOUD Comput. 2018 Ninth Int. Conf. Cloud Comput. GRIDs, Virtualization*, pp. 110-115, 2018.
 - [32] N. Karanikolas, dkk., "Large Language Models versus Natural Language Understanding and Generation," *ACM International Conference Proceeding Series*, Lamia, Greece, 2023, pp. 278-290, DOI: 10.1145/3635059.3635104.
 - [33] C. S. Kulkarni, "The Evolution of Large Language Models in Natural Language Understanding," *J. Artif. Intell. Mach. Learn. Data Sci.*, vol. 1, no. 4, pp. 49-53, 2023, DOI: 10.51219/jaimld/chinmay-shripad-kulkarni/28.
 - [34] C. Dong, dkk., "A Survey of Natural Language Generation," *ACM Comput. Surv.*, vol. 55, no. 8, pp. 1-38, 2023, DOI: 10.1145/3554727.
 - [35] A. Ligthart, C. Catal, dan B. Tekinerdogan, "Systematic reviews in sentiment analysis: a tertiary study," *Artif. Intell. Rev.*, vol. 54, no. 7, pp. 4997-5053, 2021, DOI: 10.1007/s10462-021-09973-3.
 - [36] W. Medhat, A. Hassan, dan H. Korashy, "Sentiment analysis algorithms and applications: A survey," *Ain Shams Eng. J.*, vol. 5, no. 4, pp. 1093-1113, 2014, DOI: 10.1016/j.asej.2014.04.011.
 - [37] K. L. Tan, C. P. Lee, dan K. M. Lim, "A Survey of Sentiment Analysis: Approaches, Datasets, and Future Research," *Applied Sciences*, vol. 13, no. 7, pp. 4550, 2023. DOI: 10.3390/app13074550.
 - [38] M. Wankhade, A. C. S. Rao, dan C. Kulkarni, "A survey on sentiment analysis methods, applications, and challenges," *Artif. Intell. Rev.*, vol. 55, no. 7, pp. 5731-5780, 2022, DOI: 10.1007/s10462-022-10144-1.
 - [39] L. O. Lukmana, "ANALISIS SENTIMEN TERHADAP ULASAN PENGGUNA APLIKASI THREADS INSTAGRAM DI PLAYSTORE MENGGUNAKAN ALGORITMA NAIVE BAYES," *J. Inform. dan Tek. Elektro Terap.*, vol. 13, no. 2, 2025, DOI: 10.23960/jitet.v13i2.6250.
 - [40] D. Septiani dan I. Isabela, "Analisis Term Frequency Inverse Document Frequency (tf-idf) Dalam Temu Kembali Informasi Pada Dokumen Teks," *Sintesia*, vol. 1, no.2, pp. 81-88, 2022.
 - [41] A. Nurdin, dkk., "PERBANDINGAN KINERJA WORD EMBEDDING WORD2VEC, GLOVE, DAN FASTTEXT PADA KLASIFIKASI TEKS," *J. Tekno Kompak*, vol. 14, no. 2, pp.74, 2020, DOI: 10.33365/jtk.v14i2.732.
 - [42] T. Abdullah dan A. Ahmet, "Deep Learning in Sentiment Analysis: Recent Architectures," *ACM Comput. Surv.*, vol. 55, no. 8, pp. 1-37, 2023, DOI: 10.1145/3548772.
 - [43] R. Paul, M. H. Imam, dan A. J. Mou, "AI-POWERED SENTIMENT ANALYSIS IN DIGITAL MARKETING: A REVIEW OF CUSTOMER FEEDBACK LOOPS IN IT SERVICES," *Am. J. Sch. Res. Innov.*, vol. 2, no. 2, pp. 166-192, 2023, DOI: 10.63125/61pqqq54.
 - [44] M. Alloghani, dkk., "A Systematic Review on Supervised and Unsupervised Machine Learning Algorithms for Data Science," Springer, Switzerland: Cham, 2020. DOI: 10.1007/978-3-030-22475-2_1.
 - [45] M. I. Jordan dan T. M. Mitchell, "Machine learning: Trends, perspectives, and prospects," *Science*, vol. 349, no. 6245, pp. 255-260, 2015. DOI: 10.1126/science.aaa8415.
 - [46] M. C. Mazilu, "Web Scraping and Ethics in Automated Data Collection," *Education, Research and Business Technologies: Proceedings of 20th International Conference on Informatics in Economy (IE 2021)*, Singapore, 2022, pp. 285-294, DOI:

- 10.1007/978-981-16-8866-9_24.
- [47] C. Lotfi, dkk., “Web Scraping Techniques and Applications: A Literature Review,” *SCRS CONFERENCE PROCEEDINGS ON INTELLIGENT SYSTEMS*, New Delhi, India, 2021, pp. 381-394, DOI: 10.52458/978-93-91842-08-6-38.
 - [48] M. A. Wahed, dkk., “Automating Web Data Collection: Challenges, Solutions, and Python-Based Strategies for Effective Web Scraping,” *2024 7th International Conference on Internet Applications, Protocols, and Services, NETAPPS 2024*, Kuala Lumpur, Malaysia, 2024, pp. 1-6, DOI: 10.1109/NETAPPS63333.2024.10823528.
 - [49] R. M. W. P. K. Atmaja dan W. Yustanti, “Analisis Sentimen Customer Review Aplikasi Ruang Guru dengan Metode BERT (Bidirectional Encoder Representations from Transformers),” *Jeisbi*, vol. 2, no. 3, 2021, DOI: doi.org/10.26740/jeisbi.v2i3.41567.
 - [50] H. Aldabbas, dkk., “Google Play Content Scraping and Knowledge Engineering using Natural Language Processing Techniques with the Analysis of User Reviews,” *J. Intell. Syst.*, vol. 30, no. 1, pp. 192-208, 2020, DOI: 10.1515/jisys-2019-0197.
 - [51] JoMingyu, “Google-Play-Scraper,” *GitHub Repository*, [Online]. Tersedia: <https://github.com/JoMingyu/google-play-scraper> (akses pada: 01 Januari 2026).
 - [52] S. Chandhiramowuli, dkk., “Making Data Work Count,” *Proc. ACM Human-Computer Interact.*, vol. 8, no. CSCW1, pp. 1-26, 2024, DOI: 10.1145/3637367.
 - [53] W. Ahmad, dkk., “Enhanced sentiment analysis regarding COVID-19 news from global channels,” *J. Comput. Soc. Sci.*, vol. 6, no. 1, pp. 19-57, 2023, DOI: 10.1007/s42001-022-00189-1.
 - [54] D. H. Nguyen, A. T. H. Nguyen, dan K. Van Nguyen, “A Weakly Supervised Data Labeling Framework for Machine Lexical Normalization in Vietnamese Social Media,” *Cognit. Comput.*, vol. 17, no. 1, pp. 57, 2025, DOI: 10.1007/s12559-024-10356-3.
 - [55] Q. Huang dan T. Zhao, “Data Collection and Labeling Techniques for Machine Learning,” *HAL Open Science*, [Online]. Tersedia: <https://hal.science/hal-04621047v1> (akses pada: 20 Oktober 2025).
 - [56] I. Hmeidi, dkk., “A lexicon based approach for classifying Arabic multi-labeled text,” *Int. J. Web Inf. Syst.*, vol. 12, no. 4, pp. 504-532, 2016, DOI: 10.1108/IJWIS-01-2016-0002.
 - [57] C. J. Hutto dan E. Gilbert, “VADER: A parsimonious rule-based model for sentiment analysis of social media text,” *Proceedings of the 8th International Conference on Weblogs and Social Media, ICWSM 2014*, Michigan, USA, 2014, DOI: 10.1609/icwsml.v8i1.14550.
 - [58] C. J. Hutto dan E. Gilbert, “VADER Sentiment Analysis GitHub page,” *GitHub Repository*, [Online]. Tersedia: <https://github.com/cjhutto/vaderSentiment> (akses pada: 01 Januari 2026).
 - [59] R. Gupta, “Bidirectional encoders to state-of-the-art: a review of BERT and its transformative impact on natural language processing,” *Информатика. Экономика. Управление - Informatics. Econ. Manag.*, vol. 3, no. 1, pp. 0311-0320, 2024, DOI: 10.47813/2782-5280-2024-3-1-0311-0320.
 - [60] A. Vaswani, dkk., “Attention is all you need,” *Advances in Neural Information Processing Systems*, vol. 30, pp. 1, 2017, DOI: 10.1201/9781003561460-19.
 - [61] J. Devlin, dkk., “BERT: Pre-training of deep bidirectional transformers for language understanding,” *Proceeding 2019 Conference North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*, Minneapolis, MN, USA: Association for Computational Linguistics, 2019, pp. 4171-4186, DOI: 10.18653/v1/N19-1423.

- [62] X. Zhang, dkk., "Text Sentiment Classification Based on BERT Embedding and Sliced Multi-Head Self-Attention Bi-GRU," *Sensors*, vol. 23, no. 3, pp. 1481, 2023, DOI: 10.3390/s23031481.
- [63] J. L. Ba, J. R. Kiros, dan G. E. Hinton, "Layer Normalization," *ResearchGate*, [Online]. Tersedia: https://www.researchgate.net/publication/305492267_Layer_Normalization (akses pada: 01 Januari 2026).
- [64] A. Muzakir, K. Adi, dan R. Kusumaningrum, "Advancements in Semantic Expansion Techniques for Short Text Classification and Hate Speech Detection," *Ing. des Syst. d'Information*, vol. 28, no. 3, pp. 545-556, 2023, DOI: 10.18280/isi.280302.
- [65] M. Sumit dan B. Abhijeet, "Pooling Attention: Evaluating Pretrained Transformer Embeddings for Deception Classification," *2025 Computing, Communications and IoT Applications (ComComAp)*, pp. 358-363, 2025, DOI: 10.1109/ComComAp68359.2025.11353127.
- [66] M. Zhang, dkk., "Learning universal sentence representations with mean-max attention autoencoder," *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing, EMNLP 2018*, Brussels, Belgium, 2018, pp. 4514-4523, DOI: 10.18653/v1/d18-1481.
- [67] E. A. U. Malahina, dkk., "Teachable Machine: Optimization of Herbal Plant Image Classification Based on Epoch Value, Batch Size and Learning Rate," *J. Appl. Data Sci.*, vol. 5, no. 2, pp. 532-545, 2024, DOI: 10.47738/jads.v5i2.206.
- [68] W. Skarbek, "Cross Entropy in Deep Learning of Classifiers Is Unnecessary—ISBE Error Is All You Need," *Entropy*, vol. 26, no. 1, 2024, DOI: 10.3390/e26010065.
- [69] B. D. Jadhav, dkk., "Real-Time Violence Detection and Alert System," *J. Inf. Syst. Eng. Manag.*, vol. 10, no. 55s, pp. 1-9, 2025. DOI: 10.55041/IJSREM48137
- [70] R. Churchill dan L. Singh, "The Evolution of Topic Modeling," *ACM Comput. Surv.*, vol. 54, no. 10s, pp. 1-35, 2022, DOI: 10.1145/3507900.
- [71] B. V. Barde and A. M. Bainwad, "An overview of topic modeling methods and tools," *Proceedings of the 2017 International Conference on Intelligent Computing and Control Systems, ICICCS 2017*, Madurai, India, 2017, pp. 745-750, DOI: 10.1109/ICCONS.2017.8250563.
- [72] M. Grootendorst, "The Algorithm – BERTopic," *GitHub Pages Documentation*. [Online]. Tersedia: <https://maartengr.github.io/BERTopic/algorithm/algorithm.html> (akses pada: 03 Februari 2026).
- [73] Uliyatunisa, dkk., "Narasi Presiden Indonesia: Analisis Wacana Politik Menggunakan BERTopic dalam Mengungkap Pola Tematik Pidato Presiden," *Build. Informatics, Technol. Sci.*, vol. 7, no. 2, pp. 1367–1379, 2025, DOI: 10.47065/bits.v7i2.8298.
- [74] D. Prastyo, D. Irawan, dan I. H. Mursyidin, "Klasifikasi Sentimen Komentar YouTube dengan NLP pada Debat Pilkada Banten 2024," *bit-Tech*, vol. 7, no. 2, pp. 413-421, 2024, DOI: 10.32877/bt.v7i2.1833.
- [75] M. A. Mersha, M. Gameda Yigezu, dan J. Kalita, "Semantic-Driven Topic Modeling Using Transformer-Based Embeddings and Clustering Algorithms," *Procedia Computer Science*, vol. 244, pp. 121-132, 2024, DOI: 10.1016/j.procs.2024.10.185.
- [76] Syahrial dan R. P. F. Afidh, "Fine-Tuning Topic Modelling: A Coherence-Focused Analysis of Correlated Topic Models," *Infolitika J. Data Sci.*, vol. 2, no. 2, pp. 82-87, 2024, DOI: 10.60084/ijds.v2i2.236.
- [77] P. Menaspà, "Effortless activity tracking with Google Fit," *British journal of sports medicine*, vol. 49, no. 24, pp. 1598-1598, 2015. DOI: 10.1136/bjsports-2015-094925.
- [78] Google, "Google Fit Help," *Google Support*. [Online]. Tersedia: <https://support.google.com/fit/?sjid=5697455751861827790->

- NC#6223934&topic=6075053 (akses pada: 24 November 2025).
- [79] L. Petrillo, F. Mercaldo, dan A. Santone, "An explainable method for security requirements classification through transformer models," *Futur. Gener. Comput. Syst.*, vol. 183, no. 108544, 2026, DOI: 10.1016/j.future.2026.108544.

