

**Daftar Pustaka**

- [1] M. Qalimaturrahmah and D. B. Santoso, “Aplikasi Layanan dan Informasi Akademik Berbasis Chatbot Telegram Menggunakan Natural Language Processing,” *J. JTIK (Jurnal Teknol. Inf. dan Komunikasi)*, vol. 8, no. 2, pp. 434–443, 2024, doi: 10.35870/jtik.v8i2.1887.
- [2] A. L. Maitri and J. Sutopo, “Rancangan Bangun Chatbot Sebagai Pusat Informasi Lembaga Kursus Dan Pelatihan Menggunakan Pendekatan Natural Language Processing,” *Eprints.Uty.Ac.Id*, pp. 1–9, 2019, [Online]. Available: <http://eprints.uty.ac.id/>
- [3] J. Devlin, M. W. Chang, K. Lee, and K. Toutanova, “BERT: Pre-training of deep bidirectional transformers for language understanding,” *NAACL HLT 2019 - 2019 Conf. North Am. Chapter Assoc. Comput. Linguist. Hum. Lang. Technol. - Proc. Conf.*, vol. 1, no. Mlm, pp. 4171–4186, 2019.
- [4] F. Koto, A. Rahimi, J. H. Lau, and T. Baldwin, “IndoLEM and IndoBERT: A Benchmark Dataset and Pre-trained Language Model for Indonesian NLP,” *COLING 2020 - 28th Int. Conf. Comput. Linguist. Proc. Conf.*, pp. 757–770, 2020, doi: 10.18653/v1/2020.coling-main.66.
- [5] I. Hafidz *et al.*, “Chatbot Model Development Using BERT for West Sumatra Halal Tourism Information,” *Halal Res.*, vol. 4, no. 2, pp. 117–131, 2024.
- [6] D. Wulandari and J. S. Wibowo, “Implementasi Chatbot Menggunakan Framework Rasa Untuk Layanan Informasi Wisata Di Kota Pati,” *INTECOMS J. Inf. Technol. Comput. Sci.*, vol. 6, no. 2, pp. 794–801, 2023, doi: 10.31539/intecom.v6i2.7107.
- [7] N. P. V. D. Saraswati, N. Yudistira, and P. P. Adikara, “Analisis Sentimen terhadap Perundungan Siber pada Twitter menggunakan Algoritma Bidirectional Encoder Representations from Transformer (BERT),” *J. Pengemb. Teknol. Inf. dan Ilmu Komput.*, vol. 7, no. 2, pp. 909–916, 2023, [Online]. Available: <https://j-ptiik.ub.ac.id/index.php/j-ptiik/article/view/12345>
- [8] D. W. Harahap and L. Fitria, “Aplikasi Chatbot Berbasis Web Menggunakan Metode Dialogflow,” *J-ICOM - J. Inform. dan Teknol. Komput.*, vol. 1, no. 1, pp. 6–13, 2020, doi: 10.33059/j-icom.v1i1.2796.
- [9] V. R. Prasetyo, N. Benarkah, and V. J. Chrisintha, “Implementasi Natural Language Processing Dalam Pembuatan Chatbot Pada Program Information Technology Universitas Surabaya,” *Teknika*, vol. 10, no. 2, pp. 114–121, 2021, doi: 10.34148/teknika.v10i2.370.
- [10] A. Vaswani *et al.*, “Attention is all you need,” *Adv. Neural Inf. Process. Syst.*, vol. 2017-Decem, no. Nips, pp. 5999–6009, 2017.
- [11] J. Opitz, “From Bias and Prevalence to Macro F1, Kappa, and MCC: A structured overview of metrics for multi-class evaluation,” 2022.