

## DAFTAR PUSTAKA

- Ahmed, D. M., Hassan, M. M., & Mstafa, R. J. (2022). A review on deep sequential models for forecasting time series data. *Applied Computational Intelligence and Soft Computing*, 2022, 1-19. <https://doi.org/10.1155/2022/6596397>
- Angelica, F., Hydro, R., Sulistiya, Z. D., Muliono, Y., & Prasetyo, S. Y. (2023). DeepLyric: Predicting music emotions through LSTM-GRU hybrid models with regularization techniques. *Procedia Computer Science*, 227, 973–980. <https://doi.org/10.1016/j.procs.2023.10.606>
- Barito Renewables. 2025a. *Barito Renewables – Make tomorrow brighter*. Tersedia: <https://www.baritorenrenewables.co.id> (diakses pada tanggal 8 September 2025).
- Barito Renewables. 2025b. *FY-2024 BREN Performance*. Tersedia: <https://www.baritorenrenewables.co.id/en/press-release/fy-2024-bren-performance> (diakses pada tanggal 8 September 2025).
- Bengio, Y., Simard, P., & Frasconi, P. (1994). Learning long-term dependencies with gradient descent is difficult. *IEEE Transactions on Neural Networks*, 5(2), 157-166. <https://doi.org/10.1109/72.279181>
- Box, G. E. P., Jenkins, G. M., Reinsel, G. C., & Ljung, G. M. (2016). *Time Series Analysis* (5th edition). Hoboken, NJ: John Wiley & Sons, Inc.
- Brownlee, J. (2018). *Deep learning for time series forecasting: Predict the future with MLPs, CNNs and LSTMs in Python*. San Juan, Puerto Rico: Machine Learning Mastery.
- Brownlee, J. 2019a. How to convert a time series to a supervised learning problem in Python. *Machine Learning Mastery*. Tersedia: <https://machinelearningmastery.com/convert-time-series-supervised-learning-problem-python/> (diakses pada 20 Oktober 2025).
- Brownlee, J. 2019b. Early stopping to avoid overtraining neural network models. *Machine Learning Mastery*. Tersedia: <https://machinelearningmastery.com/early-stopping-to-avoid-overtraining-neural-network-models/> (diakses pada tanggal 22 Oktober 2025).
- Brownlee, J. 2019c. Learning curves for diagnosing machine learning model performance. *Machine Learning Mastery*. Tersedia: <https://machinelearningmastery.com/learning-curves-for-diagnosing-machine-learning-model-performance/> (diakses pada tanggal 22 Oktober 2025).
- Brownlee, J. 2020. How to control the stability of training neural networks with the batch size. *Machine Learning Mastery*. Tersedia: <https://machinelearningmastery.com/how-to-control-the-speed-and-stability-of-training-neural-networks-with-gradient-descent-batch-size/> (diakses pada tanggal 22 Oktober 2025).

- Brownlee, J. 2022. *Time Series Prediction with LSTM Recurrent Neural Networks in Python with Keras*. Tersedia: <https://www.machinelearningmastery.com/time-series-prediction-lstm-recurrent-neural-networks-python-keras/> (diakses pada tanggal 20 Oktober 2025).
- Budiharto, W. (2021). *Data Science Approach to Stock Prices Forecasting in Indonesia during Covid-19 using Long Short-Term Memory (LSTM)*. *Journal of Big Data*, 8(1), 1-17. <https://doi.org/10.1186/s40537-021-00430-0>
- Cerqueira, V., & Roque, L. (2024). *Deep learning for time series cookbook: use PyTorch and Python recipes for forecasting, classification, and anomaly detection*. Birmingham, UK: Packt Publishing Ltd.
- Chen, X., & Yang, J. (2024). PLG-IQB: Parallel LSTM-GRU with improved QuickBundles for vessel trajectory prediction. *Proceedings of the 2024 9th International Conference on Intelligent Computing and Signal Processing, (ICSP)*, 1600–1604. <https://doi.org/10.1109/ICSP62122.2024.10743923>
- Chi, D. T. K., Kien, H. N. T., & Nguyen, T. Q. (2025). *Enhancing forex market forecasting with feature-augmented multivariate LSTM models using real-time data*. *Knowledge-Based Systems*, 330, 114500. <https://doi.org/10.1016/j.knosys.2025.114500>
- Cho, K., van Merriënboer, B., Bahdanau, D., & Bengio, Y. (2014). On the properties of neural machine translation: Encoder-decoder approaches. *Proceedings of the Eighth Workshop on Syntax, Semantics in Statistical Translation*, 103-111. <https://doi.org/10.3115/V1/W14-4012>
- Chung, J., Gulcehre, C., Cho, K., & Bengio, Y. (2014). Empirical evaluation of gated recurrent neural networks on sequence modeling. *arXiv*. <https://doi.org/10.48550/arXiv.1412.3555>
- Dananjaya, R. H., Sutrisno, S., & Fitriady, S. (2022). Penerapan artificial neural network (ANN) dalam memprediksi kapasitas dukung fondasi tiang. *Matriks Teknik Sipil*, 10(4), 419-427. <https://doi.org/10.20961/mateksi.v10i4.65034>
- Dietterich, T. G. (2002). Machine learning for sequential data: A review. *In Proceedings of the Joint IAPR International Workshops on Statistical Pattern Recognition and Structural Pattern Recognition*. Berlin, Heidelberg: Springer-Verlag. <http://www.cs.orst.edu/~tgd>
- Dobilas, S. 2022a. LSTM recurrent neural networks – How to teach a network to remember the past. *Towards Data Science*. Tersedia: <https://medium.com/data-science/lstm-recurrent-neural-networks-how-to-teach-a-network-to-remember-the-past-55e54c2ff22e> (diakses pada tanggal 8 September 2025).
- Dobilas, S. 2022b. GRU recurrent neural networks – A smart way to predict sequences in Python. *Towards Data Science*. Tersedia: <https://medium.com/data-science/gru-recurrent-neural-networks-a-smart-way-to-predict-sequences-in-python-80864e4fe9f6> (diakses pada tanggal 8 September 2025).

- Elman, J. L. (1990). Finding structure in time. *Cognitive Science*, 14(2), 179–211. [https://doi.org/10.1207/s15516709cog1402\\_1](https://doi.org/10.1207/s15516709cog1402_1)
- Farhadi, A., Zamanifar, A., Alipour, A., Taheri, A., & Asadollahi, M. (2025). A hybrid LSTM–GRU model for stock price prediction. *IEEE Access*, 13, 1–15. <https://doi.org/10.1109/ACCESS.2025.3586538>
- Foroutan, P., & Lahmiri, S. (2024). Deep learning systems for forecasting the prices of crude oil and precious metals. *Financial Innovation*, 10(1), 1-40. <https://doi.org/10.1186/s40854-024-00637-z>
- Furizal, Ritonga, A., Ma'arif, A., & Suwarno, I. (2024). Stock price forecasting with multivariate time series long short-term memory: A deep learning approach. *Journal of Robotics and Control (JRC)*, 5(5), 1322–1335. <https://doi.org/10.18196/jrc.v5i5.22460>
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep Learning*. Cambridge, MA: The MIT Press.
- Graves, A., Mohamed, A., & Hinton, G. (2013). Speech recognition with deep recurrent neural networks. *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing*, 6645–6649. IEEE. <https://doi.org/10.1109/ICASSP.2013.6638947>
- Gridin, I. (2022). *Time Series Forecasting using Deep Learning: Combining PyTorch, RNN, TCN, and Deep Neural Network Models to Provide Production-Ready Prediction Solutions*. New Delhi, India: BPB Publications. [www.bpbonline.com](http://www.bpbonline.com)
- Gustineli, M. (2022). A survey on recently proposed activation functions for deep learning. <https://doi.org/10.48550/arXiv.2204.02921>
- Hamzaçebi, C., Akay, D., & Kutay, F. (2009). Comparison of direct and iterative artificial neural network forecast approaches in multi-periodic time series forecasting. *Expert Systems with Applications*, 36(2, Part 2), 3839–3844. <https://doi.org/10.1016/j.eswa.2008.02.042>
- Han, J., Kamber, M., & Pei, J. (2011). *Data Mining. Concepts and techniques* (3rd Edition). Morgan Kaufmann. Burlington, MA: Morgan Kaufmann.
- Haykin, S. (1999). *Neural networks - A comprehensive foundation - Simon Haykin* (2nd ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Hochreiter, S., & Schmidhuber, J. (1997). Long short-term memory. *Neural Computation*, 9(8), 1735–1780. <https://doi.org/10.1162/neco.1997.9.8.1735>
- Hyndman, R. J., & Koehler, A. B. (2006). Another look at measures of forecast accuracy. *International Journal of Forecasting*, 22(4), 679–688. <https://doi.org/10.1016/j.ijforecast.2006.03.001>
- IESR (2024). *Indonesia Energy Transition Outlook 2025. Institute for Essential Services Reform*, 5. [www.iesr.or.id](http://www.iesr.or.id)

- Investing.com. 2024. Kapasitas pembangkit listrik naik topang BREN raup pendapatan USD594 juta di tahun 2023. Tersedia: <https://id.investing.com/news/stock-market-news/kapasitas-pembangkit-listrik-naik-topang-bren-raup-pendapatan-usd594-juta-di-tahun-2023-2491659> (diakses pada tanggal 8 September 2025).
- Investing.com. 2025. Data historis Barito Renewables Energy PT Tbk (BREN). Tersedia: <https://www.investing.com/equities/barito-renewables-energy-pt-tbk-historical-data> (diakses pada tanggal 8 September 2025).
- Ioffe, S., & Szegedy, C. (2015). Batch normalization: Accelerating deep network training by reducing internal covariate shift. *Proceedings of the 32nd International Conference on Machine Learning*, 448–456. PMLR. <https://proceedings.mlr.press/v37/ioffe15.html>
- Kang, S. (2025). *Stock price prediction using triple barrier labeling and raw OHLCV data: Evidence from korean markets*. arXiv. <https://doi.org/10.48550/arXiv.2504.02249>
- Kim, J., Kim, H., Kim, H. G., Lee, D., & Yoon, S. (2025). *A comprehensive survey of deep learning for time series forecasting: Architectural diversity and open challenges*. *Artificial Intelligence Review*, 58(7), 216. <https://doi.org/10.1007/s10462-025-11223-9>
- Kingma, D. P., & Ba, J. (2015). *Adam: A method for stochastic optimization*. arXiv. <https://doi.org/10.48550/arXiv.1412.6980>
- Lasijan, T. G., Santoso, R., & Hakim, A. R. (2023). Prediksi harga emas dunia menggunakan metode long-short term memory. *Jurnal Gaussian*, 12(2), 287–295. <https://doi.org/10.14710/j.gauss.12.2.287-295>
- Liu, Z., Zhang, Z., & Zhang, W. (2025). *A hybrid framework integrating traditional models and deep learning for multi-scale time series forecasting*. *Entropy*, 27(7), 695. <https://doi.org/10.3390/e27070695>
- Luthfi, M. R., & Syah, R. D. (2025). Model deep learning untuk analisis prediksi harga saham menggunakan metode long short-term memory (LSTM). *Jurnal Ilmiah Ekonomi Bisnis*, 30(1), 201–213. <https://doi.org/10.35760/eb.2025.v30i1.11870>
- Makridakis, S. G. (1983). *Forecasting Methods and applications* (2nd ed.). New York, NY: John Wiley & Sons.
- Makridakis, S., Spiliotis, E., & Assimakopoulos, V. (2020). The M4 competition: 100,000 time series and 61 forecasting methods. *International Journal of Forecasting*, 36(1), 54–74. <https://doi.org/10.1016/j.ijforecast.2019.04.014>
- Montgomery, D. C., Jennings, C. L., & Kulahci, M. (2015). *Introduction to Time Series Analysis and Forecasting* (2nd ed.). Hoboken, NJ: John Wiley & Sons.
- Mwandau, B., & Nyanchama, M. (2018). *Investigating keystroke dynamics as a two-factor biometric security*. <https://www.researchgate.net/publication/325870973>

- Ni, R., & Cao, H. (2020). Sentiment analysis based on GloVe and LSTM-GRU. *Proceedings of the 39th Chinese Control Conference*, 7492–7497. <https://doi.org/10.23919/CCC50068.2020.9188578>
- Otoritas Jasa Keuangan & Badan Pusat Statistik. (2025). *Siaran pers: OJK dan BPS umumkan hasil survei nasional literasi dan inklusi keuangan (SNLIK) tahun 2025*. Tersedia: <https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/OJK-dan-BPS-Umumkan-Hasil-Survei-Nasional-Literasi-Dan-Inklusi-Kuangan-SNLIK-Tahun-2025.aspx> (diakses pada tanggal 12 September 2025).
- Paliari, I., Karanikola, A., & Kotsiantis, S. (2021, July 12). A comparison of the optimized LSTM, XGBoost and ARIMA in time series forecasting. *Proceedings of the 12th International Conference on Information, Intelligence, Systems and Applications (IISA)*. IEEE. <https://doi.org/10.1109/IISA52424.2021.9555520>
- Pangesti (2025). 21+ saham sektor infrastruktur di BEI: Peluang investasi dan tantangannya. *InvestasiKu*. Tersedia: <https://www.investasiku.id/eduvest/saham/saham-infrastruktur-di-bursa> (diakses pada tanggal 8 September 2025).
- Paningrum, D. (2022). *Buku referensi investasi pasar modal*. Kediri: Lembaga Chakra Brahmanda Lentera. <https://sites.google.com/view/penerbitcandle>
- Pascanu, R., Mikolov, T., & Bengio, Y. (2013). On the difficulty of training recurrent neural networks. *Proceedings of the 30th International Conference on Machine Learning*, 1310–1318. PMLR. <https://proceedings.mlr.press/v28/pascanu13.html>
- Rumelhart, D. E., Hinton, G. E., & Williams, R. J. (1986). Learning representations by back-propagating errors. *Nature*, 323(6088), 533–536. <https://doi.org/10.1038/323533a0>
- Schnaubelt, M. (2019). *A comparison of machine learning model validation schemes for non-stationary time series data*. FAU Discussion Papers in Economics No. 11/2019. Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute for Economics. <https://hdl.handle.net/10419/209136>
- Song, P. 2025. Grid search vs random search vs Bayesian optimization. Tersedia: <https://mljourney.com/grid-search-vs-random-search-vs-bayesian-optimization/> (diakses pada tanggal 21 Oktober 2025).
- Srivastava, N., Hinton, G., Krizhevsky, A., & Salakhutdinov, R. (2014). Dropout: A simple way to prevent neural networks from overfitting. *Journal of Machine Learning Research*, 15, 1929-1958. <https://www.jmlr.org/papers/v15/srivastava14a.html>
- Taieb, S. Ben, Bontempi, G., Atiya, A., & Sorjamaa, A. (2011). A review and comparison of strategies for multi-step ahead time series forecasting based on the NN5 forecasting competition. *Expert Systems with Applications*, 39(8), 7067–7083. <https://doi.org/10.1016/j.eswa.2012.01.039>

- Tarigan, G. A., Hermawan, E., & Girsang, A. S. (2024). Parallelization of LSTM-GRU architectures for multivariate prediction of stock prices. *Proceedings of 2024 International Conference on Information Management and Technology*, 311–315. <https://doi.org/10.1109/ICIMTech63123.2024.10780885>
- Thomas, J. (2024). Engineering deep learning models to analyze the non-linear-lag effect of environmental factors on the occurrence of schizophrenia. *International Journal of Intelligent Systems and Applications in Engineering*, 583–596. [www.ijisae.org](http://www.ijisae.org)
- Vishwas, B. V., & Patel, A. (2020). Hands-on time series analysis with Python. Apress. Berkeley, CA: Apress. <https://doi.org/10.1007/978-1-4842-5992-4>
- Wang, R. Y., & Strong, D. M. (1996). Beyond accuracy: What data quality means to data consumers. *Journal of Management Information Systems*, 12(4), 5-33. <https://doi.org/10.1080/07421222.1996.11518099>
- Waqas, M., & Humphries, U. W. (2024). A critical review of RNN and LSTM variants in hydrological time series predictions. *MethodsX*, 13, 102946. Elsevier B.V. <https://doi.org/10.1016/j.mex.2024.102946>
- Wayan, I., & Suranata, A. (2023). Pengembangan model prediksi curah hujan di Kota Denpasar menggunakan metode LSTM dan GRU. *Jurnal Sistem dan Informatika (JSI)*, 18(1), 1-12. <https://doi.org/10.30864/jsi.v18i1.603>
- Werbos, P. J. (1988). Generalization of backpropagation with application to a recurrent gas market model. *Neural Networks*, 1(4), 339–356. [https://doi.org/10.1016/0893-6080\(88\)90007-X](https://doi.org/10.1016/0893-6080(88)90007-X)
- Xiao, D., & Su, J. (2022). Research on stock price time series prediction based on deep learning and autoregressive integrated moving average. *Scientific Programming*, 2022, 4758698. <https://doi.org/10.1155/2022/4758698>
- Yunita, A., Pratama, M. I., Almuzakki, M. Z., Ramadhan, H., Akhir, E. A. P., Firdausiah Mansur, A. B., & Basori, A. H. (2025). Performance analysis of neural network architectures for time series forecasting: A comparative study of RNN, LSTM, GRU, and hybrid models. *MethodsX*, 15, 103462. <https://doi.org/10.1016/j.mex.2025.103462>
- Zhang, A., Lipton, Z. C., Li, M., & Smola, A. J. (2021). *Dive into deep learning*. Cambridge, UK: Cambridge University Press. <https://d2l.ai>
- Zhu, D., Shen, S., Dai, X.-Y., & Chen, J. (2017). Going wider: Recurrent neural network with parallel cells. *arXiv*. <https://doi.org/10.48550/arXiv.1705.01346>
- Zou, Z., & Qu, Z. (2020). Using LSTM in stock prediction and quantitative trading. *CS230: Deep Learning*, Stanford University. [https://cs230.stanford.edu/projects\\_winter\\_2020/reports/32066186.pdf](https://cs230.stanford.edu/projects_winter_2020/reports/32066186.pdf)