

BIBLIOGRAPHY

- Arepalli, P.G., and Naik, K.J. (2023) 'An IoT-based water contamination analysis for aquaculture using lightweight multi-headed GRU model'. *Environmental Monitoring Assessment* 195, 1516 (2023). Available at: <https://doi.org/10.1007/s10661-023-12126-4>
- Azaria, N. (2024) 'A Comprehensive Guide to Mean Absolute Percentage Error (MAPE)', *Aporia*. Accessed May 4, 2024 at <https://www.aporia.com/learn/a-comprehensive-guide-to-mean-absolute-percentage-error-mape/>
- Bachtiar, Y. (2006) '*Panduan lengkap budi daya lele dumbo*', Cet 1, AgroMedia Pustaka, Jakarta.
- Chung, J., Gulcehre, C., Cho, K., and Bengio, Y. (2014) 'Empirical Evaluation of Gated Recurrent Neural Networks on Sequence Modeling'. arXiv. Available at: <http://arxiv.org/abs/1412.3555> (Accessed: 5 April 2024).
- Eneh, A.H. *et al.* (2023) 'Towards an improved internet of things sensors data quality for a smart aquaponics system yield prediction', *MethodsX*, 11, p. 102436. Available at: <https://doi.org/10.1016/j.mex.2023.102436>.
- Gao, G., Xiao, K. and Chen, M. (2019) 'An intelligent IoT-based control and traceability system to forecast and maintain water quality in freshwater fish farms', *Computers and Electronics in Agriculture*, 166, p. 105013. Available at: <https://doi.org/10.1016/j.compag.2019.105013>.
- Ghojogh, B. and Ghodsi, A. (2023) 'Recurrent Neural Networks and Long Short-Term Memory Networks: Tutorial and Survey'. arXiv. Available at: <http://arxiv.org/abs/2304.11461> (Accessed: 2 May 2024).
- Gunder, H. (2004) '*Clarias gariepinus*', *Animal Diversity Web*. Accessed April 29, 2024 at https://animaldiversity.org/accounts/Clarias_gariepinus/
- Hamayel, M.J. and Owda, A.Y. (2021) 'A Novel Cryptocurrency Price Prediction Model Using GRU, LSTM and bi-LSTM Machine Learning Algorithms', *AI*, 2(4), pp. 477–496. Available at: <https://doi.org/10.3390/ai2040030>.
- Han, S.-H., Mutahira, H. and Jang, H.-S. (2023) 'Prediction of Sensor Data in a Greenhouse for Cultivation of Paprika Plants Using a Stacking Ensemble for Smart Farms', *Applied Sciences*, 13(18), p. 10464. Available at: <https://doi.org/10.3390/app131810464>.

- Harun, Z., Reda, E. and Hashim, H. (2018) 'Real time fish pond monitoring and automation using Arduino', *IOP Conference Series: Materials Science and Engineering*, 340, p. 012014. Available at: <https://doi.org/10.1088/1757-899X/340/1/012014>.
- Hegde, S.G. (2016) 'Study of IoT: Understanding IoT Architecture, Applications, Issues and Challenges'.
- Hyndman, R.J. and Koehler, A.B. (2006) 'Another look at measures of forecast accuracy', *International Journal of Forecasting* 22, Available at: <https://www.sciencedirect.com/science/article/pii/S0169207006000239>.
- Islam, M., Chen, G. and Jin, S. (2019) 'An Overview of Neural Network', *American Journal of Neural Networks and Applications*, 5(1), p. 7. Available at: <https://doi.org/10.11648/j.ajjna.20190501.12>.
- Karimanzira, D. and Rauschenbach, T. (2019) 'Enhancing aquaponics management with IoT-based Predictive Analytics for efficient information utilization', *Information Processing in Agriculture*, 6(3), pp. 375–385. Available at: <https://doi.org/10.1016/j.inpa.2018.12.003>.
- Li, W., Wu, H., Zhu, N., Jiang, Y., Tan, J., and Guo, Y. (2021) 'Prediction of dissolved oxygen in a fishery pond based on gated recurrent unit (GRU)', *Information Processing in Agriculture*, 8(1), pp. 185–193. Available at: <https://doi.org/10.1016/j.inpa.2020.02.002>.
- Lv, P., Liu, S., Yu, W., Zheng, S., and Lv, J. (2020) 'EGA-STLF: A Hybrid Short-term Load Forecasting Model', *IEEE Access*, PP(99):1-1. Available at: https://www.researchgate.net/publication/339216638_EGA-STLF_A_Hybrid_Short-term_Load_Forecasting_Model.
- Muniappan, A. *et al.* (2023) 'Bi-LSTM and partial mutual information selection-based forecasting groundwater salinization levels', *Water Reuse*, 13(4), pp. 525–544. Available at: <https://doi.org/10.2166/wrd.2023.050>.
- Olah, C. (2015) 'Understanding LSTM Networks', *Colah Github Web*. Accessed 4 May, 2024 at <https://colah.github.io/posts/2015-08-Understanding-LSTMs/>
- Phillips, M. *et al.* (2015) 'EXPLORING INDONESIAN AQUACULTURE FUTURES'.
- Quansah, J.E., Engel, B. and Rochon, G.L. (2010) 'Early Warning Systems: A Review', 2(2).
- Rizal, A., Dhahiyat, Y., Zahidah, Andriani, Y., Handaka, A., and Sahidin, A. (2018)

- 'The economic and social benefits of an aquaponic system for the integrated production of fish and water plants', *IOP Conference Series: Earth and Environmental Science*, 137, p. 012098. Available at: <https://doi.org/10.1088/1755-1315/137/1/012098>.
- Rohadi, E. *et al.* (2018) 'Sistem Monitoring Budidaya Ikan Lele Berbasis Internet Of Things Menggunakan Raspberry Pi', *Jurnal Teknologi Informasi dan Ilmu Komputer*, 5(6), pp. 745–750. Available at: <https://doi.org/10.25126/jtiik.2018561135>.
- Salehinejad, H., Sankar, S., Barfett, J., Colak, E., and Valaee, S. (2018) 'Recent Advances in Recurrent Neural Networks'. arXiv. Available at: <http://arxiv.org/abs/1801.01078> (Accessed: 5 April 2024).
- Shahid, F., Zameer, A. and Muneeb, M. (2020) 'Predictions for COVID-19 with deep learning models of LSTM, GRU and Bi-LSTM', *Chaos, Solitons & Fractals*, 140, p. 110212. Available at: <https://doi.org/10.1016/j.chaos.2020.110212>.
- Shiri, F.M., Perumal, T., Mustapha, N., and Mohamed, R. (2023) 'A Comprehensive Overview and Comparative Analysis on Deep Learning Models: CNN, RNN, LSTM, GRU'.
- Taha, M.F. *et al.* (2022) 'Recent Advances of Smart Systems and Internet of Things (IoT) for Aquaponics Automation: A Comprehensive Overview', *Chemosensors*, 10(8), p. 303. Available at: <https://doi.org/10.3390/chemosensors10080303>.
- Taragusti, A.S., Santanumurti, M.B., Rahardja, B.S., and Prayogo (2019) 'Effectiveness of Nitrobacter on the specific growth rate, survival rate and feed conversion ratio of dumbo catfish *Clarias* sp. with density differences in the aquaponic system', *IOP conference series: Earth Environmental Science* 236 012088. Available at: <https://doi.org/10.1088/1755-1315/236/1/012088>
- Udanor, C.N. *et al.* (2022) 'An internet of things labelled dataset for aquaponics fish pond water quality monitoring system', *Data in Brief*, 43, p. 108400. Available at: <https://doi.org/10.1016/j.dib.2022.108400>.
- Verma, D.K., Satyaveer, Maurya, N.K., Kumar, P., and Jayaswa, R. (2022) 'Important Water Quality Parameters in Aquaculture: An Overview', 3(3).
- Yan, W., Zhang, H., Sui, J., and Shen, D. (2018) 'Deep Chronnectome Learning via Full Bidirectional Long Short-Term Memory Networks for MCI Diagnosis', in A.F. Frangi *et al.* (eds) *Medical Image Computing and Computer Assisted*



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**COMPARISON BETWEEN BIDIRECTIONAL LONG SHORT-TERM MEMORY (BI-LSTM) AND
BIDIRECTIONAL GATED RECURRENT
UNIT (BI-GRU) FOR EARLY WARNING SYSTEM IN CATFISH (CLARIAS GARIEPINUS) AQUAPONIC
POND**

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Universitas Gadjah Mada, 2025 | Diunduh dari <http://etd.repository.ugm.ac.id/>

Intervention – MICCAI 2018. Cham: Springer International Publishing
(Lecture Notes in Computer Science), pp. 249–257. Available at:
https://doi.org/10.1007/978-3-030-00931-1_29.