

DAFTAR PUSTAKA

- Afriyie, I., Joshua, S.N., Abuanor, M.N., 2025. Utilizing Several Machine Learning Techniques to Investigate the Bridge Deck Condition. *Journal of Studies in Civil Engineering* 2, 35–53. <https://doi.org/10.53898/jsce2025223>
- Ahmad, F. salam, 2022. Dampak Pembangunan Jalan Tol Trans Jawa terhadap Pertumbuhan Ekonomi di Jawa Tengah. *Jurnal Ekonomi dan Kebijakan Pembangunan* 11, 1–18. <https://doi.org/10.29244/jekp.11.1.2022.1-18>
- Arrasyid, H., Agus Setiawan, F., Riana, F., Informatika, T., Ibn Khaldun Bogor Jalan Sholeh Iskandar, U., Bogor, K., Wilayah Jabodetabek, A., mencakup Jakarta, yang, 2025. Perbandingan Metode Random Forest dan XGBoost dalam Prediksi Harga Jual Rumah di Wilayah Jabodetabek. <https://doi.org/10.8734/Kohesi.v1i2.365>
- Belgiu, M., Drăgu, L., 2016. Random Forest in Remote Sensing: A Review of Applications and Future Directions. *ISPRS Journal of Photogrammetry and Remote Sensing*. <https://doi.org/10.1016/j.isprsjprs.2016.01.011>
- Breiman, L., 2001. *Random Forests*. Kluwer Academic Publisher, California.
- Chawla, N., 2025. Predicting Bridge Condition Ratings Using Machine Learning and Public Inspection Data. <https://doi.org/10.20944/preprints202511.1826.v1>
- Chen, T., Guestrin, C., 2016. XGBoost: A Scalable Tree Boosting System, dalam: *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. Association for Computing Machinery, hlm. 785–794. <https://doi.org/10.1145/2939672.2939785>
- Dananjoyo, R.A., Aminullah, A., Budi Nugroho, A.S., 2020. Penerapan Metode Life-Cycle Cost dalam Perhitungan Evaluasi Ekonomi Jembatan untuk Penentuan Prioritas Penanganan Jembatan. *Jurnal Teknosains* 9, 165. <https://doi.org/10.22146/teknosains.39052>

- Fard, Fariba, Fard, Fereshteh, 2024. Development and Utilization of Bridge Data of the United States for Predicting Deck Condition Rating Using Random Forest, XGBoost, and Artificial Neural Network. Remote Sens. (Basel). 16. <https://doi.org/10.3390/rs16020367>
- Hariman, F., Christady, H.H., Triwiyono, A., Kota Sawahlunto, B., Sukarno-Hatta Sawahlunto, J., Teknik Sipil dan Lingkungan, J., 2007. Evaluasi dan Program Pemeliharaan Jembatan dengan Metode Bridge Management System (BMS) (Studi Kasus : Empat Jembatan Propinsi D.I. Yogyakarta). Forum Teknik Sipil No.XVII.
- Harywijaya, W., Afifuddin, M., Isya, M., 2020. Penilaian Kondisi Jembatan Menggunakan Bridge Management System (BMS) dan Bridge Condition Rating (BCR). Jurnal Arsip Rekayasa Sipil dan Perencanaan 3, 80–88. <https://doi.org/10.24815/jarsp.v3i1.16462>
- Hastie, T., Tibshirani, R., Friedman, J., 2017. The Elements of Statistical Learning Data Mining, Inference, and Prediction.
- Indianto, A., Supriyadi, I., 2013. Studi Kasus Kerusakan Jembatan dan Pengaruhnya Terhadap Sisa Umur Jembatan 12.
- James, G., Witten, D., Hastie, T., Tibshirani, R., 2021. An Introduction to Statistical Learning with Applications in R Second Edition.
- Kementerian PU, 1993. Panduan Rencana dan Program IBMS. Jakarta.
- Kementerian PUPR, 2022. Pedoman Pemeriksaan Jembatan No.01/P/BM/2022. Jakarta.
- Kementerian PUPR, 2015. Pedoman Persyaratan Umum Perencanaan Jembatan. Jakarta.
- Kementerian PUPR, 1993. Panduan dan Rencana Program IBMS.
- Liaw, A., Wiener, M., 2002. Classification and Regression by Random Forest. R News 2.
- Marshando, P., Sumargo, 2020. Penilaian Kondisi, Solusi Penanganan, dan Prediksi Sisa Umur Jembatan Way Kendawai I Bandar Lampung Menggunakan Bridge Management System (BMS). Oktober 16, 39–49.
- Müller, A.C., Guido, S., 2016. Introduction to Machine Learning with Python, 1 ed. O’ Reilly Media, Inc, California.

Nurmansyah, R., 2021. Analysis of Condition Value and Remaining Life of Idano Mezawa Bridge, Nias District, North Sumatera.

Purwatmoko, H., Tumingan, T., Suryono, J., 2023. Kajian Sisa Umur Jembatan Berdasarkan Bridge Manajemen System (BMS). *Teknika* 18, 114–122.
<https://doi.org/10.26623/teknika.v18i2.7541>

Santoso, J.T., 2022. Algoritma Machine Learning dengan Python. Yayasan Prima Agus Teknik, Semarang.

Setiawan, A., Sumargo, S., 2020. Penilaian Kondisi Visual Dan Prediksi Usia Sisa Jembatan Siliti Dengan Metode Bridge Management System: Assessment Of Visual Conditions And Prediction Of The Remaining Life Of The Siliti Bridge Using The Bridge Management System Method. *Media Ilmiah Teknik Sipil* 9, 1–8.

Suroso, P., 2024. Penilaian Kondisi Komponen dan Elemen Jembatan Rangka Baja Atas Metode BMS dan FCM. *JURNAL INERSIA* 16, 138–147.

Utami, K., Triwiyono, A., Aminullah, A., 2024. Aplikasi Nilai Kondisi Overpass dengan Metode BCR pada Evaluasi Ekonomi di Ruas Tol Solo - Ngawi - Kertosono KM 503+900 - KM 645+400. *Simposium Nasional Teknologi Infrastruktur Yogyakarta*.

Wahyudhi, O., Aminullah, A., Triwiyono, A., 2018. Modifikasi Penilaian pada Sistem Manajemen Jembatan di Indonesia (Interurban Bridge Management System) dengan Mengimplementasikan Condition States dari Metode Bridge Health Index. *Prosiding Semnas Sinta FT UNILA* 1, 2655–2914.

Wei, Y., Ji, R., Li, Q., Song, Z., 2024. A Condition Assessment Tool for Steel Bridge Deck Pavement Systems Based on Data Balancing Methods and Machine Learning Algorithms. *Buildings* 14. <https://doi.org/10.3390/buildings14092959>

Wulan Sari, B., Prabowo, D., 2025. Analisis Perbandingan Prediksi Harga Rumah Dengan Random Forest, Gradient Boosting, dan XGBoost. *Intellect: Indonesian Journal of Learning and Technological Innovation* 4, 42–51.
<https://doi.org/10.57255/intellect.v4i1.1385>



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Komparasi BMS dengan Algoritma Random Forest dan XGBoost dalam Penentuan Prioritas Pemeliharaan

Jembatan (Studi Kasus pada Ruas Jalan Tol Solo-Ngawi)

Ismail Wahyudi, Ir. Akhmad Aminullah, S.T., M.T., Ph.D., IPU. ; Ir. Suprpto Siswosukarto, Ph.D., IPM.

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Zindani, D., Singh, S., 2025. Leveraging Random Forest Regression for Informed and Risk-aware Material Selection in Supercapacitor Fabrication. *Journal of Engineering and Applied Science* 72. <https://doi.org/10.1186/s44147-025-00789-4>