

DAFTAR PUSTAKA

- Ahsan, M., Mahmud, M., Saha, P., Gupta, K. D., & Siddique, Z. (2021). Effect of data *Scaling* methods on *machine learning* algorithms and model performance. *Technologies*, 9(3), 52. <https://doi.org/10.3390/technologies9030052>
- Alfarezy, K., Fathurrahman, M., Sembiring, S. S. B., Paradisa, A., Anshari, S. F., & Fikry, M. (2026). Multi-stage *feature engineering* for robust BLE-based location recognition in care facilities using the activity and location recognition *dataset*. *International Journal of Activity and Behavior Computing*, 2026(2), 1–17. <https://doi.org/10.60401/ijabc.164>
- Alfiyan, M. (2023). Analisis posisi kerja manual material *handling* terhadap keluhan *Musculoskeletal Disorders* (MSDs) menggunakan metode NIOSH pada pembangunan Gedung At-Ta'awun Universitas Muhammadiyah Surabaya (*Doctoral dissertation*, Universitas Muhammadiyah Surabaya). <https://repository.um-surabaya.ac.id/id/eprint/9584>
- Alghifari, M. G. (2024). Sistem *wearable* deteksi posisi pada pelatihan otot *biceps* dan *triceps* berbasis angkat beban dengan algoritma *Random Forest*. *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, 8(9), 1-8. <https://j-ptiik.ub.ac.id/index.php/j-ptiik/article/view/14112>
- Ali, S., Yusman, Y., Bakhtiar, B., & Raju, M. (2022). Perancangan *software* robot pencari dan penyusun menara Lagori pada ABU Robocon 2022. *Jurnal Teknologi*, 22(2), 92. <https://doi.org/10.30811/teknologi.v22i2.3259>
- Alita, D., & Isnain, A. R. (2020). Pendeteksian sarkasme pada proses analisis sentimen menggunakan *Random Forest classifier*. *Jurnal Komputasi*, 8(2), 50–58. <https://doi.org/10.23960/komputasi.v8i2.2615>
- Amaliah, S., Nusrang, M., & Aswi. (2022). Penerapan metode *Random Forest* untuk klasifikasi varian minuman kopi di Kedai Kopi Konijiwa Bantaeng. *VARIANSI: Journal of Statistics and Its Application on Teaching and Research*, 4(2), 121–127. <https://doi.org/10.35580/variansiunm31>
- Amorim, L. B. V., Cavalcanti, G. D. C., & Cruz, R. M. O. (2022). The choice of *Scaling* technique matters for classification performance. *Applied Soft Computing*, 133, 109924. <https://doi.org/10.1016/j.asoc.2022.109924>
- Ananda, Z., Astuty, D. A., & Indriani, F. (2025). Relationship between Work Position and *Musculoskeletal* Disorder (MSDs) Complaints in Palm Harvesters at PTPN IV Tanah Itam Ulu. *Jurnal Biomedika Dan Kesehatan*, 8(2), 159–169. <https://doi.org/10.18051/JBiomedKes.2025.v8.159-169>

- Arif, M., Mukheimer, A., & Asif, D. (2023). Enhancing the early detection of chronic kidney disease: A robust *machine learning* model. *Big Data and Cognitive Computing*, 7, 144. <https://doi.org/10.3390/bdcc7030144>
- Ayu Syahfitri. (2025). *Internet of Things (IoT)*, sejarah, teknologi, dan penerapannya. *Uranus: Jurnal Ilmiah Teknik Elektro, Sains dan Informatika*, 3(1), 113–120. <https://doi.org/10.61132/uranus.v3i1.667>
- Butarbutar, J., Basuki, P., Sungono, V., Riantho, A., & Fidiario, K. (2024). Burden of osteoarthritis in Indonesia: A Global Burden of Disease (GBD) study 2019. *Narra Journal*, 4(2). <https://doi.org/10.52225/narra.v4i2.884>
- Dimoudis, D., Vafeiadis, T., Nizamis, A., Ioannidis, D., & Tzovaras, D. (2023). Utilizing an adaptive window *rolling median* methodology for time series anomaly detection. *Procedia Computer Science*, 584–593.
- Ekici, N. U., & Tuglular, T. (2023). *Automatic Test Sequence Generation and Functional Coverage Measurement From UML Sequence Diagrams*. *International Journal of Information System Modeling and Design*, 14(1), 1–21. <https://doi.org/10.4018/IJISMD.332865>
- Fahmi, M. N. (2023). Implementasi *machine learning* menggunakan Python *library*: Scikit-Learn (*supervised* dan *unsupervised learning*). *Sains Data: Jurnal Studi Matematika dan Teknologi*, 1(2), 87–96. <https://doi.org/10.52620/sainsdata.v1i2.31>
- Fathurrahman, M., Sayuti, M., Siregar, K. M., Arta, F. S., Jazuli, M. S., Fortilla, Z. A., & Fikry, M. (2025). *EEG-based Arabic silent speech classification using native Arabic silent speech dataset: A hybrid model combining Random Forest and SVM*. In *2025 International Conference on Activity and Behavior Computing (ABC)* (pp. 1–6). IEEE. <https://doi.org/10.1109/ABC64332.2025.11118578>
- Fikhri, A. A., & Nurdin, N. (2024). Implementasi algoritma *K-Nearest Neighbor* pada sistem pemantau suhu dan kelembapan ruang server menggunakan protokol MQTT berbasis IoT. *Jurnal Informatika Dan Teknik Elektro Terapan*, 12(3S1). <https://doi.org/10.23960/jitet.v12i3S1.5422>
- Fikry, M., Bustami, & Suzanna, E. (2025). IOT-Based Environmental Monitoring and Its Implications For Student Mental Health. *Revista De Gestão Social E Ambiental - RGSA*, 19(2), e011183. <https://doi.org/10.24857/rgsa.v19n2-022>
- Gill, T. K., Mittinty, M., March, L., Steinmetz, J. D., Culbreth, G. T., Cross, M., Brooks, P. M., & others. (2023). *Global, regional, and national burden of other Musculoskeletal Disorders, 1990–2020, and projections to 2050: A systematic analysis of the Global Burden of Disease Study 2021*. *The Lancet Rheumatology*, 5(9), e670–e682. <https://doi.org/10.1016/S2665->

9913(23)00232-1

- Guo, W., Yamagishi, S., & Jing, L. (2024). *Human activity recognition via Wi-Fi and inertial sensors with machine learning*. *IEEE Access*, 12, 18821–18836. <https://doi.org/10.1109/ACCESS.2024.3360490>
- Han, J., Song, W., Gozho, A., Sung, Y., Ji, S., Song, L., Wen, L., & Zhang, Q. (2020). *LoRa-based smart IoT application for smart city: An example of human position detection*. *Wireless Communications and Mobile Computing*, 2020, Article 8822555. <https://doi.org/10.1155/2020/8822555>
- Hilal, Y. N., Muliandhi, P., & Ardina, E. N. (2023). Analisa *balancing* BMS pada pengisian baterai *lithium-ion* tipe INR 18650 dengan metode *cut off*. *Jurnal Simetris*, 14(2), 375–384. DOI:10.24176/simet.v14i2.9852
- Hsu, G., Wu, J., Huang, Y., Chiu, C., & Kang, J. (2025). *Automatic detect incorrect lifting position with the pose estimation model*. *Life*, 15(3), 358. <https://doi.org/10.3390/life15030358>
- Ibrahim, A. M., & Setiyadi, D. (2021). *Prototype pengendalian lampu dan AC jarak jauh dengan jaringan internet menggunakan aplikasi Telegram berbasis Node MCU ESP8266*. *Infotech: Journal of Technology Information*, 7(1), 27–34. <https://doi.org/10.37365/jti.v7i1.103>
- Iqbal, S., Al-Azzoni, I., Allen, G., & Ullah Khan, H. (2020). *Extending UML Use Case Diagrams to Represent Non-Interactive Functional Requirements*. *E-Informatica Software Engineering Journal*, 14(1), 97–115. <https://doi.org/10.37190/e-Inf200104>
- Irianto, S., Putri, M., Pujiningrum, A. R. S., Maulang, I., Hamisah, H., Rini, I., & Syam, A. T. I. (2025). Edukasi dan skrining terkait posisi tubuh ideal sebagai upaya pencegahan gangguan posisi dini bagi peserta didik SMP-IT Ar-Rahmah Kota Makassar. *Panrita Abdi: Jurnal Pengabdian kepada Masyarakat*, 9(1), 227–237. <http://journal.unhas.ac.id/index.php/panritaabdi>
- Irwan, I., Bempa, W., & Maksum, T. S. (2024). Hubungan Faktor Karakteristik Pekerja Dan Risiko Kerja Manual Material Handling Menggunakan Niosh Lifting Equation Dengan Keluhan *Upper Back Pain*. *Journal Health & Science: Gorontalo Journal Health and Science Community*, 8(4), 244–251.
- Jha, P., Sahu, M., & Isobe, T. (2023). *A UML Activity Flow Graph-Based Regression Testing Approach*. *Applied Sciences*, 13(9), 5379. <https://doi.org/10.3390/app13095379>
- Junaedi, A., Puspitasari, M. D. M., & Maulidina, M. (2021). Pengaruh (intensor) induktor *heater* menggunakan *thermal* sensor berbasis mikrokontroler Arduino Nano dalam mengolah logam. *Nusantara of Engineering (NOE)*,

4(2), 169–175. <https://doi.org/10.29407/noe.v4i2.16754>

Juniawan, F. P., Mayasari, M. S., Pradana, H. A., Tommy, L., & Sylfania, D. Y. (2023). Pelatihan digital marketing guna meningkatkan kompetensi masyarakat Desa Kace Timur, Bangka. *Jurnal Pengabdian kepada Masyarakat*, 6(1), 17–25. <https://doi.org/10.35957/fordicate.v3i1.5057>

Kaladewa, Y., & Santoso, K. A. (2022). Implementasi sensor kemiringan sudut untuk alat bantu (*grab*) *gantry luffing crane*. *Jurnal Kajian Teknik Elektro*, 6(2), 62–69. <http://journal.uta45jakarta.ac.id/index.php/JKTE>

Kianoush, S., Savazzi, S., Rampa, V., Costa, L., & Tolochenko, D. (2023). A *Random Forest approach to body motion detection: Multisensory fusion and edge processing*. *IEEE Sensors Journal*, 23(4), 3801–3814. <https://doi.org/10.1109/JSEN.2022.3232085>

Kiswanton, A., & Irwan, A. (2024). Inovasi energi hijau: Piezoelektrik untuk mengubah getaran kendaraan menjadi listrik. *Jurnal Informatika dan Teknik Elektro Terapan*, 12(3), 1-10. <https://doi.org/10.23960/jitet.v12i3.4452>

Koç, H., Erdoğan, A. M., Barjakly, Y., & Peker, S. (2021). *UML Diagrams in Software Engineering Research: A Systematic Literature Review*. *The 7th International Management Information Systems Conference*, 13. <https://doi.org/10.3390/proceedings2021074013>

Kusuma, H. A., Oktavia, D., Nugaraha, S., Suhendra, T., & Refly, S. (2023). *Sensor BMP280 statistical analysis for barometric pressure acquisition*. *IOP Conference Series: Earth and Environmental Science*, 1148(1), 012008. <https://doi.org/10.1088/1755-1315/1148/1/012008>

Nekwek, A. V., Pigome, J. K. S., & Firdaus, N. (2024). Weather Station Based Raspberry Pi. *Mars: Jurnal Teknik Mesin, Industri, Elektro Dan Ilmu Komputer*, 2(4), 267–276. <https://doi.org/10.61132/mars.v2i4.267>

Maria, M. W. K., Imam Santoso, & Juanda. (2024). *Relationship Between the Posture of Lifting and Lowering Rice Sacks and Musculoskeletal Complaints Rice Transport Workers at PT X*. *Jurnal Kesehatan Cendikia Jenius*, 2(1), 28-34. <https://doi.org/10.70920/jenius.v2i1.88>

Maulana, F., Sembiring, S. S. B., Luqman, M. N., Putri, A., Sinambela, I. S., Paradisa, A., Fathurrahman, M., Fikry, M. (2025). Comparison of tree-based and deep learning models for tremor related to Parkinson's disease. *International Journal of Activity and Behavior Computing*, 2025(3), 1–26. <https://doi.org/10.60401/ijabc.128>

Pecoraro, F., & Luzi, D. (2022). *Using Unified Modeling Language to Analyze Business Processes in the Delivery of Child Health Services*. *International*

- Journal of Environmental Research and Public Health*, 19(20), 13456.
<https://doi.org/10.3390/ijerph192013456>
- Prahastuti, Brian & Djaali, Nur & Usman, Syarif. (2021). Faktor Risiko Gejala Muskuloskeletal Disorder (MSDs) pada Pekerja Buruh Pasar. *Jurnal Ilmiah Kesehatan*. 13. 47-54. 10.37012/jik.v13i1.516
- Putri, C. H., & Mahmudin. (2025). Mengenal *Internet of Things* (IoT) dan perannya dalam jaringan komputer. *Cendekia Pendidikan*, 17(9), 61–70.
<https://doi.org/10.8734/Sindoro.v1i2.365>
- Rafiq, M., Almujaally, N., Algarni, A., Alshehri, M., Alqahtani, Y., Jalal, A., & Liu, H. (2025). Intelligent biosensors for human movement rehabilitation and intention recognition. *Frontiers in Bioengineering and Biotechnology*, 13.
<https://doi.org/10.3389/fbioe.2025.1558529>
- Rahman, M. F., Nantan, Y., & Alfira, W. S. (2022). Pemodelan kotak 3D menggunakan sensor MPU6050. Dalam *Prosiding Seminar Nasional Teknik Elektro dan Informatika (SNTETI 2022)* (hlm. 1-8). Universitas Islam Makassar. <https://jurnal.poliupg.ac.id/index.php/sntei/article/view/3569>
- Rane, M., Mohole, S., Pahade, Y., Kurandale, G., & Munjale, A. (2025). *SmartPosisie: Real-time posisie detection and feedback system integrating IoT and machine learning*. Dalam *2025 1st International Conference on AIML-Applications for Engineering & Technology (ICAET)* (hlm. 1–6). IEEE. <https://doi.org/10.1109/ICAET63337.2025.10457905>
- Salcha, M. A., & Arni Juliani. (2021). Relationship between Work Posture and Symptoms of *Musculoskeletal Disorders* in Rice Farmers . *Miracle Journal of Public Health* , 4(2), 195-201.
<https://doi.org/10.36566/mjph/Vol4.Iss2/260>
- Saputra, R., & Yulianti, B. (2021). Alat Pendeteksi Originalitas Baterai Tipe 18650 Berbasis Arduino Nano. *Jurnal Teknologi Industri*, 10(1).
<https://doi.org/10.35968/jti.v10i1.776>
- Satria, B. (2022). IoT Monitoring Suhu dan Kelembaban Udara dengan *Node MCU ESP8266* . *Sudo Jurnal Teknik Informatika*, 1(3), 136–144.
<https://doi.org/10.56211/sudo.v1i3.95>
- Sinuhaji, N. (2023). Sistem monitoring jumlah pengunjung, tingkat kebisingan, dan kendali intensitas cahaya perpustakaan terintegrasi *Internet of Things*. *Resolusi: Rekayasa Teknik Informatika dan Informasi*, 4(1), 100–105.
<https://doi.org/10.30865/resolusi.v4i1.1248>
- Song, S. Y., Pei, Y., & Hsiao-Wecksler, E. (2022). Estimating relative angles using two inertial measurement units without magnetometers. *IEEE Sensors*

- Journal*, 22(23), 19688–19699. <https://doi.org/10.1109/JSEN.2022.3203346>
- Suryana, T. (2021). Implementasi komunikasi *web server Node MCU ESP8266* dan *web server Apache MySQL* untuk otomatisasi dan kontrol peralatan elektronik jarak jauh via Internet. *Jurnal Sistem Informasi dan Teknologi*, 3(2), 78-85. <http://repository.unikom.ac.id/id/eprint/68717>
- Suwanda, R., Anshari, S. F., & Ningsih, W. (2024). Information system for operational goods management at the Career Guidance and Entrepreneurship Center Malikussaleh University. *Jurnal Inotera*, 9(1), 164–169. <https://doi.org/10.31572/inotera.Vol9.Iss1.2024.ID324>
- Susanti, N., & Septi, A. N. (2021). Penyuluhan fisioterapi pada sikap ergonomis untuk mengurangi terjadinya gangguan *Musculoskeletal Disorders* (MSDs) di komunitas keluarga Desa Kebojongan. *Pena Abdimas: Jurnal Pengabdian Masyarakat*, 2(1), 45-52. <https://doi.org/10.31941/abdms.v2i1.1290>
- Tam, A., Chairani, A., & Bustamam, N. (2021). Gambaran kualitas tidur, keluhan muskuloskeletal, dan hubungannya pada staf akademik tahun 2020. *Prepotif: Jurnal Kesehatan Masyarakat*, 5(1), 195–203. <https://doi.org/10.31004/prepotif.v5i1.1453>
- Turyadi, I. U. (2021). Analisa dukungan *Internet of Things* (IoT) terhadap peran intelijen dalam pengamanan daerah maritim Indonesia wilayah timur. *Jurnal Teknologi dan Manajemen Informatika*, 7(1), 29–39. <https://doi.org/10.26905/jtmi.v7i1.6040>
- Ula, M., Ilhadi, V., & Sidek, Z. M. (2024). *Comparing Long Short-Term Memory and Random Forest Accuracy for Bitcoin Price Forecasting*. *MATRIK : Jurnal Manajemen, Teknik Informatika Dan Rekayasa Komputer*, 23(2), 259-272. <https://doi.org/10.30812/matrik.v23i2.3267>
- World Health Organization. (2023). *Musculoskeletal conditions*. Diakses 20 Desember 2025. <https://www.who.int/news-room/fact-sheets/detail/Musculoskeletal-conditions>.
- Kalua, A. L., Kaplale, J. R., Mapalie, N. K. R., Iriansu, I. S., & Ketaren, E. (2024). Pengembangan alat tes kesamaptan TNI/POLRI berbasis teknologi computer vision dan IoT dengan metode pose estimation menggunakan Python. *Jurnal TIMES*, 13(2), 294–299. <https://doi.org/10.51351/jtm.13.2.2024791>
- Zulfa, I., Syahputra, H., & Faisal, A. (2021). Rancang bangun sistem kontrol alat-alat listrik menggunakan Bluetooth berbasis mikrokontroler. *Jurnal Ilmiah Elektronika dan Komputer*, 10(2), 112-120. <http://journal.stekom.ac.id/index.php/elkom>