

DAFTAR PUSTAKA

- Wang, C. F. *et al.* (3 2023) ‘Upper-Arm Photoplethysmographic Sensor with One-Time Calibration for Long-Term Blood Pressure Monitoring’, *Biosensors*. Multidisciplinary Digital Publishing Institute (MDPI), 13. doi: 10.3390/bios13030321.
- Kim, J. W., Park, S. M. and Choi, S. W. (10 2021) ‘Real-time photoplethysmographic heart rate measurement using deep neural network filters’, *ETRI Journal*. John Wiley and Sons Inc, 43, pp. 881–890. doi: 10.4218/etrij.2020-0394.
- Georgieva-Tsaneva, G., Gospodinova, E. and Cheshmedzhiev, K. (2 2022) ‘Cardiodiagnostics Based on Photoplethysmographic Signals’, *Diagnostics*. MDPI. doi: 10.3390/diagnostics12020412.
- Ahmed, Md.F., Hasan, Moh.K., Shahjalal, Md., Alam, Md.M., Jang, Y.M., 2020. Design and Implementation of an OCC-Based Real-Time Heart Rate and Pulse-Oxygen Saturation Monitoring System. *IEEE Access* 8, 198740–198747. <https://doi.org/10.1109/ACCESS.2020.3034366>
- Alharbi, A., Alosaimi, W., Sahal, R., Saleh, H., 2021. Real-Time System Prediction for Heart Rate Using Deep Learning and Stream Processing Platforms. *Complexity* 2021, 5535734. <https://doi.org/10.1155/2021/5535734>
- Annaki, I., Rahmoune, M., Bourhaleb, M., 2024. Overview of Data Augmentation Techniques in Time Series Analysis. *Int. J. Adv. Comput. Sci. Appl.* 15, 1201–1211. <https://doi.org/10.14569/IJACSA.2024.01501118>
- Balasubramanian, K., Ranjani Rajendran, S., Pati, S., 2025. Complexity Measures in Biomedical Signal Analysis: A Clinically-Grounded Survey Across EEG, ECG, Intracranial Pressure, and Photoplethysmogram Modalities. *IEEE Access* 13, 155285–155304. <https://doi.org/10.1109/ACCESS.2025.3603848>
- Bolpagni, M., Campanella, S., Gabrielli, S., Palma, L., 2025. Segmentation of Motion Artifacts in Wearable PPG Signals Using Lightweight Neural Networks. *IEEE Sens. J.* 25, 20635–20647. <https://doi.org/10.1109/JSEN.2025.3561604>
- Cardiovascular diseases (CVDs) [WWW Document], n.d. URL [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)) (accessed 7.19.24).
- Danandeh, H., Mohebbi, M., 2020. An Adaptive Kalman Filter Bank for ECG Denoising. *IEEE J. Biomed. Health Inform.* PP, 1–1. <https://doi.org/10.1109/JBHI.2020.2982935>

- de Vries, I.R., de Jong, A.M., van der Hout-van der Jagt, M.B., van Laar, J.O.E.H., Vullings, R., 2024. Deep Learning for Sparse Domain Kalman Filtering With Applications on ECG Denoising and Motility Estimation. *IEEE Trans. Biomed. Eng.* 71, 2321–2329.
<https://doi.org/10.1109/TBME.2024.3368105>
- Dhanke, J., Pradeepa, M., Karthik, R., Rampur, V., Poonguzhali, I., Chittapragada, H., 2022. Heterogeneous sensor data fusion acquisition model for medical applications. *Meas. Sens.* 24, 100552.
<https://doi.org/10.1016/j.measen.2022.100552>
- Document Html | Espressif Documentation [WWW Document], n.d. URL
https://documentation.espressif.com/esp32-s3-wroom-1_wroom-1u_datasheet_en.pdf (accessed 11.2.25).
- Draghici, A.E., Taylor, J.A., 2016. The physiological basis and measurement of heart rate variability in humans. *J. Physiol. Anthropol.* 35, 22.
<https://doi.org/10.1186/s40101-016-0113-7>
- Gu, Z., Zarubin, V., Martsberger, C., 2023. The effectiveness of time domain and nonlinear heart rate variability metrics in ultra-short time series. *Physiol. Rep.* 11, e15863. <https://doi.org/10.14814/phy2.15863>
- Hssayeni, M.D., Ghoraani, B., 2021. Multi-Modal Physiological Data Fusion for Affect Estimation Using Deep Learning. *IEEE Access* 9, 21642–21652.
<https://doi.org/10.1109/ACCESS.2021.3055933>
- Iglesias, G., Talavera, E., González-Prieto, Á., Mozo, A., Gómez-Canaval, S., 2023. Data Augmentation techniques in time series domain: a survey and taxonomy. *Neural Comput. Appl.* 35, 10123–10145.
<https://doi.org/10.1007/s00521-023-08459-3>
- Ismail, S., Akram, U., Siddiqi, I., 2021. Heart rate tracking in photoplethysmography signals affected by motion artifacts: a review. *EURASIP J. Adv. Signal Process.* 2021, 5. <https://doi.org/10.1186/s13634-020-00714-2>
- Kahankova, R., Martinek, R., Jaros, R., Behbehani, K., Matonia, A., Jezewski, M., Behar, J.A., 2020. A Review of Signal Processing Techniques for Non-Invasive Fetal Electrocardiography. *IEEE Rev. Biomed. Eng.* 13, 51–73.
<https://doi.org/10.1109/RBME.2019.2938061>
- Kakria, P., Tripathi, N.K., Kitipawang, P., 2015. A Real-Time Health Monitoring System for Remote Cardiac Patients Using Smartphone and Wearable Sensors. *Int. J. Telemed. Appl.* 2015, 373474.
<https://doi.org/10.1155/2015/373474>
- Karolcik, S., Ming, D.K., Yacoub, S., Holmes, A.H., Georgiou, P., 2023. A Multi-Site, Multi-Wavelength PPG Platform for Continuous Non-Invasive Health Monitoring in Hospital Settings. *IEEE Trans. Biomed. Circuits Syst.* 17, 349–361. <https://doi.org/10.1109/TBCAS.2023.3254453>
- Krishnapriya, G.B., Ponnalagu, R.N., Goel, S., 2025. A Resource-Efficient Time-Domain-Based Algorithm to Estimate Respiration Rate From Single-Lead ECG Signal. *IEEE Open J. Instrum. Meas.* 4, 1–9.
<https://doi.org/10.1109/OJIM.2025.3548816>

- Lee, N., Kim, S.-H., Lee, M., Woo, J., 2024. Advancing Continuous Blood Pressure Estimation with Transformer on Photoplethysmography in Operation Room. *IEEE Access* 12, 90486–90500. <https://doi.org/10.1109/ACCESS.2024.3417940>
- Madavarapu, J.B., Nachiyappan, S., Rajarajeswari, S., Anusha, N., Venkatachalam, N., Madavarapu, R.C.B., Ahilan, A., 2024. HOT Watch: IoT-Based Wearable Health Monitoring System. *IEEE Sens. J.* 24, 33252–33259. <https://doi.org/10.1109/JSEN.2024.3424348>
- Manor, E., Greenberg, S., 2022. Custom Hardware Inference Accelerator for TensorFlow Lite for Microcontrollers. *IEEE Access* 10, 73484–73493. <https://doi.org/10.1109/ACCESS.2022.3189776>
- Moscato, S., Lo Giudice, S., Massaro, G., Chiari, L., 2022. Wrist Photoplethysmography Signal Quality Assessment for Reliable Heart Rate Estimate and Morphological Analysis. *Sensors* 22, 5831. <https://doi.org/10.3390/s22155831>
- Naeini, E.K., Sarhaddi, F., Azimi, I., Liljeberg, P., Dutt, N., Rahmani, A.M., 2023. A Deep Learning–based PPG Quality Assessment Approach for Heart Rate and Heart Rate Variability. *ACM Trans. Comput. Healthc.* 4, 1–22. <https://doi.org/10.1145/3616019>
- Nuutila, O., Uusitalo, A., Kokkonen, V., Weerarathna, N., Kyröläinen, H., 2024. Monitoring fatigue state with heart rate-based and subjective methods during intensified training in recreational runners. *Eur. J. Sport Sci.* 24, 857–869. <https://doi.org/10.1002/ejsc.12115>
- Oyeleye, M., Chen, T., Titarenko, S., Antoniou, G., 2022. A Predictive Analysis of Heart Rates Using Machine Learning Techniques. *Int. J. Environ. Res. Public Health* 19, 2417. <https://doi.org/10.3390/ijerph19042417>
- Reddy, G.N.K., Manikandan, M.S., Murty, N.V.L.N., 2022a. Evaluation of Objective Distortion Measures for Automatic Quality Assessment of Processed PPG Signals for Real-Time Health Monitoring Devices. *IEEE Access* 10, 15707–15745. <https://doi.org/10.1109/ACCESS.2022.3148256>
- Reddy, G.N.K., Manikandan, M.S., Murty, N.V.L.N., 2022b. Evaluation of Objective Distortion Measures for Automatic Quality Assessment of Processed PPG Signals for Real-Time Health Monitoring Devices. *IEEE Access* 10, 15707–15745. <https://doi.org/10.1109/ACCESS.2022.3148256>
- Revach, G., Locher, T., Shlezinger, N., Sloun, R.J.G. van, Vullings, R., 2023. HKF: Hierarchical Kalman Filtering with Online Learned Evolution Priors for Adaptive ECG Denoising. <https://doi.org/10.48550/arXiv.2210.12807>
- Stahlschmidt, S.R., Ulfenborg, B., Synnergren, J., 2022. Multimodal deep learning for biomedical data fusion: a review. *Brief. Bioinform.* 23, bbab569. <https://doi.org/10.1093/bib/bbab569>
- Suboh, M.Z., Jaafar, R., Nayan, N.A., Harun, N.H., Mohamad, M.S.F., 2022. Analysis on Four Derivative Waveforms of Photoplethysmogram (PPG) for Fiducial Point Detection. *Front. Public Health* 10. <https://doi.org/10.3389/fpubh.2022.920946>
- Wolling, F., Wasala, S.M., Van Laerhoven, K., 2021. Optimal Preprocessing of Raw Signals from Reflective Mode Photoplethysmography in Wearable

Devices, in: 2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). Presented at the 2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), pp. 1157–1163.
<https://doi.org/10.1109/EMBC46164.2021.9630955>

Yamamoto, K., Ohtsuki, T., 2020. Non-Contact Heartbeat Detection by Heartbeat Signal Reconstruction Based on Spectrogram Analysis With Convolutional LSTM. IEEE Access 8, 123603–123613.
<https://doi.org/10.1109/ACCESS.2020.3006107>