

DAFTAR PUSTAKA

- Abbas, N., Saba, T., Mohamad, D., Rehman, A., Almazyad, A.S. and Al-Ghamdi, J.S. 2018. Machine aided malaria parasitemia detection in Giemsa-stained thin blood smears. *Neural Computing and Applications* 29(3), pp. 803–818. doi: 10.1007/s00521-016-2474-6.
- Abdul-Nasir, A.S., Mashor, M.Y. and Mohamed, Z. 2012. Modified global and modified linear contrast stretching algorithms: New colour contrast enhancement techniques for microscopic analysis of malaria slide images. *Computational and Mathematical Methods in Medicine* 2012. doi: 10.1155/2012/637360.
- Abdul-Nasir, A.S., Mashor, M.Y. and Mohamed, Z. 2013. Colour image segmentation approach for detection of malaria parasites using various colour models and k-means clustering. *WSEAS Transactions on Biology and Biomedicine* 10(1), pp. 41–55.
- Abdul-Nasir, A.S., Mashor, M.Y. and Mohamed, Z. 2015. Segmentation of Malaria Parasite Based on Stained Blood Cells Detection. *Journal of Biomimetics, Biomaterials and Biomedical Engineering* 24, pp. 43–55. doi: 10.4028/www.scientific.net/JBBBE.24.43.
- Acharya, T. and Ray, A.K. 2005. *Image Processing: Principles and Applications*. John Wiley & Sons. doi: 10.1002/0471745790.
- Ahamed, Md.F. et al. 2025. Improving Malaria diagnosis through interpretable customized CNNs architectures. *Scientific Reports* 15(1), p. 6484. doi: 10.1038/s41598-025-90851-1.
- Allagwail, S., Gedik, O.S. and Rahebi, J. 2019. Face recognition with symmetrical face training samples based on local binary patterns and the gabor filter. *Symmetry* 11(2), pp. 157–178. doi: 10.3390/sym11020157.
- Aris, T.A., Nasir, A.S.A., Mustafa, W.A., Mashor, M.Y., Haryanto, E.V. and Mohamed, Z. 2023. Robust Image Processing Framework for Intelligent Multi-Stage Malaria Parasite Recognition of Thick and Thin Smear Images. *Diagnostics* 13(3). doi: 10.3390/diagnostics13030511.
- Arsin, A.A. 2012. *Malaria Di Indonesia Tinjauan Aspek Epidemiologi*. Makasar: Masagena Press.
- Bairagi, V.K. and Charpe, K.C. 2016. Comparison of Texture Features Used for Classification of Life Stages of Malaria Parasite. *International Journal of Biomedical Imaging* 2016, pp. 1–9. doi: 10.1155/2016/7214156.
- Bhuiyan, M. and Islam, M.S. 2023. A new ensemble learning approach to detect malaria from microscopic red blood cell images. *Sensors International* 4. doi: 10.1016/j.sintl.2022.100209.

- Cao, Y., Hayashi, C.T., da Silva Araujo, M., Tripathi, A.K., Andrade, A.O., Medeiros, J.F., Vinetz, J. and Kumar, N. 2024. Evaluation of combination vaccines targeting transmission of Plasmodium falciparum and P. vivax. *Vaccine*, 42(21), p.126140. <https://doi.org/10.1016/j.vaccine.2024.07.041>.
- CDC. 2016. *Blood Specimens – Microscopic Examination*. Available at: <https://www.cdc.gov/dpdx/diagnosticprocedures/blood/microexam.html> [Accessed: 3 December 2020].
- CDC. 2020. *About Malaria Biology Lifecycle*. Available at: <https://www.cdc.gov/malaria/about/biology/index.html> [Accessed: 3 December 2020].
- CDC. 2024. *Malaria Image Gallery*. Available at: <https://www.cdc.gov/dpdx/malaria/index.html> [Accessed: 1 June 2025].
- Chaudhry, H.A.H., Farid, M.S., Fiandrotti, A. and Grangetto, M. 2024. A lightweight deep learning architecture for malaria parasite-type classification and life cycle stage detection. *Neural Computing and Applications* 36(31), pp. 19795–19805. doi: 10.1007/s00521-024-10219-w.
- Chen, H.M., Tsao, Y.T. and Tsai, S.N. 2014. Automatic image segmentation and classification based on direction texton technique for hemolytic anemia in thin blood smears. *Machine Vision and Applications* 25(2), pp. 501–510. doi: 10.1007/s00138-013-0585-y.
- Cheng, J. and Rajapakse, J.C. 2009. Segmentation of clustered nuclei with shape markers and marking function. *IEEE Transactions on Biomedical Engineering* 56(3), pp. 741–748. doi: 10.1109/TBME.2008.2008635.
- Cherabit, N., Zohra Chelali, F. and Djeradi, A. 2012. Circular Hough Transform for Iris localization. *Science and Technology* 2(5), pp. 114–121. doi: 10.5923/j.scit.20120205.02.
- Chowdhury, S., Verma, B. and Stockwell, D. 2015. A novel texture feature based multiple classifier technique for roadside vegetation classification. *Expert Systems with Applications* 42(12), pp. 5047–5055. doi: 10.1016/j.eswa.2015.02.047.
- Das, D., Ghosh, M., Chakraborty, C., Maiti, A.K. and Pal, M. 2011. Probabilistic prediction of malaria using morphological and textural information. In: *ICIIP 2011 - Proceedings: 2011 International Conference on Image Information Processing*. pp. 1–6. doi: 10.1109/ICIIP.2011.6108879.
- Das, D.K., Ghosh, M., Pal, M., Maiti, A.K. and Chakraborty, C. 2013. Machine learning approach for automated screening of malaria parasite using light microscopic images. *Micron* 45, pp. 97–106. doi: 10.1016/j.micron.2012.11.002.

- Das, D.K., Maiti, A.K. and Chakraborty, C. 2015a. Automated system for characterization and classification of malaria-infected stages using light microscopic images of thin blood smears. *Journal of Microscopy* 257(3), pp. 238–252. doi: 10.1111/jmi.12206.
- Das, D.K., Mukherjee, R. and Chakraborty, C. 2015b. Computational microscopic imaging for malaria parasite detection: a systematic review. *Journal of Microscopy* 260(1), pp. 1–19. doi: 10.1111/jmi.12270.
- Devi, S.S., Herojit Singh, N. and Hussain Laskar, R. 2020. Performance Analysis of Various Feature Sets for Malaria-Infected Erythrocyte Detection. In: *Advances in Intelligent Systems and Computing*. doi: 10.1007/978-981-15-0184-5_24.
- Devi, S.S., Laskar, R.H. and Sheikh, S.A. 2018a. Hybrid classifier based life cycle stages analysis for malaria-infected erythrocyte using thin blood smear images. *Neural Computing and Applications* 29(8), pp. 217–235. doi: 10.1007/s00521-017-2937-4.
- Devi, S.S., Roy, A., Singha, J., Sheikh, S.A. and Laskar, R.H. 2018b. Malaria infected erythrocyte classification based on a hybrid classifier using microscopic images of thin blood smear. *Multimedia Tools and Applications* 77(1), pp. 631–660. doi: 10.1007/s11042-016-4264-7.
- Devi, S.S., Sheikh, S.A., Talukdar, A. and Laskar, R.H. 2016. Malaria Infected Erythrocyte Classification Based on the Histogram Features using Microscopic Images of Thin Blood Smear. *Indian Journal of Science and Technology* 9(45), pp. 1–10. doi: 10.17485/ijst/2016/v9i45/94119.
- Devi, S.S., Singha, J., Sharma, M. and Laskar, R.H. 2017. Erythrocyte segmentation for quantification in microscopic images of thin blood smears. *Journal of Intelligent & Fuzzy Systems* 32(4), pp. 2847–2856. doi: 10.3233/JIFS-169227.
- Fausett, L.V. 1994. *Fundamentals of Neural Networks: Architectures, Algorithms, and Applications*. Upper Saddle River, NJ, USA: Prentice-Hall.
- Gatc, J., Maspiyanti, F., Sarwinda, D. and Arymurthy, A.M. 2013. Plasmodium parasite detection on Red Blood Cell image for the diagnosis of malaria using double thresholding. In: *2013 International Conference on Advanced Computer Science and Information Systems, ICACSI 2013*. pp. 381–385. doi: 10.1109/ICACSI.2013.6761605.
- Gonzalez, R.C. and Woods, R.E. 2018. *Digital Image Processing*. 4th ed. New York: Pearson.
- Gupta, B. and Tiwari, M. 2016a. Minimum mean brightness error contrast enhancement of color images using adaptive gamma correction with color preserving framework. *Optik* 127(4), pp. 1671–1676. doi: 10.1016/j.ijleo.2015.10.068.

- Gupta, B. and Tiwari, M. 2016b. Minimum mean brightness error contrast enhancement of color images using adaptive gamma correction with color preserving framework. *Optik* 127(4), pp. 1671–1676. doi: 10.1016/j.ijleo.2015.10.068.
- Haralick, R.M., Dinstein, I. and Shanmugam, K. 1973. Textural Features for Image Classification. *IEEE Transactions on Systems, Man and Cybernetics* SMC-3(6), pp. 610–621. doi: 10.1109/TSMC.1973.4309314.
- Hartati, S., Harjoko, A., Rosnelly, R., Chandradewi, I. and Faizah. 2019. Performance of SVM and ANFIS for Classification of Malaria Parasite and Its Life-Cycle-Stages in Blood Smear. In: *Communications in Computer and Information Science*. pp. 110–121. doi: 10.1007/978-981-13-3441-2_9.
- Harun, N.H., Mashor, M.Y. and Rosline, H. 2010. Calculation of blast area for acute leukemia blood cells images. In: *Proceedings of the International Postgraduate Conference on Engineering*.
- Hawkes, M., Katsuva, J.P. and Masumbuko, C.K. 2009. Use and limitations of malaria rapid diagnostic testing by community health workers in war-torn Democratic Republic of Congo. *Malaria Journal* 8(1), pp. 1–8. doi: 10.1186/1475-2875-8-308.
- Hegde, R.B., Prasad, K., Hebbar, H. and Singh, B.M.K. 2019. Development of a robust algorithm for detection of nuclei of white blood cells in peripheral blood smear images. *Multimedia Tools and Applications* 78(13), pp. 17879–17898. doi: 10.1007/s11042-018-7107-x.
- Herng, O.W., Nasir, A.S.A., Chin, O.B. and Tan, E.S.M.M. 2021. Harumanis Mango Leaves Image Segmentation on RGB and HSV Colour Spaces using Fast k-Means Clustering. In: *Journal of Physics: Conference Series*. doi: 10.1088/1742-6596/2107/1/012068.
- Herng, O.W., Nasir, A.S.A. and Hasnizal, M.S.A. 2024. Harumanis mango leaves nutrient content classification based on on-line sequential extreme learning machine approach. In: *In AIP Conference Proceedings*. AIP Publishing, p. 040002. doi: 10.1063/5.0201814.
- Hommelsheim, C.M., Frantzeskakis, L., Huang, M. and Ülker, B. 2014. PCR amplification of repetitive DNA: a limitation to genome editing technologies and many other applications. *Scientific Reports* 4(1), pp. 1–13. Available at: <https://www.nature.com/articles/srep05052> [Accessed: 21 December 2022].
- Hu, M.K. 1962. Visual Pattern Recognition by Moment Invariants. *IRE Transactions on Information Theory* 8(2), pp. 179–187. doi: 10.1109/TIT.1962.1057692.

- Huang, G. Bin. 2003. Learning capability and storage capacity of two-hidden-layer feedforward networks. *IEEE Transactions on Neural Networks* 14(2), pp. 274–281. doi: 10.1109/TNN.2003.809401.
- Jan, Z., Khan, A., Sajjad, M., Muhammad, K., Rho, S. and Mehmood, I. 2018. A review on automated diagnosis of malaria parasite in microscopic blood smears images. *Multimed Tools Appl* 77(8), pp. 9801–9826. doi: 10.1007/s11042-017-4495-2.
- Jaya, V.L. and Gopikakumari, R. 2013. IEM: A New Image Enhancement Metric for Contrast and Sharpness Measurements. *International Journal of Computer Applications* 79(9), pp. 1–9. doi: 10.5120/13766-1620.
- Jung, C. and Kim, C. 2010. Segmenting clustered nuclei using H-minima transform-based marker extraction and contour parameterization. *IEEE Transactions on Biomedical Engineering* 57(10), pp. 2600–2604. doi: 10.1109/TBME.2010.2060336.
- Kanafiah, S.N.A.M., Mashor, M.Y., Mustafa, W.A., Mohamed, Z., Abdul Shukor, S.A., Yazid, H. and Yahya, Z.R. 2018. A novel contrast enhancement technique based on combination of local and global statistical data on malaria images. *Journal of Biomimetics, Biomaterials and Biomedical Engineering* 38, pp. 23–30. doi: 10.4028/www.scientific.net/JBBBE.38.23.
- Kemenkes. 2017a. *Buku Saku Tatalaksana Kasus Malaria*. Jakarta: Direktorat Jenderal Pencegahan dan Pengendalian Penyakit.
- Kemenkes. 2017b. *Pedoman Teknis Pemeriksaan Parasit Malaria*. Jakarta: Direktorat Pencegahan dan Pengendalian Penyakit Tular Vektor dan Zoonotik.
- Kemenkes. 2021. *Wilayah-wilayah Endemis Malaria Tinggi di Indonesia*. Available at: <https://www.malaria.id/artikel/wilayah-wilayah-endemis-malaria-tinggi-di-indonesia> [Accessed: 10 November 2021].
- Kemenkes. 2023. *Rencana Aksi Nasional Percepatan Eliminasi Malaria 2020-2026 (revisi)*. Jakarta: Direktorat Jenderal Pencegahan dan Pengendalian Penyakit.
- Khairudin, N.A.A., Abdul Nasir, A.S., Chin, L.C., Jaafar, H. and Mohamed, Z. 2021. Improvising Non-uniform Illumination and Low Contrast Images of Soil Transmitted Helminths Image Using Contrast Enhancement Techniques. In: *Proceedings of the 11th National Technical Seminar on Unmanned System Technology 2019*. Springer, Singapore, pp. 641–658. Available at: https://link.springer.com/chapter/10.1007/978-981-15-5281-6_45 [Accessed: 28 June 2025].
- Khan, M.I., Acharya, B., Singh, B.K. and Soni, J. 2011. Content Based Image Retrieval Approaches for Detection of Malarial Parasite in Blood Images. *International Journal of Biometrics and Bioinformatics* 5(2), pp. 97–110.

- Kudisthalert, W., Pasupa, K. and Tongshima, S. 2020. Counting and Classification of Malarial Parasite From Giemsa-Stained Thin Film Images. *IEEE Access* 8, pp. 78663–78682. doi: 10.1109/ACCESS.2020.2990497.
- Lam, E.Y. 2005. Combining gray world and retinex theory for automatic white balance in digital photography. In: *Proceedings of the Ninth International Symposium on Consumer Electronics, 2005. (ISCE 2005)*. IEEE, pp. 134–139. doi: 10.1109/ISCE.2005.1502356.
- Larose, D.T. and Larose, C.D. 2014. *Discovering Knowledge in Data: An Introduction to Data Mining: Second Edition*. 2nd ed. John Wiley & Sons. doi: 10.1002/9781118874059.
- Loddo, A., Di Ruberto, C. and Kocher, M. 2018. Recent Advances of Malaria Parasites Detection Systems Based on Mathematical Morphology. *Sensors* 18(2), p. 513. doi: 10.3390/s18020513.
- Loddo, A., Di Ruberto, C., Kocher, M. and Prod'hom, G. 2019. MP-IDB: The Malaria Parasite Image Database for Image Processing and Analysis. In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Springer, Cham, pp. 57–65. Available at: https://link.springer.com/chapter/10.1007/978-3-030-13835-6_7 [Accessed: 28 May 2022].
- Looareesuwan, S. and Wilairatana, P. 1999. *Malaria in Clinical Tropical Medicine*. 1st ed. Bangkok: Medical Media.
- Mahmood, N.H. and Mansor, M.A. 2012. Red Blood Cells Estimation Using Hough Transform Technique. *Signal and Image Processing* 3(2), pp. 53–64. doi: 10.5121/sipij.2012.3204.
- Maitra, M., Kumar Gupta, R. and Mukherjee, M. 2012. Detection and Counting of Red Blood Cells in Blood Cell Images using Hough Transform. *International Journal of Computer Applications* 53(16), pp. 18–22. doi: 10.5120/8505-2274.
- Mayrose, H., Bairy, G.M., Sampathila, N., Belurkar, S. and Saravu, K. 2023. Machine Learning-Based Detection of Dengue from Blood Smear Images Utilizing Platelet and Lymphocyte Characteristics. *Diagnostics* 13(2). doi: 10.3390/diagnostics13020220.
- Maysanjaya, I.M.D., Nugroho, H.A., Setiawan, N.A. and Murhandarwati, E.E.H. 2016. Segmentation of Plasmodium vivax phase on digital microscopic images of thin blood films using colour channel combination and Otsu method. In: *AIP Conference Proceedings*. AIP Publishing LLC/AIP Publishing, p. 160002. Available at: <https://aip.scitation.org/doi/abs/10.1063/1.4958595> [Accessed: 28 May 2022].

- McKenzie, F.E., Sirichaisinthop, J., Miller, R.S., Gasser, R.A. and Wongsrichanalai, C. 2003. Dependence of malaria detection and species diagnosis by microscopy on parasite density. *The American journal of tropical medicine and hygiene* 69(4), p. 376. Available at: [/pmc/articles/PMC2504332/](#) [Accessed: 27 May 2022].
- Minarno, A.E., Aripa, L., Azhar, Y. and Munarko, Y. 2023. Classification of Malaria Cell Image Using Inception-V3 Architecture. *International Journal on Informatics Visualization* 7(2). doi: 10.30630/joiv.7.2.1301.
- Mitiku, K., Mengistu, G. and Gelaw, B. 2004. The reliability of blood film examination for malaria at the peripheral health unit. *Ethiopian Journal of Health Development* 17(3), pp. 197–204. Available at: <https://www.ajol.info/index.php/ejhd/article/view/9840> [Accessed: 27 May 2022].
- Mohanaiah, P., Sathyanarayana, P. and Gurukumar, L. 2013. Image Texture Feature Extraction Using GLCM Approach. *International Journal of Scientific & Research Publication* 3(5), pp. 290–294.
- Molina, A., Alférez, S., Boldú, L., Acevedo, A., Rodellar, J. and Merino, A. 2020. Sequential classification system for recognition of malaria infection using peripheral blood cell images. *Journal of Clinical Pathology* 73(10), pp. 665–670. doi: 10.1136/jclinpath-2019-206419.
- Montero, R.S. and Bribiesca, E. 2009. State of the art of compactness and circularity measures. *International Mathematical Forum* 4(27), pp. 1305–1335.
- Murmu, A. and Kumar, P. 2024. DLRFNet: deep learning with random forest network for classification and detection of malaria parasite in blood smear. *Multimedia Tools and Applications* 83(23). doi: 10.1007/s11042-023-17866-6.
- Nahrawi, N., Mustafa, W.A., Kanafiah, S.N.A.M., Jamlos, M.A. and Khairunizam, W. 2021. Contrast enhancement approaches on medical microscopic images: a review. In: *Proceedings of the 11th National Technical Seminar on Unmanned System Technology 2019*. Springer, pp. 715–726. doi: 10.1007/978-981-15-5281-6_51.
- Nasir, A.S.A., Khairudin, N.A.A., Chin, L.C., Aris, T.A. and Mohamed, Z. 2021. Enhanced k-Means Clustering Algorithm for Detection of Human Intestinal Parasites. In: *Proceedings - 2020 IEEE EMBS Conference on Biomedical Engineering and Sciences, IECBES 2020*. doi: 10.1109/IECBES48179.2021.9398801.
- Nugroho, H.A., Akbar, S.A. and Murhandarwati, E.E.H. 2015. Feature extraction and classification for detection malaria parasites in thin blood smear. In: *2015 2nd International Conference on Information Technology, Computer,*

- and Electrical Engineering (ICITACEE)*. IEEE, pp. 197–201. doi: 10.1109/ICITACEE.2015.7437798.
- Nugroho, H.A., Darojatun, A., Ardiyanto, I. and Buana, R.L.B. 2018. Classification of Plasmodium Malariae dan Plasmodium Ovale in Microscopic Thin Blood Smear Digital Images. *International Journal on Advanced Science, Engineering and Information Technology* 8(6), pp. 2301–2307. doi: 10.18517/ijaseit.8.6.6514.
- Nugroho, H.A. and Nurfauzi, R. 2023. A combination of optimized threshold and deep learning-based approach to improve malaria detection and segmentation on PlasmoID dataset. *Facets* 8. doi: 10.1139/facets-2022-0206.
- Nugroho, H.A., Nurfauzi, R. and Frannita, E.L. 2019a. Plasmodium Candidate Detection on Thin Blood Smear Images with Luminance Noise Reduction. In: *Proceeding - 2019 5th International Conference on Science in Information Technology: Embracing Industry 4.0: Towards Innovation in Cyber Physical System, ICSITech 2019*. pp. 146–149. doi: 10.1109/ICSITech46713.2019.8987538.
- Nugroho, H.A., Wibawa, M.S., Setiawan, N.A., Herdiana Murhandarwati, E.E. and Budiani Buana, R.L. 2019b. Identification of plasmodium falciparum and plasmodium vivax on digital image of thin blood films gf. *Indonesian Journal of Electrical Engineering and Computer Science* 13(3), pp. 933–944. doi: 10.11591/ijeecs.v13.i3.pp933-944.
- Otsu, N. 1979. A Threshold Selection Method from Gray-Level Histograms. *IEEE Transactions on Systems, Man, and Cybernetics* 9(1), pp. 62–66. doi: 10.1109/TSMC.1979.4310076.
- Pasupa, K., Sunhem, W. and Loo, C.K. 2019. A hybrid approach to building face shape classifier for hairstyle recommender system. *Expert Systems with Applications* 120, pp. 14–32. doi: 10.1016/j.eswa.2018.11.011.
- Poostchi, M., Silamut, K., Maude, R.J., Jaeger, S. and Thoma, G. 2018. Image analysis and machine learning for detecting malaria. *Translational Research* 194, pp. 36–55. doi: 10.1016/J.TRSL.2017.12.004.
- Provost, F. and Kohavi, R. 1998. On Applied Research in Machine Learning. *Machine Learning* 30(2/3), pp. 127–132.
- Qureshi, M.A., Beghdadi, A. and Deriche, M. 2017. Towards the design of a consistent image contrast enhancement evaluation measure. *Signal Processing: Image Communication* 58, pp. 212–227. doi: 10.1016/j.image.2017.08.004.
- Rajaraman, S. et al. 2018. Pre-trained convolutional neural networks as feature extractors toward improved malaria parasite detection in thin blood smear images. *PeerJ* 6, p. e4568. doi: 10.7717/peerj.4568.

- Rasheed, S., Raza, M., Sharif, M., Kadry, S. and Alharbi, A. 2022. Single Channel Image Enhancement (SCIE) of White Blood Cells Based on Virtual Hexagonal Filter (VHF) Designed over Square Trellis. *Journal of Personalized Medicine* 12(8). doi: 10.3390/jpm12081232.
- Rashid, N.Z.N., Mashor, M.Y. and Hassan, R. 2015. Unsupervised color image segmentation of red blood cell for thalassemia disease. In: *Proceedings - 2015 2nd International Conference on Biomedical Engineering, ICoBE 2015*. pp. 1–6. doi: 10.1109/ICoBE.2015.7235892.
- Rosado, L., Da Costa, J., Elias, D. and Cardoso, J. 2017. Mobile-Based Analysis of Malaria-Infected Thin Blood Smears: Automated Species and Life Cycle Stage Determination. *Sensors* 17(10), p. 2167. doi: 10.3390/s17102167.
- Rosnelly, R., Hartati, S., Mulatsih, S. and Winarko, E. 2017. *Identifikasi Penyakit Malaria Beserta Stadium Berdasarkan Fitur Bentuk Dan Fitur Tekstur*. Disertasi, Yogyakarta: Universitas Gadjah Mada.
- Rosnelly, R., Subhan Riza, B., Wahyuni, L., Suparni, S., Prasetio, A. and Rahim, R. 2022. Improvement of Hybrid Image Enhancement for Detection and Classification of Malaria Disease Types and Stages with Artificial Intelligence. *TEM Journal*, pp. 535–542. doi: 10.18421/TEM112-06.
- Ross, N.E., Pritchard, C.J., Rubin, D.M. and Dusé, A.G. 2006. Automated image processing method for the diagnosis and classification of malaria on thin blood smears. *Medical and Biological Engineering and Computing* 44(5), pp. 427–436. doi: 10.1007/s11517-006-0044-2.
- Roy, A., Singha, J., Devi, S.S. and Laskar, R.H. 2016. Impulse noise removal using SVM classification based fuzzy filter from gray scale images. *Signal Processing* 128, pp. 262–273. doi: 10.1016/j.sigpro.2016.04.007.
- Sailaja, M. and Sreenivasulu, G. 2024. *Enhanced Contrast of Microscopic Blood Images of Leukaemia using a Modified Morphological Contrast Enhancement Algorithm*.
- Salamah, U., Sarno, R., Arifin, A.Z., Nugroho, A.S., Rozi, I.E. and Asih, P.B.S. 2020. Enhancement of low quality blood smear image using contrast and edge corrections. *International Journal of Biomedical Engineering and Technology* 34(4). doi: 10.1504/IJBET.2020.112422.
- Sangole, M.K. and Gandhe, S.T. 2020. An Efficient Decision based Multistage Median Filter for Reducing Impulse Noise from Blood Smear Malaria Images. *Journal of University of Shanghai for Science and Technology* 22(10), pp. 1093–1103.
- Sharma, M., Devi, S.S. and Laskar, R.H. 2020. Automatic Detection of Malaria Infected Erythrocytes Based on the Concavity Point Identification and Pseudo-Valley Based Thresholding. *IETE Journal of Research* 68(6), pp. 4043–4060. doi: 10.1080/03772063.2020.1787238.

- Sofia, R. 2018. Malaria Asimtomatik: Tantangan Dalam Pengendalian Malaria. *AVERROUS: Jurnal Kedokteran dan Kesehatan Malikussaleh* 1(2), p. 92. doi: 10.29103/AVERROUS.V1I2.419.
- Somasekar, J. and Eswara Reddy, B. 2015. Segmentation of erythrocytes infected with malaria parasites for the diagnosis using microscopy imaging. *Computers & Electrical Engineering* 45, pp. 336–351. doi: 10.1016/j.compeleceng.2015.04.009.
- Somasekar, J., Ramesh, G., Ramu, G., Dileep Kumar Reddy, P., Eswara Reddy, B. and Lai, C.-H. 2019. A dataset for automatic contrast enhancement of microscopic malaria infected blood RGB images. *Data in Brief* 27, p. 104643. doi: 10.1016/j.dib.2019.104643.
- Somasekar, J., Sharma, A., Madhusudhana Reddy, N. and Padmanabha Reddy, Y.C.A. 2020. Image analysis for automatic enumeration of rbc infected with plasmodium parasites-implications for malaria diagnosis. *Advances in Mathematics: Scientific Journal* 9(3), pp. 1229–1237. doi: 10.37418/amsj.9.3.48.
- Stathakis, D. 2009. How many hidden layers and nodes? *International Journal of Remote Sensing* 30(8), pp. 2133–2147. doi: 10.1080/01431160802549278.
- Sukumarran, D. et al. 2024. Automated Identification of Malaria-Infected Cells and Classification of Human Malaria Parasites Using a Two-Stage Deep Learning Technique. *IEEE Access* 12, pp. 135746–135763. doi: 10.1109/ACCESS.2024.3459411.
- Tangpukdee, N., Duangdee, C., Wilairatana, P. and Krudsood, S. 2009. Malaria Diagnosis: A Brief Review. *The Korean Journal of Parasitology* 47(2), pp. 93–102. Available at: [/pmc/articles/PMC2688806/](https://pubmed.ncbi.nlm.nih.gov/2688806/) [Accessed: 3 July 2022].
- Tek, F.B., Dempster, A.G. and Kale, I. 2009. Computer vision for microscopy diagnosis of malaria. *Malaria Journal* 8(1), pp. 1–14. doi: 10.1186/1475-2875-8-153.
- Tyas, D.A., Hartati, S., Harjoko, A. and Ratnaningsih, T. 2020a. Morphological, Texture, and Color Feature Analysis for Erythrocyte Classification in Thalassemia Cases. *IEEE Access* 8, pp. 69849–69860. doi: 10.1109/ACCESS.2020.2983155.
- Tyas, D.A., Hartati, S. and Ratnaningsih, T. 2020b. *Analisis Ciri Morfologi, Tekstur, Dan Warna Untuk Klasifikasi Dan Grading Eritrosit Pada Kasus Talasemia*. Disertasi, Yogyakarta: Universitas Gadjah Mada.
- Uzoigwe, C. 2006. The human erythrocyte has developed the biconcave disc shape to optimise the flow properties of the blood in the large vessels. *Medical Hypotheses* 67(5), pp. 1159–1163. doi: 10.1016/j.mehy.2004.11.047.

- Vincent, L. 1993. Morphological Grayscale Reconstruction in Image Analysis: Applications and Efficient Algorithms. *IEEE Transactions on Image Processing* 2(2), pp. 176–201. doi: 10.1109/83.217222.
- Wang, Z., Bovik, A.C., Sheikh, H.R. and Simoncelli, E.P. 2004. Image quality assessment: From error visibility to structural similarity. *IEEE Transactions on Image Processing* 13(4). doi: 10.1109/TIP.2003.819861.
- WHO. 2020. *World Malaria Report: 20 years of global progress and challenges*. Available at: <https://www.who.int/publications/i/item/9789240015791> [Accessed: 20 December 2022].
- Yeon, J., Kim, J.-D., Kim, Y.-S., Park, C.-Y. and Song, H.-J. 2014. Effective Grayscale Conversion Method for Malaria Parasite Detection. In: *Proceedings of the 6th international conference on multimedia. Comput Graph Broadcast*. pp. 77–81. doi: 10.14257/astl.2014.78.15.
- Zhang, L., Zhang, L., Mou, X. and Zhang, D. 2011. FSIM: A feature similarity index for image quality assessment. *IEEE Transactions on Image Processing* 20(8). doi: 10.1109/TIP.2011.2109730.
- Zhu, Z., Wang, S. and Zhang, Y. 2022. ROENet: A ResNet-Based Output Ensemble for Malaria Parasite Classification. *Electronics (Switzerland)* 11(13). doi: 10.3390/electronics11132040.