

REFERENSI

- [1] N. Thakur and M. Juneja, "Survey on segmentation and classification approaches of optic cup and optic disc for diagnosis of glaucoma," *Biomedical Signal Processing and Control*, vol. 42. Elsevier Ltd, pp. 162–189, Apr. 01, 2018. doi: 10.1016/j.bspc.2018.01.014.
- [2] A. Almazroa, R. Burman, K. Raahemifar, and V. Lakshminarayanan, "Optic Disc and Optic Cup Segmentation Methodologies for Glaucoma Image Detection: A Survey," *Journal of Ophthalmology*, vol. 2015. Hindawi Publishing Corporation, 2015. doi: 10.1155/2015/180972.
- [3] J. J. Gómez-Valverde *et al.*, "Automatic glaucoma classification using color fundus images based on convolutional neural networks and transfer learning," *Biomedical Optics Express*, vol. 10, no. 2, p. 892, Feb. 2019, doi: 10.1364/boe.10.000892.
- [4] S. Sreng, N. Maneerat, K. Hamamoto, and K. Y. Win, "Deep learning for optic disc segmentation and glaucoma diagnosis on retinal images," *Applied Sciences (Switzerland)*, vol. 10, no. 14, Jul. 2020, doi: 10.3390/app10144916.
- [5] A. Sevastopolsky, "Optic disc and cup segmentation methods for glaucoma detection with modification of U-Net convolutional neural network," *Pattern Recognition and Image Analysis*, vol. 27, no. 3, pp. 618–624, Jul. 2017, doi: 10.1134/S1054661817030269.
- [6] N. Thakur and M. Juneja, "Classification of glaucoma using hybrid features with machine learning approaches," *Biomedical Signal Processing and Control*, vol. 62, Sep. 2020, doi: 10.1016/j.bspc.2020.102137.
- [7] Rafael C. Gonzalez and Richard E. Woods, *Digital Image Processing*, 4th ed. Pearson Education, 2018.
- [8] Michael Nielsen, *Neural Networks and Deep Learning*. Determination Press, 2015. [Online]. Available: <http://neuralnetworksanddeeplearning.com/>
- [9] K. Simonyan and A. Zisserman, "Very Deep Convolutional Networks for Large-Scale Image Recognition," Sep. 2014.
- [10] K. He, X. Zhang, S. Ren, and J. Sun, "Deep Residual Learning for Image Recognition," Dec. 2015.
- [11] M. Sandler, A. Howard, M. Zhu, A. Zhmoginov, and L.-C. Chen, "MobileNetV2: Inverted Residuals and Linear Bottlenecks," Jan. 2018.
- [12] M. Tan and Q. v. Le, "EfficientNet: Rethinking Model Scaling for Convolutional Neural Networks," May 2019.



- [13] G. Lim, Y. Cheng, W. Hsu, and M. L. Lee, "Integrated optic disc and cup segmentation with deep learning," in *Proceedings - International Conference on Tools with Artificial Intelligence, ICTAI*, Jan. 2016, vol. 2016-January, pp. 162–169. doi: 10.1109/ICTAI.2015.36.
- [14] S. Yu, D. Xiao, S. Frost, and Y. Kanagasingam, "Robust optic disc and cup segmentation with deep learning for glaucoma detection," *Computerized Medical Imaging and Graphics*, vol. 74, pp. 61–71, Jun. 2019, doi: 10.1016/j.compmedimag.2019.02.005.
- [15] H. Fu, J. Cheng, Y. Xu, D. W. K. Wong, J. Liu, and X. Cao, "Joint Optic Disc and Cup Segmentation Based on Multi-Label Deep Network and Polar Transformation," *IEEE Transactions on Medical Imaging*, vol. 37, no. 7, pp. 1597–1605, Jul. 2018, doi: 10.1109/TMI.2018.2791488.
- [16] L. Li, M. Xu, X. Wang, L. Jiang, and H. Liu, "Attention Based Glaucoma Detection: A Large-scale Database and CNN Model." [Online]. Available: <https://github.com/smilell/AG-CNN>.
- [17] F. Guo, W. Li, X. Zhao, J. Qiu, and Y. Mai, "A mobile app for Glaucoma diagnosis and its possible clinical applications," *BMC Medical Informatics and Decision Making*, vol. 20, no. 3, p. 128, 2020, doi: 10.1186/s12911-020-1123-2.
- [18] IBM Cloud Education, "Application Programming Interface (API)," Aug. 19, 2020. <https://www.ibm.com/cloud/learn/api> (accessed Nov. 16, 2021).
- [19] A. Bajaj, "Performance Metrics in Machine Learning [Complete Guide]," Jan. 04, 2022.
- [20] J. R. H. Kumar, C. S. Seelamantula, Y. S. Kamath, and R. Jampala, "Rim-to-Disc Ratio Outperforms Cup-to-Disc Ratio for Glaucoma Prescreening," *Scientific Reports*, vol. 9, no. 1, Dec. 2019, doi: 10.1038/s41598-019-43385-2.
- [21] S. Minaee, Y. Boykov, F. Porikli, A. Plaza, N. Kehtarnavaz, and D. Terzopoulos, "Image Segmentation Using Deep Learning: A Survey," Jan. 2020.
- [22] J. Long, E. Shelhamer, and T. Darrell, "Fully Convolutional Networks for Semantic Segmentation," Nov. 2014, [Online]. Available: <http://arxiv.org/abs/1411.4038>
- [23] H. Zhao, J. Shi, X. Qi, X. Wang, and J. Jia, "Pyramid Scene Parsing Network," Dec. 2016.
- [24] O. Ronneberger, P. Fischer, and T. Brox, "U-Net: Convolutional Networks for Biomedical Image Segmentation," May 2015.
- [25] Z. Zhou, M. M. R. Siddiquee, N. Tajbakhsh, and J. Liang, "UNet++: A Nested U-Net Architecture for Medical Image Segmentation," Jul. 2018, [Online]. Available: <http://arxiv.org/abs/1807.10165>



- [26] H. Huang *et al.*, “UNet 3+: A Full-Scale Connected UNet for Medical Image Segmentation,” Apr. 2020.
- [27] L.-C. Chen, Y. Zhu, G. Papandreou, F. Schroff, and H. Adam, “Encoder-Decoder with Atrous Separable Convolution for Semantic Image Segmentation,” Feb. 2018.
- [28] A. Garcia-Garcia, S. Orts-Escolano, S. Oprea, V. Villena-Martinez, and J. Garcia-Rodriguez, “A Review on Deep Learning Techniques Applied to Semantic Segmentation,” Apr. 2017, [Online]. Available: <http://arxiv.org/abs/1704.06857>
- [29] S. Campbell, “Flask vs Django: What’s the Difference Between Flask & Django?,” Nov. 01, 2021. <https://www.guru99.com/flask-vs-django.html> (accessed Nov. 16, 2021).
- [30] “Flask vs Django: A Detailed Comparison of Python Web Frameworks,” Feb. 22, 2021. <https://www.monocubed.com/flask-vs-django/> (accessed Nov. 16, 2021).
- [31] “Introduction to Redis.” <https://redis.io/topics/introduction> (accessed Nov. 16, 2021).
- [32] A. Chakravarty and J. Sivaswamy, “Glaucoma classification with a fusion of segmentation and image-based features,” in *Proceedings - International Symposium on Biomedical Imaging*, Jun. 2016, vol. 2016-June, pp. 689–692. doi: 10.1109/ISBI.2016.7493360.
- [33] R. Wang, T. Lei, R. Cui, B. Zhang, H. Meng, and A. K. Nandi, “Medical Image Segmentation Using Deep Learning: A Survey,” Sep. 2020, doi: 10.1049/ipr2.12419.
- [34] A. A. Taha, A. Hanbury, and O. A. J. del Toro, “A formal method for selecting evaluation metrics for image segmentation,” in *2014 IEEE International Conference on Image Processing, ICIP 2014*, Jan. 2014, pp. 932–936. doi: 10.1109/ICIP.2014.7025187.
- [35] C. J. Willmott and K. Matsuura, “CLIMATE RESEARCH Clim Res,” Delaware, Dec. 2005. [Online]. Available: www.int-res.com
- [36] T. Chai and R. R. Draxler, “Root mean square error (RMSE) or mean absolute error (MAE)?,” *Geoscientific Model Development Discussions*, vol. 7, no. 1, pp. 1525–1534, 2014, doi: 10.5194/gmdd-7-1525-2014.
- [37] M. A. Fernandez-Granero, A. Sarmiento, D. Sanchez-Morillo, S. Jiménez, P. Alemany, and I. Fondón, “Automatic CDR Estimation for Early Glaucoma Diagnosis,” *Journal of Healthcare Engineering*, vol. 2017, pp. 1–14, 2017, doi: 10.1155/2017/5953621.
- [38] A. Rosebrock, “Deep learning in production with Keras, Redis, Flask, and Apache,” Feb. 05, 2018. <https://www.pyimagesearch.com/2018/02/05/deep-learning-production-keras-redis-flask-apache/>
- [39] Microsoft, “Visual Studio Code.” code.visualstudio.com
- [40] Google, “Welcome to Colaboratory.” colab.research.google.com



- [41] NumPy Developers, “What is NumPy?” <https://numpy.org/doc/stable/user/whatisnumpy.html>
- [42] OpenCV team, “About OpenCV.” <https://opencv.org/about>
- [43] Tensorflow, “Tensorflow Core.” <https://www.tensorflow.org/overview>
- [44] J. Sivaswamy, S. R. Krishnadas, G. Datt Joshi, M. Jain, and A. U. Syed Tabish, “Drishti-GS: Retinal image dataset for optic nerve head (ONH) segmentation,” in *2014 IEEE 11th International Symposium on Biomedical Imaging (ISBI)*, Apr. 2014, pp. 53–56. doi: 10.1109/ISBI.2014.6867807.
- [45] F. Fumero, T. DIAZ-ALEMA, J. Sigu, S. Alayo, R. Arna, and D. Angel-Pereir, “Rim-One DI: A Unified Retinal Image Database for Assessing Glaucoma Using Deep Learning,” *Image Analysis and Stereology*, vol. 39, no. 3, pp. 161–167, 2020, doi: 10.5566/IAS.2346.
- [46] M. Abdullah, M. M. Fraz, and S. A. Barman, “Localization and segmentation of optic disc in retinal images using Circular Hough transform and Grow Cut algorithm,” *PeerJ*, vol. 4, p. e2003, May 2016, doi: 10.7717/peerj.2003.
- [47] OpenCV team, “Hough Circle Transform.” https://docs.opencv.org/3.4/d4/d70/tutorial_hough_circle.html
- [48] OpenCV, “Feature Detection.” https://docs.opencv.org/4.x/dd/d1a/group__imgproc__feature.html (accessed Jun. 05, 2022).
- [49] N. M. Tan *et al.*, “Automatic Detection of Left and Right Eye in Retinal Fundus Images,” in *13th International Conference on Biomedical Engineering*, Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 610–614. doi: 10.1007/978-3-540-92841-6_150.
- [50] albumentations, “Transforms (augmentations.transforms).” https://albumentations.ai/docs/api_reference/augmentations/transforms/
- [51] L. J. Uribe-Valencia and J. F. Martinez-Carballido, “Thesholding methods review for the location of the Optic disc in retinal fundus color images,” Sep. 2016. doi: 10.1109/ICEEE.2016.7751228.
- [52] Soumik Rakshit, “Multiclass semantic segmentation using DeepLabV3+,” 2021. https://keras.io/examples/vision/deeplabv3_plus/
- [53] hepinghu, “Nested-UNet,” 2018. <https://github.com/hepinghu/Nested-UNet/blob/master/model.py>
- [54] stackoverflow, “Dimensions mismatch error when using tf.metrics.MeanIoU() with SparseCategoricalCrossEntropy loss in Tensorflow 2.2,” 2020.



- <https://stackoverflow.com/questions/61824470/%20dimensions-mismatch-error-when-using-tf-metrics-meaniou-with-sparsecategorical>
- [55] S. Jadon, “A survey of loss functions for semantic segmentation,” in *2020 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)*, Oct. 2020, pp. 1–7. doi: 10.1109/CIBCB48159.2020.9277638.
- [56] Lars Nieradzki, “Loss Functions For Segmentation,” Sep. 27, 2018. <https://lars76.github.io/2018/09/27/loss-functions-for-segmentation.html>
- [57] Tensorflow, “tf.keras.optimizers.schedules.ExponentialDecay.” https://www.tensorflow.org/api_docs/python/tf/keras/optimizers/schedules/ExponentialDecay
- [58] Tensorflow, “TensorBoard: TensorFlow’s visualization toolkit.” <https://www.tensorflow.org/tensorboard>
- [59] OpenCV team, “cv::Moments Class Reference.” https://docs.opencv.org/4.x/d8/d23/classcv_1_1Moments.html
- [60] Satya Mallick, “Filling holes in an image using OpenCV (Python / C++),” Nov. 23, 2015. <https://learnopencv.com/filling-holes-in-an-image-using-opencv-python-c/>
- [61] The University of Utah, “Support Vector Machines: Training with Stochastic Gradient Descent,” 2018. <https://www.cs.utah.edu/~zhe/pdf/lec-19-2-svm-sgd-upload.pdf>
- [62] Sun, G., Zhang, Z., Zhang, J. et al. Joint optic disc and cup segmentation based on multi-scale feature analysis and attention pyramid architecture for glaucoma screening. *Neural Comput & Applic* (2021). <https://doi.org/10.1007/s00521-021-06554-x>