



REFERENCES

- [1] I. D. Federation, "Diabetes : Facts and Figures," 2014.
- [2] V. M. Mane and D. V. Jadhav, "Review: Progress Towards Automated Early Stage Detection of Diabetic Retinopathy: Image Analysis Systems and Potential," *Journal of Medical and Biological Engineering*, vol. 34, 2014.
- [3] R. Goldenberg and Z. Punthakee, "Definition, Classification and Diagnosis of Diabetes, Prediabetes and Metabolic Syndrome," *Canadian Journal of Diabetes*, vol. 37, Supplement 1, pp. S8-S11, 2013.
- [4] A. D. Association, "Diagnosis and classification of diabetes mellitus," *Diabetes care*, vol. 31, pp. S55-S60, 2008.
- [5] W. Consultation, *Definition, diagnosis and classification of diabetes mellitus and its complications* vol. 1: Part, 1999.
- [6] O. Faust, R. Acharya U, E. Y. K. Ng, K.-H. Ng, and J. Suri, "Algorithms for the Automated Detection of Diabetic Retinopathy Using Digital Fundus Images: A Review," *Journal of Medical Systems*, vol. 36, pp. 145-157, 1 February 2012.
- [7] C. I. Sánchez, R. Hornero, M. I. López, M. Aboy, J. Poza, and D. Abásolo, "A novel automatic image processing algorithm for detection of hard exudates based on retinal image analysis," *Medical Engineering & Physics*, vol. 30, pp. 350-357, 2008.
- [8] S. Kanth, A. Jaiswal, and M. Kakkar, "Identification of different stages of Diabetic Retinopathy using artificial neural network," in *Contemporary Computing (IC3), 2013 Sixth International Conference on*, 2013, pp. 479-484.
- [9] P. K. SC, M. D. Devaraj, and Manisha, "Automatic Exudate Detection For The Diagnosis Of Diabetic Retinopathy," *International Journal Of Innovative Research & Studies*, vol. 2, pp. 658-669, May 2013.
- [10] M. R. K. Mookiah, U. R. Acharya, C. K. Chua, C. M. Lim, E. Y. K. Ng, and A. Laude, "Computer-aided diagnosis of diabetic retinopathy: A review," *Computers in Biology and Medicine*, vol. 43, pp. 2136-2155, 2013.
- [11] G. B. Kande, P. V. Subbaiah, and T. S. Savithri, "Feature Extraction in Digital Fundus Images," *Journal of Medical and Biological Engineering*, vol. 29, pp. 122-130, 12 Jan 2009.
- [12] D. K. S. S.karthick and A. Priyadharsini, "A Survey on Hard Exudates Detection and Segmentation," *International Journal of Scientific Engineering and Technology*, vol. 3, pp. 154-158, 1 Feb 2014.
- [13] A. Somasundaram and J. Prabhu, "Detection of Exudates for the Diagnosis of Diabetic retinopathy," *International Journal of Innovation and Applied Studies*, vol. 3, pp. 116-120, 2013.
- [14] D. Kayal and S. Banerjee, "An Approach to Detect Hard Exudates Using Normalized Cut Image Segmentation Technique in Digital Retinal Fundus



- Image," in *Advances in Computer Science, Engineering & Applications*. vol. 166, D. C. Wyld, J. Zizka, and D. Nagamalai, Eds., ed: Springer Berlin Heidelberg, 2012, pp. 123-128.
- [15] K. W. Oktoeberza, H. A. Nugroho, and T. B. Adji, "Optic Disc Segmentation Based on Red Channel Retinal Fundus Images," in *Intelligence in the Era of Big Data*, ed: Springer, 2015, pp. 348-359.
- [16] M. Benalcázar, M. Brun, and V. Ballarin, "Automatic Segmentation of Exudates in Ocular Images using Ensembles of Aperture Filters and Logistic Regression," *Journal of Physics*, pp. 1-10, 2013.
- [17] H.-T. Chen, C.-M. Wang, Y.-K. Chan, S.-F. Yang-Mao, Y.-F. Chen, and S.-F. Lin, "Statistics-Based Initial Contour Detection of Optic Disc on a Retinal Fundus Image Using Active Contour Model," *Journal of Medical and Biological Engineering*, vol. 33, pp. 388-393, 4 Oct 2013.
- [18] T. Kauppi, V. Kalesnykiene, J.-K. Kamarainen, L. Lensu, I. Sorri, A. Raninen, R. Voutilainen, J. Pietilä, H. Kälviäinen, and H. Uusitalo, "DIARETDB1 - Standard Diabetic Retinopathy Database Calibration level 1," ed, 2007.
- [19] G. F. M. Ponnaiah and C. D. S. S. Baboo, "Automatic Optic Disc Detection and Removal of False Exudates for Improving Retinopathy Classification Accuracy," *International Journal of Scientific and Research Publications*, vol. 3, pp. 1-7, 2013.
- [20] E. Imani, H.-R. Pourreza, and T. Banaee, "Fully Automated Diabetic Retinopathy Screening Using Morphological Component Analysis," *Computerized Medical Imaging and Graphics*, 2015.
- [21] A. Sopharak, B. Uyyanonvara, and S. Barman, "Automatic microaneurysm detection from non-dilated diabetic retinopathy retinal images using mathematical morphology methods," *IAENG International Journal of Computer Science*, vol. 38, pp. 295-301, 2011.
- [22] S. Devisaranya and J. Suganya, "Classification of Retinal blood vessels and identification of Microaneurysms."
- [23] M. J. Paranjpe and M. Kakatkar, "Review of Method for Diabetic Retinopathy Detection and Severity Classification," *International Journal of Research in Engineering and Technology*, vol. 03, pp. 619-624, March 2014.
- [24] N. G. Ranamuka and R. G. N. Meegama, "Detection of hard exudates from diabetic retinopathy images using fuzzy logic," *Image Processing, IET*, vol. 7, pp. 121-130, 2013.
- [25] S. Rashid and Shagufta, "Computerized Exudate Detection in Fundus Images Using Statistical Feature based Fuzzy C-mean Clustering," *International Journal of Computing and Digital Systems*, vol. 2, pp. 135-145, 1 September 2013.
- [26] L. Giancardo, F. Meriaudeau, T. P. Karnowski, Y. Li, S. Garg, K. W. Tobin, and E. Chaum, "Exudate-based diabetic macular edema detection in fundus images using publicly available datasets," *Medical image analysis*, vol. 16, pp. 216-226, 2012.
- [27] W. Sae-Tang, W. Chiracharit, and W. Kumwilaisak, "Exudates detection in



- fundus image using non-uniform illumination background subtraction," in *TENCON 2010-2010 IEEE Region 10 Conference*, 2010, pp. 204-209.
- [28] A. Bin Mansoor, Z. Khan, A. Khan, and S. A. Khan, "Enhancement of exudates for the diagnosis of diabetic retinopathy using Fuzzy Morphology," in *Multitopic Conference, 2008. INMIC 2008. IEEE International*, 2008, pp. 128-131.
- [29] H. Yazid, H. Arof, and H. Mohd Isa, "Exudates segmentation using inverse surface adaptive thresholding," *Measurement*, vol. 45, pp. 1599-1608, 2012.
- [30] S. Kavitha and K. Duraiswamy, "Automatic detection of hard and soft exudates in fundus images using color histogram thresholding," *European Journal of Scientific Research*, vol. 48, pp. 493-504, 2011.
- [31] S. Irshad, M. Salman, M. U. Akram, and U. Yasin, "Automated detection of Cotton Wool Spots for the diagnosis of Hypertensive Retinopathy," in *Biomedical Engineering Conference (CIBEC), 2014 Cairo International*, 2014, pp. 121-124.
- [32] A. Osareh, M. Mirmehdi, B. Thomas, and R. Markham, "Comparison of colour spaces for optic disc localisation in retinal images," in *Pattern Recognition, 2002. Proceedings. 16th International Conference on*, 2002, pp. 743-746.
- [33] M. García, C. I. Sánchez, J. Poza, M. I. López, and R. Hornero, "Detection of hard exudates in retinal images using a radial basis function classifier," *Annals of biomedical engineering*, vol. 37, pp. 1448-1463, 2009.
- [34] M. Garcia, C. Valverde, M. I. Lopez, J. Poza, and R. Hornero, "Comparison of logistic regression and neural network classifiers in the detection of hard exudates in retinal images," in *Engineering in Medicine and Biology Society (EMBC), 2013 35th Annual International Conference of the IEEE*, 2013, pp. 5891-5894.
- [35] U. Aftab and M. U. Akram, "Automated identification of exudates for detection of macular edema," in *Biomedical Engineering Conference (CIBEC), 2012 Cairo International*, 2012, pp. 27-30.
- [36] X. Chen, W. Bu, X. Wu, B. Dai, and Y. Teng, "A novel method for automatic Hard Exudates detection in color retinal images," in *Machine Learning and Cybernetics (ICMLC), 2012 International Conference on*, 2012, pp. 1175-1181.
- [37] M. G. F. Eadgahi and H. Pourreza, "Localization of hard exudates in retinal fundus image by mathematical morphology operations," in *Computer and Knowledge Engineering (ICCKE), 2012 2nd International eConference on*, 2012, pp. 185-189.
- [38] B. Harangi and A. Hajdu, "Improving automatic exudate detection based on the fusion of the results of multiple active contours," in *Biomedical Imaging (ISBI), 2013 IEEE 10th International Symposium on*, 2013, pp. 45-48.
- [39] N. Y. Garaibeh, A. Ma'mon, and M. Al-Jarrah, "Automatic Exudate Detection Using Eye Fundus Image Analysis Due to Diabetic Retinopathy," *Computer and Information Science*, vol. 7, p. p48, 2014.



- [40] K. Ragul 2nd, "An Efficient Color Conversion Process for the Exaggeration and Segmentation of Diabetic Retinopathy in Retinal Complications Using Adaptive Fuzzy C-Means Clustering Algorithm with Gradient Magnitude and Vessel Extraction Method."
- [41] C. Nayak, M. L. Kaur, E. Reader, and M. S. Kumar, "Retinal Blood Vessel Segmentation Algorithm for Diabetic Retinopathy using Wavelet: A Survey."
- [42] I. Darma Putra and I. G. Suarjana, "Segmentasi Citra Retina Digital Retinopati Diabetes Untuk Membantu Pendeteksian Mikroaneurisma," *Jurnal Teknologi Elektro*, vol. 9, 2012.
- [43] J. P. Bae, K. G. Kim, H. C. Kang, C. B. Jeong, K. H. Park, and J.-M. Hwang, "A study on hemorrhage detection using hybrid method in fundus images," *Journal of Digital Imaging*, vol. 24, pp. 394-404, 2011.
- [44] J. G. Arroyo. (2004). *Cotton-Wool Spots May Challenge Diagnosis*. Available:
http://www.reviewofophthalmology.com/content/d/retinal_insider/i/1332/c/25556/
- [45] K. P. Andriole, "Medical Imaging Modalities and Digital Images," in *Practical Imaging Informatics*, ed: Springer, 2010, pp. 3-13.
- [46] F. Meriaudeau, D. Sidibé, K. Adal, S. Ali, L. Giancardo, T. Karnowski, and E. Chaum, "Computer aided design for diabetic retinopathy," in *QCAV2013, 11th International Conference on Quality Control by Artificial Vision*, 2013, pp. 241-247.
- [47] A. Agarwal, *Fundus fluorescein and indocyanine green angiography: a textbook and atlas*: SLACK Incorporated, 2007.
- [48] M. D. Abramoff, M. K. Garvin, and M. Sonka, "Retinal Imaging and Image Analysis," *IEEE transactions on medical imaging*, vol. 3, pp. 169-208, 2010.
- [49] M. Khizer R. Khaderi, MPH, B. K. Arsalaan Ahmed, M. Jesse L. Berry, D. Leanne T. Labriola, and C. Rich Cornwell, OCT-C. (2014, 07 April 2015). *Retinal Imaging Modalities: Advantages and Limitations for Clinical Practice*. Available:
<http://www.retinalphysician.com/articleviewer.aspx?articleID=105552>
- [50] M. Niemeijer, M. D. Abramoff, and B. van Ginneken, "Information Fusion for Diabetic Retinopathy CAD in Digital Color Fundus Photographs," *Medical Imaging, IEEE Transactions on*, vol. 28, pp. 775-785, 2009.
- [51] U. R. Acharya, E. Y. K. Ng, J. H. Tan, S. V. Sree, and K. H. Ng, "An integrated index for the identification of diabetic retinopathy stages using texture parameters," *Journal of Medical Systems*, vol. 36, pp. 2011-2020, 2012.
- [52] R. Udayakumar, V. Khanaa, and K. Thooyamani, "An Enhanced Detection of Exudates in Color Fundus Images of the Human Retina a Contribution for the Mass Screening of Diabetic Retinopathy," 2014.
- [53] S. valli Gogula, C. Divakar, C. Satyanarayana, and A. A. Rao, "A diabetic retinopathy detection method using an improved pillar K-means algorithm," *Bioinformatics*, vol. 10, p. 28, 2014.



- [54] F. Y. Shih, *Image processing and pattern recognition: fundamentals and techniques*: John Wiley & Sons, 2010.
- [55] N. Hormozi, S. A. Monadjemi, and G. Naderian, "Retinal Vessel Detection in Retinopathy of Prematurity Using Butterworth High-pass Filters and SVM," *IJTEE*, vol. 3, pp. 115-117, 2013.
- [56] H. F. Jaafar, A. K. Nandi, and W. Al-Nuaimy, "Automated detection of exudates in retinal images using a split-and-merge algorithm," *EUSIPCO 2010*, pp. 1622-1626, 2010.
- [57] F. Amel, M. Mohammed, and B. Abdelhafid, "Improvement of the Hard Exudates Detection Method Used For Computer- Aided Diagnosis of Diabetic Retinopathy," *International Journal of Image, Graphics and Signal Processing*, vol. 4, pp. 19-27, May 2012.
- [58] P. S. Chandra, M. Hanumantharaju, and M. Gopalakrishna, "Retinal Based Image Enhancement Using Contourlet Transform," in *Proceedings of the 3rd International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) 2014*, 2015, pp. 581-587.
- [59] A. Kadir and A. Susanto, *Pengolahan Citra Teori dan Aplikasi*, 1 ed. Yogyakarta: ANDI, 2012.
- [60] C. Solomon and T. Breckon, *Fundamentals of Digital Image Processing: A practical approach with examples in Matlab*: John Wiley & Sons, 2011.
- [61] D. Putra, "Pengolahan Citra Digital," *ANDI OFFSET: Yogyakarta*, 2010.
- [62] D. Saepudin and A. Rizal, "Analisis Contrast Limited Adaptive Histogram Equalisation (CLAHE) dan Region Growing dalam mendeteksi gejala kanker payudara pada citra mamogram," *Jurnal Elektro Unika Atma Jaya*, vol. 7, pp. 15-28, 2014.
- [63] E. Prasetyo, "Pengolahan Citra Digital dan Aplikasinya Menggunakan Matlab," *Andi, Yogyakarta*, 2011.
- [64] M. S. Mabrouk, N. H. Solouma, and Y. M. Kadah, "Survey of retinal image segmentation and registration," *GVIP Journal*, vol. 6, pp. 1-11, 2006.
- [65] H. A. Nugroho, K. W. Oktoeberza, T. B. Adji, and F. Najamuddin, *Detection of Exudates on Color Fundus Images using Texture Based Feature Extraction* vol. 6, 2015.
- [66] H. Wibawanto, A. Susanto, T. S. Widodo, and S. M. Tjokronegoro, "Discriminating cystic and non cystic mass using GLCM and GLRLM-based texture features," *International Journal of Electronic Engineering Research*, vol. 2, pp. 569-580, 2010.
- [67] J. A. Akrimi, A. RahimAhmad, L. E. George, and S. Aziz, "Review of Artificial Intelligence," *Int. J. Sci. Res*, vol. 2, pp. 487-505, 2013.
- [68] R. Anand, V. P. S. Kirar, and K. Burse, "K-Fold Cross Validation and Classification Accuracy of PIMA Indian Diabetes Data Set Using Higher Order Neural Network and PCA," *International Journal of Soft Computing and Engineering (IJSCE) ISSN*, pp. 2231-2307.
- [69] J. Han, M. Kamber, and J. Pei, *Data mining, southeast asia edition: Concepts and techniques*: Morgan kaufmann, 2006.