

REFERENCES

1. WHO GLOBOCAN [Internet]. 2012 [cited 2018 Mar 31]. Available from: http://globocan.iarc.fr/Pages/summary_table_pop_sel.aspx
2. Charfi S, Ansari M El. Computer-aided diagnosis system for colon abnormalities detection in wireless capsule endoscopy images. *Multimed Tools Appl*. 2018;77(3):4047–64.
3. Suman S, Hussin FA, Malik AS, Ho SH, Hilmi I, Leow AH-R, et al. Feature selection and classification of ulcerated lesions using statistical analysis for WCE images. *Appl Sci*. 2017;7(10).
4. Vu H, Echigo T, Sagawa R, Yagi K, Shiba M, Higuchi K, et al. Detection of contractions in adaptive transit time of the small bowel from wireless capsule endoscopy videos. *Comput Biol Med*. 2009;39(1):16–26.
5. capsule image 1 [Internet]. [cited 2018 Mar 6]. Available from: <https://commons.wikimedia.org/w/index.php?curid=819896>
6. capsule image 2 [Internet]. [cited 2018 Mar 6]. Available from: <https://www.ecnmag.com/article/2012/02/reducing-size-while-improving-functionality-and-safety-next-generation-medical-device-design>
7. Liu G, Yan G, Kuang S, Wang Y. Detection of small bowel tumor based on multi-scale curvelet analysis and fractal technology in capsule endoscopy. *Comput Biol Med* [Internet]. 2016;70:131–8. Available from: <http://dx.doi.org/10.1016/j.compbimed.2016.01.021>
8. Li B, Meng MQH. Texture analysis for ulcer detection in capsule endoscopy images. *Image Vis Comput* [Internet]. 2009;27(9):1336–42. Available from: <http://dx.doi.org/10.1016/j.imavis.2008.12.003>
9. Spyrou E, Iakovidis DK. Video-based measurements for wireless capsule endoscope tracking. *Meas Sci Technol*. 2014;25(1).
10. Yanagawa Y, Echigo T, Vu H, Okazaki H, Fujiwara Y, Arakawa T, et al. Abnormality tracking during video capsule endoscopy using an affine triangular constraint based on surrounding features. *IPSJ Trans Comput Vis Appl*. 2017;9(1):1–10.
11. Cho YJ, Bae SH, Yoon KJ. Multi-Classifer-Based Automatic Polyp Detection in Endoscopic Images. *J Med Biol Eng*. 2016;36(6):871–82.
12. Dalal N, Triggs W. Histograms of Oriented Gradients for Human Detection. 2005 IEEE Comput Soc Conf Comput Vis Pattern Recognit CVPR05 [Internet]. 2004;1(3):886–93. Available from: <http://eprints.pascal-network.org/archive/00000802/>
13. Ojala T, Pietikäinen M, Mäenpää T. Multiresolution gray-scale and rotation

- invariant texture classification with local binary patterns. *IEEE Trans Pattern Anal Mach Intell.* 2002;24(7):971–87.
14. Kumar R, Srivastava S, Srivastava R. A fourth order PDE based fuzzy c- means approach for segmentation of microscopic biopsy images in presence of Poisson noise for cancer detection. *Comput Methods Programs Biomed* [Internet]. 2017;146:59–68. Available from: <http://dx.doi.org/10.1016/j.cmpb.2017.05.003>
 15. Vilariño F, Kuncheva LI, Radeva P. ROC curves and video analysis optimization in intestinal capsule endoscopy. *Pattern Recognit Lett.* 2006;27(8):875–81.
 16. Iakovidis DK, Tsevas S, Polydorou A. Reduction of capsule endoscopy reading times by unsupervised image mining. *Comput Med Imaging Graph.* 2010;34(6):471–8.
 17. Mehmood I, Sajjad M, Baik SW. Video summarization based tele-endoscopy: A service to efficiently manage visual data generated during wireless capsule endoscopy procedure. *J Med Syst.* 2014;38(9).
 18. Zhao Q, Mullin GE, Meng MQH, Dassopoulos T, Kumar R. A general framework for wireless capsule endoscopy study synopsis. *Comput Med Imaging Graph* [Internet]. 2015;41:108–16. Available from: <http://dx.doi.org/10.1016/j.compmedimag.2014.05.011>
 19. Lee HG, Choi MK, Shin BS, Lee SC. Reducing redundancy in wireless capsule endoscopy videos. *Comput Biol Med* [Internet]. 2013;43(6):670–82. Available from: <http://dx.doi.org/10.1016/j.compbimed.2013.02.009>
 20. Bashar MK, Kitasaka T, Suenaga Y, Mekada Y, Mori K. Automatic detection of informative frames from wireless capsule endoscopy images. *Med Image Anal* [Internet]. 2010;14(3):449–70. Available from: <http://dx.doi.org/10.1016/j.media.2009.12.001>
 21. Li C, Hamza A Ben, Bouguila N, Wang X, Ming F, Xiao G. Online redundant image elimination and its application to wireless capsule endoscopy. *Signal, Image Video Process.* 2012;8(8):1497–506.
 22. Ben Ismail MM, Behir O. Endoscopy video summarisation using novel relational motion histogram descriptor and semi-supervised clustering. *J Exp Theor Artif Intell* [Internet]. 2016;28(4):629–53. Available from: <http://dx.doi.org/10.1080/0952813X.2015.1020623>
 23. Szczypiński PM, Sriram RD, Sriram PVJ, Reddy DN. A model of deformable rings for interpretation of wireless capsule endoscopic videos. *Med Image Anal.* 2009;13(2):312–24.
 24. Li B, Meng MQH. Wireless capsule endoscopy images enhancement via adaptive contrast diffusion. *J Vis Commun Image Represent* [Internet]. 2012;23(1):222–8. Available from: <http://dx.doi.org/10.1016/j.jvcir.2011.10.002>
 25. Karargyris A, Bourbakis N. Three-dimensional reconstruction of the digestive wall in capsule endoscopy videos using elastic video interpolation. *IEEE Trans Med*

- Imaging. 2011;30(4):957–71.
26. Mackiewicz M., Berens J., Fisher M. Wireless Capsule Endoscopy Color Video Segmentation. *IEEE Trans Med Imaging*. 2008;27(12):1769–81.
 27. Singh VP, Srivastava S, Srivastava R. Automated and effective content-based image retrieval for digital mammography. *J Xray Sci Technol*. 2018;26(1):29–49.
 28. Masood S, Sharif M, Masood A, Yasmin M, Raza M. A Survey on Medical Image Segmentation. *Curr Med Imaging Rev* [Internet]. 2015;11(1):3–14. Available from: <http://www.eurekaselect.com/openurl/content.php?genre=article&issn=1573-4056&volume=11&issue=1&spage=3>
 29. Baâzaoui A, Barhoumi W, Zagrouba E, Mabrouk R. A survey of PET image segmentation: Applications in oncology, cardiology and neurology. *Curr Med Imaging Rev*. 2016;12(1):13–27.
 30. Arivazhagan S, Sylvia Lilly Jebarani W, Jenifer Daisy V. Categorization and segmentation of intestinal content and pathological frames in wireless capsule endoscopy images. *Int J Imaging Robot*. 2014;13(2):134–47.
 31. Shen Y, Guturu PP, Buckles BP. Wireless capsule endoscopy video segmentation using an unsupervised learning approach based on probabilistic latent semantic analysis with scale invariant features. *IEEE Trans Inf Technol Biomed* [Internet]. 2012;16(1):98–105. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22010158>
 32. Yihua Lan, Xingang Zhang, Zhidu Liu LZ and ML. Hybrid Segmentation using region information for wireless capsule endoscopy images. *Inf Technol J*. 2013;12(16):3815–9.
 33. Chen H, Wu X, Tao G, Peng Q. Automatic content understanding with cascaded spatial–temporal deep framework for capsule endoscopy videos. *Neurocomputing* [Internet]. 2017;229:77–87. Available from: <http://dx.doi.org/10.1016/j.neucom.2016.06.077>
 34. Yassin NIR, Omran S, Houby EMF El, Allam H. Machine Learning Techniques for Breast Cancer Computer Aided Diagnosis Using Different Image Modalities: A Systematic Review. *Comput Methods Programs Biomed* [Internet]. 2017;156:25–45. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0169260717306405>
 35. Riaz F, Hassan A, Nisar R, Dinis-Ribeiro M, Coimbra MT. Content-Adaptive Region-Based Color Texture Descriptors for Medical Images. *IEEE J Biomed Heal Informatics*. 2017;21(1):162–71.
 36. Doi K. Computer-aided diagnosis in medical imaging: Historical review, current status and future potential. *Comput Med Imaging Graph*. 2007;31(4–5):198–211.
 37. Giger ML, Chan H-P, Boone J. Anniversary Paper: History and status of CAD and quantitative image analysis: The role of *Medical Physics* and AAPM. *Med Phys*

[Internet]. 2008;35(12):5799–820. Available from:
<http://doi.wiley.com/10.1118/1.3013555>

38. Ghosh T, Fattah SA, Wahid KA, Zhu WP, Ahmad MO. Cluster based statistical feature extraction method for automatic bleeding detection in wireless capsule endoscopy video. *Comput Biol Med* [Internet]. 2018;94(November 2017):41–54. Available from: <https://doi.org/10.1016/j.compbiomed.2017.12.014>
39. Singh VP, Srivastava R. ScienceDirect Automated and effective content-based mammogram retrieval using wavelet based CS-LBP feature and self-organizing map. *Integr Med Res*. 2017;38(1):90–105.
40. B. Ross BWW and AWK. Bibliography and abstracts. *Med Electron Biol Engng*. 1964;2(1):349–77.
41. Kodogiannis VS, Boulougoura M, Wadge E, Lygouras JN. The usage of soft-computing methodologies in interpreting capsule endoscopy. *Eng Appl Artif Intell*. 2007;20(4):539–53.
42. Kodogiannis VS, Boulougoura M, Lygouras JN, Petrounias I. A neuro-fuzzy-based system for detecting abnormal patterns in wireless-capsule endoscopic images. *Neurocomputing*. 2007;70(4–6):704–17.
43. Bonnel J, Khademi A, Krishnan S, Ioana C. Small bowel image classification using cross-co-occurrence matrices on wavelet domain. *Biomed Signal Process Control*. 2009;4(1):7–15.
44. Li B, Meng MQH. Computer-based detection of bleeding and ulcer in wireless capsule endoscopy images by chromaticity moments. *Comput Biol Med*. 2009;39(2):141–7.
45. Liu J, Yuan X. Obscure bleeding detection in endoscopy images using support vector machines. *Optim Eng*. 2009;10(2):289–99.
46. Li B, Meng MQH. Computer-aided detection of bleeding regions for capsule endoscopy images. *IEEE Trans Biomed Eng*. 2009;56(4):1032–9.
47. Woo SH, Cho JH. Telemetry system for slow wave measurement from the small bowel. *MedBiolEng Comput*. 2010;48(1741-0444 (Electronic)):277–83.
48. Vilariño F, Spyridonos P, Deiorio F, Vitria J, Azpiroz F, Radeva P. Intestinal motility assessment with video capsule endoscopy: Automatic annotation of phasic intestinal contractions. *IEEE Trans Med Imaging*. 2010;29(2):246–59.
49. Pan GB, Yan GZ, Song XS, Qiu XL. Bleeding detection from wireless capsule endoscopy images using improved euler distance in CIELab. *J Shanghai Jiaotong Univ*. 2010;15(2):218–23.
50. Karargyris A, Bourbakis N. Detection of small bowel polyps and ulcers in wireless capsule endoscopy videos. *IEEE Trans Biomed Eng*. 2011;58(10 PART 1):2777–86.
51. Li B, Meng MQH, Lau JYW. Computer-aided small bowel tumor detection for

- capsule endoscopy. *Artif Intell Med* [Internet]. 2011;52(1):11–6. Available from: <http://dx.doi.org/10.1016/j.artmed.2011.01.003>
52. Pan G, Yan G, Qiu X, Cui J. Bleeding detection in wireless capsule Endoscopy based on probabilistic neural network. *J Med Syst*. 2011;35(6):1477–84.
 53. Charisis VS, Hadjilentiadis LJ, Liatsos CN, Mavrogiannis CC, Sergiadis GD. Capsule endoscopy image analysis using texture information from various colour models. *Comput Methods Programs Biomed* [Internet]. 2012;107(1):61–74. Available from: <http://dx.doi.org/10.1016/j.cmpb.2011.10.004>
 54. Li B, Meng MQ-H. Automatic polyp detection for wireless capsule endoscopy images. *Expert Syst Appl* [Internet]. 2012;39(12):10952–8. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S095741741200499X>
 55. Li BP, Meng MQH. Comparison of several texture features for tumor detection in CE images. *J Med Syst*. 2012;36(4):2463–9.
 56. Li B, Meng MQH. Tumor recognition in wireless capsule endoscopy images using textural features and SVM-based feature selection. *IEEE Trans Inf Technol Biomed*. 2012;16(3):323–9.
 57. Drozdal M, Segu?? S, Vitri?? J, Malagelada C, Azpiroz F, Radeva P. Adaptable image cuts for motility inspection using WCE. *Comput Med Imaging Graph* [Internet]. 2013;37(1):72–80. Available from: <http://dx.doi.org/10.1016/j.compmedimag.2012.09.002>
 58. Szczypiński P, Klepaczko A, Pazurek M, Daniel P. Texture and color based image segmentation and pathology detection in capsule endoscopy videos. *Comput Methods Programs Biomed*. 2014;113(1):396–411.
 59. Sainju S, Bui FM, Wahid KA. Automated bleeding detection in capsule endoscopy videos using statistical features and region growing. *J Med Syst*. 2014;38(4).
 60. Nawarathna R, Oh JH, Muthukudage J, Tavanapong W, Wong J, de Groen PC, et al. Abnormal image detection in endoscopy videos using a filter bank and local binary patterns. *Neurocomputing* [Internet]. 2014;144:70–91. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0925231214007334>
 61. Mamonov A V, Figueiredo IN, Figueiredo PN, Tsai YR. Automated polyp detection in colon capsule endoscopy by Automated polyp detection in colon capsule endoscopy. *Ices Rep 13-10*. 2013;33(7):1–16.
 62. Hassan AR, Haque MA. Computer-aided gastrointestinal hemorrhage detection in wireless capsule endoscopy videos. *Comput Methods Programs Biomed* [Internet]. 2015;122(3):341–53. Available from: <http://dx.doi.org/10.1016/j.cmpb.2015.09.005>
 63. Graca C, Falcao G, Figueiredo IN, Kumar S. Hybrid multi-GPU computing: accelerated kernels for segmentation and object detection with medical image processing applications. *J Real-Time Image Process*. 2017;13(1):227–44.

64. Kumar R, Zhao Q, Seshamani S, Mullin G, Hager G, Dassopoulos T. Assessment of crohn's disease lesions in wireless capsule endoscopy images. *IEEE Trans Biomed Eng.* 2012;59(2):355–62.
65. Yuan Y, Wang J, Li B, Meng M q-HH. Saliency Based Ulcer Detection for Wireless Capsule Endoscopy Diagnosis. *IEEE Trans Med Imaging.* 2015;34(10):2046–57.
66. Drozdal M, Seguí S, Radeva P, Malagelada C, Azpiroz F, Vitrià J. Motility bar: A new tool for motility analysis of endoluminal videos. *Comput Biol Med [Internet].* 2015;65:320–30. Available from: <http://dx.doi.org/10.1016/j.compbiomed.2015.04.006>
67. Ševo I, Avramović A, Balasingham I, Elle OJ, Bergsland J, Aabakken L. Edge density based automatic detection of inflammation in colonoscopy videos. *Comput Biol Med.* 2016;72:138–50.
68. Usman MA, Satrya GB, Usman MR, Shin SY. Detection of small colon bleeding in wireless capsule endoscopy videos. *Comput Med Imaging Graph [Internet].* 2016;54:16–26. Available from: <http://dx.doi.org/10.1016/j.compmedimag.2016.09.005>
69. Liu DY, Gan T, Rao NN, Xing YW, Zheng J, Li S, et al. Identification of lesion images from gastrointestinal endoscope based on feature extraction of combinational methods with and without learning process. *Med Image Anal.* 2016;32:281–94.
70. Yuan Y, Li B, Meng MQH. Bleeding Frame and Region Detection in the Wireless Capsule Endoscopy Video. *IEEE J Biomed Heal Informatics.* 2016;20(2):624–30.
71. Yuan Y, Li B, Meng MQH. Improved Bag of Feature for Automatic Polyp Detection in Wireless Capsule Endoscopy Images. *IEEE Trans Autom Sci Eng.* 2016;13(2):529–35.
72. Wu X, Chen H, Gan T, Chen J, Ngo CW, Peng Q. Automatic Hookworm Detection in Wireless Capsule Endoscopy Images. *IEEE Trans Med Imaging.* 2016;35(7):1741–52.
73. Seguí S, Drozdal M, Pascual G, Radeva P, Malagelada C, Azpiroz F, et al. Generic feature learning for wireless capsule endoscopy analysis. *Comput Biol Med [Internet].* 2016;79(October):163–72. Available from: <http://dx.doi.org/10.1016/j.compbiomed.2016.10.011>
74. Deeba F, Islam M, Bui FM, Wahid KA. Performance assessment of a bleeding detection algorithm for endoscopic video based on classifier fusion method and exhaustive feature selection. *Biomed Signal Process Control [Internet].* 2018;40:415–24. Available from: <http://dx.doi.org/10.1016/j.bspc.2017.10.011>
75. Sivakumar P, Kumar BM. A novel method to detect bleeding frame and region in wireless capsule endoscopy video. *Cluster Comput [Internet].* 2018;1–7. Available from: <https://doi.org/10.1007/s10586-017-1584-y>

76. Singh VP, Srivastava R. Improved image retrieval using fast Colour-texture features with varying weighted similarity measure and random forests. *Multimed Tools Appl.* 2017;1–26.
77. Fante KA, Bhaumik B, Chatterjee S. Design and Implementation of Computationally Efficient Image Compressor for Wireless Capsule Endoscopy. *Circuits, Syst Signal Process.* 2016;35(5):1677–703.
78. Lin L-H, Chen T-J. Mutual Information Correlation with Human Vision in Medical Image Compression. *Curr Med Imaging Rev [Internet].* 2017;14(1):64–70. Available from: <http://www.eurekaselect.com/156137/article>
79. Turgis D, Puers R. Image compression in video radio transmission for capsule endoscopy. *Sensors Actuators, A Phys.* 2005;123–124(April):129–36.
80. Thoné J, Verlinden J, Puers R. An efficient hardware-optimized compression algorithm for wireless capsule endoscopy image transmission. *Procedia Eng.* 2010;5:208–11.
81. Khan TH, Wahid KA. Lossless and low-power image compressor for wireless capsule endoscopy. *VLSI Des.* 2011;2011.
82. Turcza P, Duplaga M. Low power FPGA-based image processing core for wireless capsule endoscopy. *Sensors Actuators, A Phys [Internet].* 2011;172(2):552–60. Available from: <http://dx.doi.org/10.1016/j.sna.2011.09.026>
83. Khan T, Wahid K. Low power and low complexity compressor for video capsule endoscopy. *Circuits Syst Video ... [Internet].* 2011;21(10):1534–46. Available from: http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5978212
84. Khan TH, Wahid K. Low-complexity colour-space for capsule endoscopy image compression. *Electron Lett [Internet].* 2011;47(22):1217. Available from: <http://digital-library.theiet.org/content/journals/10.1049/el.2011.2211>
85. Deligiannis N, Verbist F, Iossifides AC, Slowack J, Van de Walle R, Schelkens P, et al. Wyner-Ziv video coding for wireless lightweight multimedia applications. *EURASIP J Wirel Commun Netw [Internet].* 2012;2012(1):106. Available from: <https://jwcn-urasipjournals.springeropen.com/articles/10.1186/1687-1499-2012-106>
86. Khan TH, Wahid KA. Subsample-based image compression for capsule endoscopy. *J Real-Time Image Process.* 2013;8(1):5–19.
87. Khan TH, Wahid KA. White and narrow band image compressor based on a new color space for capsule endoscopy. *Signal Process Image Commun [Internet].* 2014;29(3):345–60. Available from: <http://dx.doi.org/10.1016/j.image.2013.12.001>
88. Liu H, Lu WS, Meng MQH. Fast algorithms for restoration of color wireless capsule endoscopy images. *Midwest Symp Circuits Syst.* 2011;00(4):11–4.
89. Moradi M, Falahati A, Shahbahrani A, Zare-Hassanpour R. Improving visual

- quality in wireless capsule endoscopy images with contrast-limited adaptive histogram equalization. 2015 2nd Int Conf Pattern Recognit Image Anal IPRIA 2015. 2015;(Ipria):0–4.
90. Liu H, Lu WS, Meng MQH. De-blurring wireless capsule endoscopy images by total variation minimization. Proc 2011 IEEE Pacific Rim Conf Commun Comput Signal Process. 2011;(1):102–6.
 91. Alizadeh M, Talebpour A, Soltanian-Zadeh H, Aghamiri SMR. Effects of improved adaptive gamma correction method on wireless capsule endoscopy images: Illumination compensation and edge detection. ICEE 2012 - 20th Iran Conf Electr Eng. 2012;1544–8.
 92. Shahril R, Baharun S, Islam AKMM, Komaki S. Anisotropic contrast diffusion enhancement using variance for wireless capsule endoscopy images. 2014 Int Conf Informatics, Electron Vision, ICIEV 2014. 2014;
 93. Shahri R, Arianti D, Baharun S, Islam AKMM, Komaki S. Pre-processing technique based on discrete cosine transform (DCT) and anisotropic contrast diffusion for wireless capsule endoscopy images. IECBES 2014, Conf Proc - 2014 IEEE Conf Biomed Eng Sci “Miri, Where Eng Med Biol Humanit Meet.” 2015;(December):922–7.
 94. Rudin LI, Osher S, Fatemi E. Nonlinear total variation based noise removal algorithms. Phys D Nonlinear Phenom. 1992;60(1–4):259–68.
 95. You YL, Kaveh M. Fourth-order partial differential equations for noise removal. IEEE Trans Image Process. 2000;9(10):1723–30.
 96. Andria G, Attivissimo F, Cavone G, Giaquinto N, Lanzolla AML. Linear filtering of 2-D wavelet coefficients for denoising ultrasound medical images. Meas J Int Meas Confed [Internet]. 2012;45(7):1792–800. Available from: <http://dx.doi.org/10.1016/j.measurement.2012.04.005>
 97. Liu J. Research of Image denoising method based on part adaptive total variation and median filter. In: International Conference on Information Science and Engineering. 2009. p. 2699–702.
 98. Jac Fredo AR, Abilash RS, Suresh Kumar C. Segmentation and analysis of damages in composite images using multi-level threshold methods and geometrical features. Meas J Int Meas Confed [Internet]. 2017;100:270–8. Available from: <http://dx.doi.org/10.1016/j.measurement.2017.01.002>
 99. Wang Z, Bovik AC, Sheikh HR, Simoncelli EP. Image quality assessment: From error visibility to structural similarity. IEEE Trans Image Process. 2004;13(4):600–12.
 100. Chen G, Yang C, Po L, Xie S. Edge-Based Structural Similarity for Image Quality Assessment. 2006 IEEE Int Conf Acoust Speed Signal Process Proc [Internet]. 2006;2:II-933-II-936. Available from: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=1660497>

101. Pižurica A, Philips W, Lemahieu I, Acheroy M. A versatile wavelet domain noise filtration technique for medical imaging. *IEEE Trans Med Imaging*. 2003;22(3):323–31.
102. ANUPRIYA, Anupriya; TAYAL A. Wavelet Based Image Denoising Using Self Organizing Migration Algorithm. *Digit Image Process* 4(10),. 2012;4 (10):542–6.
103. Chambolle A, Caselles V, Novaga M, Cremers D, An TP. An Introduction to Total Variation for Image Analysis. *Theor Found Numer Methods Sparse Recover Gruyter, Radon Ser Comp Appl Math*. 2009;9:263–340.
104. Pathak SS, Dahiwale P, Padole G. A combined effect of local and global method for contrast image enhancement. 2015 IEEE Int Conf Eng Technol [Internet]. 2015;(March):1–5. Available from: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=7275011>
105. Kumar R, Srivastava S, Srivastava R. A fourth order PDE based fuzzy c- means approach for segmentation of microscopic biopsy images in presence of Poisson noise for cancer detection. *Comput Methods Programs Biomed* [Internet]. 2017;146:59–68. Available from: <http://dx.doi.org/10.1016/j.cmpb.2017.05.003>
106. Garcia D. Image segmentation using Otsu thresholding [Internet]. Available from: <https://www.mathworks.com/matlabcentral/fileexchange/26532-image-segmentation-using-otsu-thresholding>
107. Camilus S. Fuzzy c-means segmentation [Internet]. 2019 [cited 2019 Aug 16]. Available from: <https://www.mathworks.com/matlabcentral/fileexchange/25532-fuzzy-c-means-segmentation>
108. Michala. Colour based segmentation [Internet]. 2019. Available from: <https://www.mathworks.com/matlabcentral/fileexchange/45679-colour-based-segmentation>
109. Srivastava G, Srivastava R. Salient object detection using background subtraction, Gabor filters, objectness and minimum directional backgroundness. *J Vis Commun Image Represent* [Internet]. 2019;62:330–9. Available from: <https://doi.org/10.1016/j.jvcir.2019.06.005>
110. Weng T, Yuan Y, Shen L, Zhao Y. Clothing image retrieval using color moment. *Proc 2013 3rd Int Conf Comput Sci Netw Technol* [Internet]. 2013;1016–20. Available from: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=6967276>
111. Pass G, Zabih R, Miller J. Comparing images using color coherence vectors. *Proc fourth ACM Int Conf Multimed - Multimed '96* [Internet]. 1996;65–73. Available from: <http://portal.acm.org/citation.cfm?doid=244130.244148>
112. Kamarainen J. Gabor Features in Image Analysis. *Image Process Theory, Tools Appl*. 2012;4–5.
113. Wang S, Cong Y, Fan H, Liu L, Li X, Yang Y, et al. Computer-Aided Endoscopic Diagnosis Without Human-Specific Labeling. *IEEE Trans Biomed Eng*.

- 2016;63(11):2347–57.
114. Sahidan SI, Mashor MY, Wahab ASW, Salleh Z, Ja'afar H. Local and global contrast stretching for color contrast enhancement on Zehl-Nelsen tissue section slide images. *IFMBE Proc.* 2008;21 IFMBE(1):583–6.
 115. Jain A, Zongker D. Feature Selection: Evaluation, Application, and Small Sample Performance. *IEEE Trans Pattern Anal Mach Intell* [Internet]. 1997;19(2):153–8. Available from: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=574797>
 116. Doshi M. Correlation Based Feature Selection (Cfs) Technique To Predict Student Performance. *Int J Comput Networks Commun* [Internet]. 2014;6(3):197. Available from: <https://pdfs.semanticscholar.org/e039/ff72ced2dba1213a9787bd274e5ed5d0a035.pdf>
 117. Kononenko I, Šimec E, Robnik-Šikonja M. Overcoming the myopic of inductive learning algorithms with {RELIEFF}. *Appl Intell* [Internet]. 1997;7(1):39–55. Available from: citeseer.nj.nec.com/kononenko97overcoming.html
 118. Du L, Shen Y-D. Unsupervised Feature Selection with Adaptive Structure Learning. *Proc 21th ACM SIGKDD Int Conf Knowl Discov Data Min.* 2015;209–18.
 119. Guyon I. Gene Selection for Cancer Classification using Support Vector Machines. *Mach Learn.* 2002;46:389–422.
 120. Peng H, Long F, Ding C. Feature selection based on mutual information: Criteria of Max-Dependency, Max-Relevance, and Min-Redundancy. *IEEE Trans Pattern Anal Mach Intell.* 2005;27(8):1226–38.
 121. Koshy NE, Gopi VP. A new method for ulcer detection in endoscopic images. *2nd Int Conf Electron Commun Syst ICECS 2015.* 2015;(Icecs):1725–9.
 122. Jani K, Anand A, Srivastava S, Srivastava R. Computer aided medical image analysis for capsule endoscopy using conventional machine learning and deep learning. In: *7th International Conference on Smart Computing & Communications (ICSCC).* miri, sarawak, Malaysia; 2019. p. 1–5.
 123. Mirzapour F, Ghassemian H. Using GLCM and Gabor filters for classification of PAN images. *2013 21st Iran Conf Electr Eng ICEE 2013.* 2013;(1).
 124. Quynh NH, Tao NQ. Combining color and spatial information for retrieving landscape images. *Proc - 1st Int Congr Image Signal Process CISP 2008.* 2008;2:480–4.
 125. Ghazali KH, Mansor MF, Mustafa MM, Hussain A. Feature Extraction Technique using Discrete Wavelet Transform for Image Classification. *5th Student Conf Res Dev 2007.* 2007;(December):1–4.
 126. Shen HB, Chou KC. Using ensemble classifier to identify membrane protein types.

- Amino Acids. 2007;32(4):483–8.
127. Pan SJ, Yang Q. A survey on transfer learning. *IEEE Trans Knowl Data Eng.* 2010;22(10):1345–59.
 128. Yosinski J, Clune J, Bengio Y, Lipson H. How transferable are features in deep neural networks? 2014;27. Available from: <http://arxiv.org/abs/1411.1792>
 129. Andrew G. Howard, Senior Software Engineer and Menglong Zhu SE. Google AI Blog: MobileNets: Open-Source Models for Efficient On-Device Vision [Internet]. 2017 [cited 2019 Mar 20]. Available from: <https://ai.googleblog.com/2017/06/mobilenets-open-source-models-for.html>
 130. Howard AG, Zhu M, Chen B, Kalenichenko D, Wang W, Weyand T, et al. MobileNets: Efficient Convolutional Neural Networks for Mobile Vision Applications. 2017; Available from: <http://arxiv.org/abs/1704.04861>
 131. Jani KK, Srivastava R. A Survey on Medical Image Analysis in Capsule Endoscopy. *Curr Med Imaging Former Curr Med Imaging Rev.* 2018;15(7):622–36.
 132. Sharif M, Khan M et. al, Deep CNN and geometric features-based gastrointestinal tract diseases detection and classification from wireless capsule endoscopy images, *Journal of Experimental & Theoretical Artificial Intelligence* (2019), DOI: 10.1080/0952813X.2019.1572657
 133. Alaskar H, Hussain A et.al, Application of Convolutional Neural Networks for Automated Ulcer Detection in Wireless Capsule Endoscopy Images *Sensors* 2019, 19, 1265; doi:10.3390/s19061265.
 134. Sekuboyina A, Devarakonda S and Seelamantula C, A convolutional neural network approach for abnormality detection in wireless capsule endoscopy 978-1-5090-1172-8/17 2017 IEEE.
 135. Souaidi M, Abdelouahad A and Ansari M, A fully automated ulcer detection system for wireless capsule endoscopy images 3rd International Conference on Advanced Technologies for Signal and Image Processing - ATSSIP'2017 May 22-24, 2017, Fez, Morocco.
 136. Jia and Meng, A Deep Convolutional Neural Network for Bleeding Detection in Wireless Capsule Endoscopy Images, 978-1-4577-0220-4/16 2016 IEEE.
 137. Wimmer G, Hegenbart S, Vecsei A and Uhl A, Convolutional Neural Network Architectures for the Automated Diagnosis of Celiac Disease, CARE 2016, LNCS 10170, pp. 104–113, 2017.

