

REFERENCES

- [1] A. Elangovan and T. Jeyaseelan, "Medical imaging modalities: A survey," in *2016 Int. Conf. Emerg. Trends Eng. Technol. Sci.* IEEE, feb 2016, pp. 1–4. [Online]. Available: <http://ieeexplore.ieee.org/document/7603066/>
- [2] K. Najarian and R. Splinter, *Biomedical Signal and Image Processing*, 2nd ed. CRC Press, 2012.
- [3] J. Noble and D. Boukerroui, "Ultrasound image segmentation: a survey," *IEEE Transactions on Medical Imaging*, vol. 25, no. 8, pp. 987–1010, aug 2006. [Online]. Available: http://ieeexplore.ieee.org/xpls/abs/_all.jsp?arnumber=1661695http://ieeexplore.ieee.org/document/1661695/
- [4] P. P. A. Smyth, "The Thyroid and Breast Cancer: A Significant Association?" *Annals of Medicine*, vol. 29, no. 3, pp. 189–191, jan 1997. [Online]. Available: <http://www.tandfonline.com/doi/full/10.3109/07853899708999335>
- [5] P. J. Hardefeldt, G. D. Eslick, and S. Edirimanne, "Benign thyroid disease is associated with breast cancer: a meta-analysis," *Breast Cancer Research and Treatment*, vol. 133, no. 3, pp. 1169–1177, jun 2012. [Online]. Available: <http://link.springer.com/10.1007/s10549-012-2019-3>
- [6] A. Angelousi, E. Diamanti-Kandarakis, E. Zapanti, A. Nonni, E. Ktenas, A. Mantzou, K. Kontzoglou, and G. Kouraklis, "Is there an association between thyroid function abnormalities and breast cancer?" *Archives of Endocrinology and Metabolism*, vol. 61, no. 1, pp. 54–61, 2017. [Online]. Available: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S2359-39972016005003109&lng=en&nrm=iso&tlng=en
- [7] L. Levy, M. Suissa, J. Chiche, G. Teman, and B. Martin, "BIRADS ultrasonography," *European Journal of Radiology*, vol. 61, no. 2, pp. 202–211, feb 2007. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0720048X06004773>
- [8] D. A. Spak, J. S. Plaxco, L. Santiago, M. J. Dryden, and B. E. Dogan, "BI-RADS® fifth edition: A summary of changes," *Diagnostic and Interventional Imaging*, vol. 98, no. 3, pp. 179–190, 2017. [Online]. Available: <http://dx.doi.org/10.1016/j.diii.2017.01.001>
- [9] A. Rodríguez-Cristerna, W. Gómez-Flores, and W. C. de Albuquerque Pereira, "A Computer-aided Diagnosis System for Breast Ultrasound Based on Weighted BI-RADS Classes," *Computer Methods and Programs in Biomedicine*, oct 2017. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0169260717305679>

- [10] A. T. Stavros, A. G. Freitas, G. G. N. DeMello, L. Barke, D. McDonald, T. Kaske, D. Wolverton, A. Honick, D. Stanzani, A. H. Padovan, A. P. C. Moura, and M. C. V. de Campos, "Ultrasound positive predictive values by BI-RADS categories 3–5 for solid masses: An independent reader study," *European Radiology*, vol. 27, no. 10, pp. 4307–4315, oct 2017. [Online]. Available: <http://link.springer.com/10.1007/s00330-017-4835-7>
- [11] G. Russ, "Risk stratification of thyroid nodules on ultrasonography with the French TI-RADS : description and reflections," *Ultrasonography*, vol. 35, no. 1, pp. 25–38, 2016. [Online]. Available: <http://dx.doi.org/10.14366/usg.15027>
- [12] E. G. Grant, F. N. Tessler, J. K. Hoang, J. E. Langer, M. D. Beland, L. L. Berland, J. J. Cronan, T. S. Desser, M. C. Frates, U. M. Hamper, W. D. Middleton, C. C. Reading, L. M. Scoutt, A. T. Stavros, and S. A. Teefey, "Thyroid Ultrasound Reporting Lexicon : White Paper of the ACR Thyroid Imaging , Reporting and Data System (TIRADS) Committee," *Journal of the American College of Radiology*, vol. 12, no. 12, pp. 1272–1279, 2016. [Online]. Available: <http://dx.doi.org/10.1016/j.jacr.2015.07.011>
- [13] J. H. Shin, J. H. Baek, J. Chung, E. J. Ha, J.-h. Kim, Y. H. Lee, H. K. Lim, W.-J. Moon, D. G. Na, J. S. Park, Y. J. Choi, S. Y. Hahn, S. J. Jeon, S. L. Jung, D. W. Kim, E.-K. Kim, J. Y. Kwak, C. Y. Lee, H. J. Lee, J. H. Lee, J. H. Lee, K. H. Lee, S.-W. Park, and J. Y. Sung, "Ultrasonography Diagnosis and Imaging-Based Management of Thyroid Nodules: Revised Korean Society of Thyroid Radiology Consensus Statement and Recommendations," *Korean Journal of Radiology*, vol. 17, no. 3, p. 370, 2016. [Online]. Available: <https://synapse.koreamed.org/DOIx.php?id=10.3348/kjr.2016.17.3.370>
- [14] J. H. Yoon, H. S. Lee, E.-K. Kim, H. J. Moon, and J. Y. Kwak, "Malignancy Risk Stratification of Thyroid Nodules: Comparison between the Thyroid Imaging Reporting and Data System and the 2014 American Thyroid Association Management Guidelines," *Radiology*, vol. 278, no. 3, pp. 917–924, mar 2016. [Online]. Available: <http://pubs.rsna.org/doi/10.1148/radiol.2015150056>
- [15] F. N. Tessler, W. D. Middleton, E. G. Grant, J. K. Hoang, L. L. Berland, S. A. Teefey, J. J. Cronan, M. D. Beland, T. S. Desser, M. C. Frates, L. W. Hammers, U. M. Hamper, J. E. Langer, C. C. Reading, L. M. Scoutt, and A. T. Stavros, "ACR Thyroid Imaging, Reporting and Data System (TI-RADS): White Paper of the ACR TI-RADS Committee," *Journal of the American College of Radiology*, vol. 14, no. 5, pp. 587–595, may 2017. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S1546144017301862>

- [16] T. L. Szabo, *Diagnostic Ultrasound Imaging: Inside Out*. Elsevier, 2014. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0301562916001095>
- [17] R. Takahashi and Y. Kajikawa, "Computer-aided diagnosis: A survey with bibliometric analysis," *International Journal of Medical Informatics*, vol. 101, pp. 58–67, 2017. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S1386505617300357>
- [18] L. Sellami, O. B. Sassi, K. Chtourou, and A. B. Hamida, "Breast Cancer Ultrasound Images' Sequence Exploration Using BI-RADS Features' Extraction: Towards an Advanced Clinical Aided Tool for Precise Lesion Characterization," *IEEE Transactions on NanoBioscience*, vol. 14, no. 7, pp. 740–745, oct 2015. [Online]. Available: <http://ieeexplore.ieee.org/document/7305800/>
- [19] U. R. Acharya, G. Swapna, S. V. Sree, F. Molinari, S. Gupta, R. H. Bardales, A. Witkowska, and J. S. Suri, "A Review on Ultrasound-Based Thyroid Cancer Tissue Characterization and Automated Classification," *Technology in Cancer Research & Treatment*, vol. 13, no. 4, pp. 289–301, aug 2014. [Online]. Available: <http://journals.sagepub.com/doi/10.7785/tcrt.2012.500381>
- [20] D. Koundal, S. Gupta, and S. Singh, "Computer-Aided Diagnosis of Thyroid Nodule : A Review," *International Journal of Computer Science & Engineering Survey*, vol. 3, no. 4, 2012.
- [21] B. Bhanu and S. Lee, *Genetic Learning for Adaptive Image Segmentation*. Boston, MA: Springer US, 1994. [Online]. Available: <http://link.springer.com/10.1007/978-1-4615-2774-9>
- [22] W. Gómez-Flores and B. A. Ruiz-Ortega, "New fully automated method for segmentation of breast lesions on ultrasound based on texture analysis," *Ultrasound in Medicine and Biology*, vol. 42, no. 7, pp. 1637–1650, jul 2016. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0301562916001095>
- [23] Shibin Wu, Qingsong Zhu, and Yaoqin Xie, "Evaluation of various speckle reduction filters on medical ultrasound images," in *2013 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE, jul 2013, pp. 1148–1151. [Online]. Available: <http://ieeexplore.ieee.org/document/6609709/>
- [24] N. S. Narayan, P. Marziliano, and C. G. L. Hobbs, "Automatic removal of manually induced artefacts in ultrasound images of thyroid gland," in *2013 35th Annual International Conference of the IEEE Engineering in Medicine*

- and Biology Society (EMBC)*, vol. 2013. IEEE, jul 2013, pp. 3399–3402. [Online]. Available: <http://ieeexplore.ieee.org/document/6610271/>
<http://www.ncbi.nlm.nih.gov/pubmed/24110458>
- [25] A. Nugroho, R. Hidayat, and H. A. Nugroho, “Artifact removal in radiological ultrasound images using selective and adaptive median filter,” in *Proceedings of the 3rd International Conference on Cryptography, Security and Privacy - ICCSP '19*. New York, New York, USA: ACM Press, 2019, pp. 237–241. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=3309074.3309119>
- [26] P. Tay, S. Acton, and J. Hossack, “A Transform Method to Remove Ultrasound Artifacts,” in *2006 IEEE Southwest Symposium on Image Analysis and Interpretation*. IEEE, 2006, pp. 110–114. [Online]. Available: <http://ieeexplore.ieee.org/document/1633732/>
- [27] Y. Zhu and D. C. Liu, “Adaptive Artifact Suppression in Ultrasound Image,” in *Fourth International Conference on Image and Graphics (ICIG 2007)*. IEEE, aug 2007, pp. 173–177. [Online]. Available: <http://ieeexplore.ieee.org/document/4297077/>
- [28] A. Khadem, “Artifact suppression in freehand ultrasound elastography using Multiscale Principal Component Analysis,” in *2016 23rd Iranian Conference on Biomedical Engineering and 2016 1st International Iranian Conference on Biomedical Engineering (ICBME)*, no. November. IEEE, 2016, pp. 176–181. [Online]. Available: <http://ieeexplore.ieee.org/document/7890952/>
- [29] J. Lin, H. Zuo, Y. Ye, and X. Liao, “Histogram-Based Autoadaptive Filter for Destriping NDVI Imagery Acquired by UAV-Loaded Multispectral Camera,” *IEEE Geoscience and Remote Sensing Letters*, vol. 16, no. 4, pp. 648–652, apr 2019. [Online]. Available: <https://ieeexplore.ieee.org/document/8528331/>
- [30] C. F. Baumgartner, C. Kolbitsch, J. R. McClelland, D. Rueckert, and A. P. King, “Autoadaptive motion modelling,” in *2014 IEEE 11th International Symposium on Biomedical Imaging (ISBI)*. IEEE, apr 2014, pp. 457–460. [Online]. Available: <http://ieeexplore.ieee.org/document/6867907/>
- [31] T. Qiu, Y. Yan, and G. Lu, “An Autoadaptive Edge-Detection Algorithm for Flame and Fire Image Processing,” *IEEE Transactions on Instrumentation and Measurement*, vol. 61, no. 5, pp. 1486–1493, may 2012. [Online]. Available: <http://ieeexplore.ieee.org/document/6119219/>
- [32] W. Xueqin, L. Shurong, L. Jiaojiao, W. Jiayan, and Z. Minyi, “A novel segmentation model with dual level set function based on Chan-vese and local binary fitting models,” in *2016 3rd International Conference on Systems and Informatics (ICSAI)*, no. Icsai. IEEE, nov 2016, pp. 837–842. [Online]. Available: <http://ieeexplore.ieee.org/document/7811067/>

- [33] D. Koundal, S. Gupta, and S. Singh, “Automated delineation of thyroid nodules in ultrasound images using spatial neutrosophic clustering and level set,” *Applied Soft Computing Journal*, vol. 40, pp. 86–97, 2016. [Online]. Available: <http://dx.doi.org/10.1016/j.asoc.2015.11.035>
- [34] H. D. Cheng, J. Shan, W. Ju, Y. Guo, and L. Zhang, “Automated breast cancer detection and classification using ultrasound images: A survey,” *Pattern Recognition*, vol. 43, no. 1, pp. 299–317, 2010. [Online]. Available: <http://dx.doi.org/10.1016/j.patcog.2009.05.012>
- [35] S. Sridevi and M. Sundaresan, “Survey of image segmentation algorithms on ultrasound medical images,” in *2013 International Conference on Pattern Recognition, Informatics and Mobile Engineering*. IEEE, feb 2013, pp. 215–220. [Online]. Available: <http://ieeexplore.ieee.org/document/6496475/>
- [36] M. Xian, Y. Zhang, H. D. Cheng, F. Xu, B. Zhang, and J. Ding, “Automatic Breast Ultrasound Image Segmentation : A Survey,” *Computer Vision and Pattern Recognition*, pp. 1–71, 2017.
- [37] Q. Huang, Y. Luo, and Q. Zhang, “Breast ultrasound image segmentation: a survey,” *International Journal of Computer Assisted Radiology and Surgery*, vol. 12, no. 3, pp. 493–507, mar 2017. [Online]. Available: <http://link.springer.com/10.1007/s11548-016-1513-1>
- [38] K. M. Meiburger, U. R. Acharya, and F. Molinari, “Automated localization and segmentation techniques for B-mode ultrasound images: A review,” *Computers in Biology and Medicine*, vol. 92, no. November 2017, pp. 210–235, jan 2018. [Online]. Available: <https://doi.org/10.1016/j.compbiomed.2017.11.018><https://linkinghub.elsevier.com/retrieve/pii/S0010482517303888>
- [39] A. Nugroho, R. Hidayat, and H. A. Nugroho, “Thyroid Ultrasound Image Segmentation: A Review,” in *2019 5th International Conference on Science and Technology (ICST)*. IEEE, jul 2019, pp. 1–6. [Online]. Available: <https://ieeexplore.ieee.org/document/9166443/>
- [40] E. Kollorz, D. Hahn, R. Linke, T. Goecke, J. Hornegger, and T. Kuwert, “Quantification of Thyroid Volume Using 3-D Ultrasound Imaging,” *IEEE Transactions on Medical Imaging*, vol. 27, no. 4, pp. 457–466, apr 2008.
- [41] Ruey-Feng Chang, Wen-Jie Wu, Chih-Chi Tseng, Dar-Ren Chen, and Woo Kyung Moon, “3-D snake for US in margin evaluation for malignant breast tumor excision using mammotome,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 7, no. 3, pp. 197–201, sep 2003. [Online]. Available: <http://ieeexplore.ieee.org/document/1229858/>
- [42] Y.-L. H. Y.-L. Huang and D.-R. C. D.-R. Chen, “Automatic Contouring for Breast Tumors in 2-D Sonography,” *Conference Proceedings of*

- the International Conference of IEEE Engineering in Medicine and Biology Society*, vol. 3, pp. 3225–3228, 2005. [Online]. Available: http://ieeexplore.ieee.org/xpls/abs/_all.jsp?arnumber=1617163
- [43] M. H. Yap, E. a. Edirisinghe, and H. E. Bez, “Fully automatic lesion boundary detection in ultrasound breast images,” *Proc. SPIE 6512, Medical Imaging 2007: Image Processing*, pp. 65 123I–65 123I, 2007. [Online]. Available: <http://dx.doi.org/10.1117/12.708625>
- [44] L. Gao, X. Liu, and W. Chen, “Phase- and GVF-Based Level Set Segmentation of Ultrasonic Breast Tumors,” *Journal of Applied Mathematics*, vol. 2012, pp. 1–22, 2012. [Online]. Available: <http://www.hindawi.com/journals/jam/2012/810805/>
- [45] A. Rodtook and S. S. Makhanov, “Multi-feature gradient vector flow snakes for adaptive segmentation of the ultrasound images of breast cancer,” *Journal of Visual Communication and Image Representation*, vol. 24, no. 8, pp. 1414–1430, nov 2013. [Online]. Available: <http://dx.doi.org/10.1016/j.jvcir.2013.09.009https://linkinghub.elsevier.com/retrieve/pii/S104732031300179X>
- [46] L. Moraru, S. Moldovanu, and A. Biswas, “Optimization of breast lesion segmentation in texture feature space approach,” *Medical Engineering & Physics*, vol. 36, no. 1, pp. 129–135, jan 2014. [Online]. Available: <http://dx.doi.org/10.1016/j.medengphy.2013.05.013https://linkinghub.elsevier.com/retrieve/pii/S1350453313001306>
- [47] M. Kass, A. Witkin, and D. Terzopoulos, “Snakes: Active contour models,” *International Journal of Computer Vision*, vol. 1, no. 4, pp. 321–331, jan 1988. [Online]. Available: <http://link.springer.com/10.1007/BF00133570>
- [48] Y. Chang, A. K. Paul, N. Kim, J. H. Baek, Y. J. Choi, E. J. Ha, K. D. Lee, H. S. Lee, D. Shin, and N. Kim, “Computer-aided diagnosis for classifying benign versus malignant thyroid nodules based on ultrasound images: A comparison with radiologist-based assessments,” *Med Phys*, vol. 43, no. 1, p. 554, 2016. [Online]. Available: <http://scitation.aip.org/docserver/fulltext/aapm/journal/medphys/43/1/1.4939060.pdf?expires=1452534748{&}id=id{&}acname=2115426{&}checksum=25DAAB6A05F01C627D5FF94E0F79E741>
- [49] C.-M. Chen, H. H.-S. Lu, and Y.-C. Lin, “An early vision-based snake model for ultrasound image segmentation,” *Ultrasound in Medicine & Biology*, vol. 26, no. 2, pp. 273–285, feb 2000. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0301562999001404>
- [50] C. P. Loizou, C. S. Pattichis, M. Pantziaris, T. Tyllis, and A. Nicolaides, “Snakes based segmentation of the common carotid artery intima media,”

- Medical & Biological Engineering & Computing*, vol. 45, no. 1, pp. 35–49, jan 2007. [Online]. Available: <http://link.springer.com/10.1007/s11517-006-0140-3>
- [51] C. P. Loizou, A. Nicolaides, E. Kyriacou, N. Georghiou, M. Griffin, and C. S. Pattichis, “A Comparison of Ultrasound Intima-Media Thickness Measurements of the Left and Right Common Carotid Artery,” *IEEE Journal of Translational Engineering in Health and Medicine*, vol. 3, no. December 2014, pp. 1–10, 2015. [Online]. Available: <http://ieeexplore.ieee.org/document/7138563/>
- [52] W. Wang, L. Zhu, J. Qin, Y.-p. Chui, B. Nan, and P.-a. Heng, “Multiscale geodesic active contours for ultrasound image segmentation using speckle reducing anisotropic diffusion,” *Optics and Lasers in Engineering*, vol. 54, no. 0, pp. 105–116, 2014. [Online]. Available: <http://dx.doi.org/10.1016/j.optlaseng.2013.10.003>
<http://www.sciencedirect.com/science/article/pii/S0143816613003011>
<http://linkinghub.elsevier.com/retrieve/pii/S0143816613003011>
- [53] V. Caselles, R. Kimmel, and G. Sapiro, “Geodesic Active Contours,” *International Journal of Computer Vision*, vol. 22, no. 1, pp. 61–79, 1997. [Online]. Available: <http://link.springer.com/10.1023/A:1007979827043>
- [54] P. Ganesh, J. J. J. Babu, and S. Suganthkannan, “Automated Thyroid Nodule Segmentation Algorithm for Ultrasound Images,” *International Journal of Advanced Research in Electrical Electronics and Instrumentation Engineering*, vol. 3, no. 3, pp. 85–90, 2014.
- [55] W. Du and N. Sang, “An effective method for ultrasound thyroid nodules segmentation,” in *2015 International Symposium on Bioelectronics and Bioinformatics (ISBB)*. IEEE, oct 2015, pp. 207–210. [Online]. Available: <http://ieeexplore.ieee.org/document/7344960/>
- [56] D. Koundal, S. Gupta, and S. Singh, “Computer aided thyroid nodule detection system using medical ultrasound images,” *Biomedical Signal Processing and Control*, vol. 40, pp. 117–130, feb 2018. [Online]. Available: <https://doi.org/10.1016/j.bspc.2017.08.025>
<http://linkinghub.elsevier.com/retrieve/pii/S1746809417301982>
- [57] W. Gómez, A. F. C. Infantosi, L. Leija, and W. C. A. Pereira, “Active contours without edges applied to breast lesions on ultrasound,” *IFMBE Proceedings*, vol. 29, no. 2, pp. 292–295, 2010.
- [58] L. Cai and Y. Wang, “A phase-based active contour model for segmentation of breast ultrasound images,” in *2013 6th International Conference on Biomedical Engineering and Informatics*, no. 2012. IEEE, dec 2013, pp. 91–95. [Online]. Available: <http://ieeexplore.ieee.org/document/6746913/>

- [59] R. Rodrigues, R. Braz, M. Pereira, J. Moutinho, and A. M. Pinheiro, "A Two-Step Segmentation Method for Breast Ultrasound Masses Based on Multi-resolution Analysis," *Ultrasound in Medicine & Biology*, vol. 41, no. 6, pp. 1737–1748, jun 2015. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0301562915000435>
- [60] A. Nugroho, H. A. Nugroho, and L. Choridah, "Active contour bilateral filter for breast lesions segmentation on ultrasound images," in *Proceedings - 2015 International Conference on Science in Information Technology: Big Data Spectrum for Future Information Economy, ICSITech 2015*. IEEE, oct 2016, pp. 36–40. [Online]. Available: <http://ieeexplore.ieee.org/document/7407773/>
- [61] L. Liu, K. Li, W. Qin, T. Wen, L. Li, J. Wu, and J. Gu, "Automated breast tumor detection and segmentation with a novel computational framework of whole ultrasound images." *Medical & biological engineering & computing*, vol. 56, no. 2, pp. 183–199, feb 2018. [Online]. Available: <http://link.springer.com/10.1007/s11517-017-1770-3><http://www.ncbi.nlm.nih.gov/pubmed/29292471>
- [62] A. Nugroho, R. Hidayat, H. A. Nugroho, and J. Debayle, "Cancerous object detection using morphological region-based active contour in ultrasound images," *Journal of Physics: Conference Series*, vol. 1444, p. 012011, jan 2020. [Online]. Available: <https://doi.org/10.1088%2F1742-6596%2F1444%2F1%2F012011>
- [63] T. Chan and L. Vese, "Active contours without edges," *IEEE Transactions on Image Processing*, vol. 10, no. 2, pp. 266–277, 2001. [Online]. Available: <http://ieeexplore.ieee.org/document/902291/>
- [64] D. Maroulis, M. Savelonas, S. Karkanis, D. Iakovidis, and N. Dimitropoulos, "Computer-Aided Thyroid Nodule Detection in Ultrasound Images," *18th IEEE Symposium on Computer-Based Medical Systems (CBMS'05)*, pp. 271–276, 2005. [Online]. Available: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=1467702>
- [65] M. Savelonas, D. Maroulis, D. Iakovidis, S. Karkanis, and N. Dimitropoulos, "A variable background active contour model for automatic detection of thyroid nodules in ultrasound images," in *IEEE International Conference on Image Processing 2005*, vol. 1, no. 5. IEEE, 2005, pp. I–17. [Online]. Available: <http://ieeexplore.ieee.org/document/1529676/>
- [66] D. E. Maroulis, M. A. Savelonas, D. K. Iakovidis, S. A. Karkanis, and N. Dimitropoulos, "Variable Background Active Contour Model for Computer-Aided Delineation of Nodules in Thyroid Ultrasound Images," *IEEE Transactions on Information Technology in Biomedicine*, vol. 11,

- no. 5, pp. 537–543, sep 2007. [Online]. Available: <http://ieeexplore.ieee.org/document/1529676/http://ieeexplore.ieee.org/document/4300840/>
- [67] M. Savelonas, D. Iakovidis, N. Dimitropoulos, and D. Maroulis, “Computational Characterization of Thyroid Tissue in the Radon Domain,” in *Twentieth IEEE International Symposium on Computer-Based Medical Systems (CBMS’07)*. IEEE, jun 2007, pp. 189–192. [Online]. Available: <http://ieeexplore.ieee.org/document/4262648/>
- [68] D. K. Iakovidis, M. A. Savelonas, S. A. Karkanis, and D. E. Maroulis, “A Genetically Optimized Level Set Approach to Segmentation of Thyroid Ultrasound Images,” *Applied Intelligence*, vol. 27, no. 3, pp. 193–203, 2007. [Online]. Available: <https://link.springer.com/article/10.1007/s10489-007-0066-y>
- [69] E. G. Keramidas, D. K. Iakovidis, D. Maroulis, and S. Karkanis, “Efficient and effective ultrasound image analysis scheme for thyroid nodule detection,” *Image Analysis and Recognition*, pp. 1052–1060, 2007. [Online]. Available: http://link.springer.com/10.1007/978-3-540-74260-9_{_}93
- [70] M. Savelonas, D. Iakovidis, I. Legakis, and D. Maroulis, “Active Contours Guided by Echogenicity and Texture for Delineation of Thyroid Nodules in Ultrasound Images,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 13, no. 4, pp. 519–527, jul 2009. [Online]. Available: <http://ieeexplore.ieee.org/document/4663854/>
- [71] E. Mylona, M. Savelonas, and D. Maroulis, “Entropy-based spatially-varying adjustment of active contour parameters,” in *2012 19th IEEE International Conference on Image Processing*. IEEE, sep 2012, pp. 2565–2568. [Online]. Available: <http://ieeexplore.ieee.org/document/6467422/>
- [72] E. A. Mylona, M. A. Savelonas, D. Maroulis, and A. N. Skodras, “Autopilot spatially-adaptive active contour parameterization for medical image segmentation,” in *Proceedings of the 26th IEEE International Symposium on Computer-Based Medical Systems*. IEEE, jun 2013, pp. 268–272. [Online]. Available: <http://ieeexplore.ieee.org/document/6627800/>
- [73] E. A. Mylona, M. A. Savelonas, and D. Maroulis, “Self-parameterized active contours based on regional edge structure for medical image segmentation,” *SpringerPlus*, vol. 3, no. 1, p. 424, 2014. [Online]. Available: <http://springerplus.springeropen.com/articles/10.1186/2193-1801-3-424>
- [74] —, “Automated Adjustment of Region-Based Active Contour Parameters Using Local Image Geometry,” *IEEE Transactions on Cybernetics*, vol. 44, no. 12, pp. 2757–2770, dec 2014. [Online]. Available: <http://ieeexplore.ieee.org/document/6803910/>

- [75] H. A. Nugroho, A. Nugroho, and L. Choridah, "Thyroid nodule segmentation using active contour bilateral filtering on ultrasound images," *2015 International Conference on Quality in Research (QiR)*, pp. 43–46, aug 2015. [Online]. Available: <http://ieeexplore.ieee.org/document/7374892/>
- [76] Zulfanahri, H. A. Nugroho, A. Nugroho, E. L. Frannita, and I. Ardiyanto, "Classification of thyroid ultrasound images based on shape features analysis," in *2017 10th Biomedical Engineering International Conference (BMEiCON)*. IEEE, aug 2017, pp. 1–5. [Online]. Available: <http://ieeexplore.ieee.org/document/8229106/>
- [77] H. A. Nugroho, Zulfanahri, A. Nugroho, E. L. Frannita, I. Ardiyanto, and L. Choridah, "Feature extraction based on laws' texture energy for lesion echogenicity classification of thyroid ultrasound images," in *2017 International Conference on Computer, Control, Informatics and its Applications (IC3INA)*, vol. 2018-Janua. IEEE, oct 2017, pp. 41–46. [Online]. Available: <http://ieeexplore.ieee.org/document/8251737/>
- [78] H. A. Nugroho, E. L. Frannita, A. Nugroho, Zulfanahri, I. Ardiyanto, and L. Choridah, "Classification of thyroid nodules based on analysis of margin characteristic," in *2017 International Conference on Computer, Control, Informatics and its Applications (IC3INA)*, vol. 2018-Janua. IEEE, oct 2017, pp. 47–51. [Online]. Available: <http://ieeexplore.ieee.org/document/8251738/>
- [79] P. Poudel, C. Hansen, J. Sprung, and M. Friebe, "3D segmentation of thyroid ultrasound images using active contours," *Current Directions in Biomedical Engineering*, vol. 2, no. 1, pp. 467–470, jan 2016. [Online]. Available: <https://www.degruyter.com/view/j/cdbme.2016.2.issue-1/cdbme-2016-0103/cdbme-2016-0103.xml>
- [80] J. Xu, K. Chen, X. Yang, D. Wu, and S. Zhu, "Adaptive Level Set Method for Segmentation of Liver Tumors in Minimally Invasive Surgery Using Ultrasound Images," in *2007 1st International Conference on Bioinformatics and Biomedical Engineering*. IEEE, 2007, pp. 1091–1094. [Online]. Available: <http://ieeexplore.ieee.org/document/4272766/>
- [81] A. Sarti, C. Corsi, E. Mazzini, and C. Lamberti, "Maximum likelihood segmentation of ultrasound images with Rayleigh distribution," *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*, vol. 52, no. 6, pp. 947–960, jun 2005. [Online]. Available: <https://kugler-consulting.freshbooks.com/menu.php?CB431CBbG9naW49L0ZCMjAxOTE=http://ieeexplore.ieee.org/document/1504017/>
- [82] Y. Yu and S. T. Acton, "Speckle reducing anisotropic diffusion." *IEEE transactions on image processing : a publication of the IEEE Signal Processing Society*, vol. 11, no. 11, pp. 1260–70, 2002. [Online].

Available: <http://ieeexplore.ieee.org/document/1529673/http://www.ncbi.nlm.nih.gov/pubmed/18249696>

- [83] S. Balocco, C. Gatta, O. Pujol, J. Mauri, and P. Radeva, "SRBF: Speckle reducing bilateral filtering," *Ultrasound in Medicine and Biology*, vol. 36, no. 8, pp. 1353–1363, aug 2010. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0301562910002267>
- [84] H. A. Nugroho, Zulfanahri, E. L. Frannita, I. Ardiyanto, and L. Choridah, "Computer aided diagnosis for thyroid cancer system based on internal and external characteristics," *Journal of King Saud University - Computer and Information Sciences*, 2019.
- [85] R. C. Gonzalez, R. E. Woods, and B. R. Masters, *Digital image processing, third ed.* Pearson Prentice Hall, 2008.
- [86] R. C. Gonzalez, R. E. Woods, and S. L. Eddins, *Digital Image Processing Using MATLAB, 2nd ed.* Gatesmark, 2009.
- [87] A. El-Baz, X. Jiang, and J. S. Suri, *Biomedical Image Segmentation: Advances and Trends.* CRC Press Taylor & Francis, 2016.
- [88] J. Shin, "Mesh generation with a signed distance function," Thesis, Korea University, 2011.
- [89] G. Aubert and P. Kornprobst, *Mathematical problems in image processing : partial differential equations and the calculus of variations.* Springer, 2006.
- [90] S. Osher and J. A. Sethian, "Fronts propagating with curvature-dependent speed: Algorithms based on Hamilton-Jacobi formulations," *J. Comput. Phys.*, vol. 79, no. 1, pp. 12–49, nov 1988. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/0021999188900022>
- [91] R. Malladi, J. Sethian, and B. Vemuri, "Shape modeling with front propagation: a level set approach," *IEEE Trans. Pattern Anal. Mach. Intell.*, vol. 17, no. 2, pp. 158–175, 1995. [Online]. Available: <http://ieeexplore.ieee.org/document/368173/>
- [92] J. Bloomenthal and B. Wyvill, *Introduction to Implicit Surfaces.* San Francisco, CA, USA: Morgan Kaufmann Publishers Inc., 1997.
- [93] G. Wyvill, C. McPheeters, and B. Wyvill, "Data structure for soft objects," *Vis. Comput.*, vol. 2, no. 4, pp. 227–234, aug 1986. [Online]. Available: <http://link.springer.com/10.1007/BF01900346>
- [94] A. H.-D. Cheng and D. T. Cheng, "Heritage and early history of the boundary element method," *Eng. Anal. Bound. Elem.*, vol. 29, no. 3, pp. 268–302, mar 2005. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0955799705000020>

- [95] C.-W. Shu and S. Osher, "Efficient implementation of essentially non-oscillatory shock-capturing schemes," *J. Comput. Phys.*, vol. 77, no. 2, pp. 439–471, aug 1988. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/0021999188901775>
- [96] —, "Efficient implementation of essentially non-oscillatory shock-capturing schemes, II," *J. Comput. Phys.*, vol. 83, no. 1, pp. 32–78, jul 1989. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/0021999189902222>
- [97] S. Osher and C.-W. Shu, "High-Order Essentially Nonoscillatory Schemes for Hamilton–Jacobi Equations," *SIAM J. Numer. Anal.*, vol. 28, no. 4, pp. 907–922, aug 1991. [Online]. Available: <http://epubs.siam.org/doi/10.1137/0728049>
- [98] M. T. Heath, "Scientific Computing An Introductory Survey," *Philos. Trans. A. Math. Phys. Eng. Sci.*, 1997.
- [99] G. Strang, *Introduction to applied mathematics*. Wellesley-Cambridge Press., 1986.
- [100] R. Courant, K. Friedrichs, and H. Lewy, "On the Partial Difference Equations of Mathematical Physics," *IBM J. Res. Dev.*, vol. 11, no. 2, pp. 215–234, mar 1967. [Online]. Available: <http://ieeexplore.ieee.org/document/5391985/>
- [101] V. T. and J. C. Strikwerda, "Finite Difference Schemes and Partial Differential Equations." *Math. Comput.*, vol. 55, no. 192, p. 869, oct 1990. [Online]. Available: <https://www.jstor.org/stable/2008454?origin=crossref>
- [102] S. K. Godunov, "A Finite Difference Method for the Computation of Discontinuous Solutions of the Equations of Fluid Dynamics," *Mat. Sb.*, 1959.
- [103] E. Rouy and A. Tourin, "A Viscosity Solutions Approach to Shape-From-Shading," *SIAM J. Numer. Anal.*, vol. 29, no. 3, pp. 867–884, jun 1992. [Online]. Available: <http://epubs.siam.org/doi/10.1137/0729053>
- [104] A. M. Bruckstein, "On shape from shading," *Comput. Vision, Graph. Image Process.*, vol. 44, no. 2, pp. 139–154, nov 1988. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0734189X88800021>
- [105] R. Kimmel and A. Bruckstein, "Shape offsets via level sets," *Comput. Des.*, vol. 25, no. 3, pp. 154–162, mar 1993. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/001044859390040U>
- [106] S. Osher, "A Level Set Formulation for the Solution of the Dirichlet Problem for Hamilton–Jacobi Equations," *SIAM J. Math. Anal.*, vol. 24, no. 5, pp. 1145–1152, sep 1993. [Online]. Available: <http://epubs.siam.org/doi/10.1137/0524066>

- [107] M. Sussman, P. Smereka, and S. Osher, "A Level Set Approach for Computing Solutions to Incompressible Two-Phase Flow," *J. Comput. Phys.*, vol. 114, no. 1, pp. 146–159, sep 1994. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0021999184711557>
- [108] T. Y. Kong and A. Rosenfeld, *Topological algorithms for digital image processing*. Elsevier, 1996.
- [109] J. Shan, H. D. Cheng, and Y. Wang, "A novel segmentation method for breast ultrasound images based on neutrosophic l-means clustering." *Medical physics*, vol. 39, no. 9, pp. 5669–82, 2012. [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/22957633>
- [110] K. H. Zou, S. K. Warfield, A. Bharatha, C. M. Tempny, M. R. Kaus, S. J. Haker, W. M. Wells, F. A. Jolesz, and R. Kikinis, "Statistical validation of image segmentation quality based on a spatial overlap index1," *Academic Radiology*, vol. 11, no. 2, pp. 178–189, feb 2004. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S1076633203006718>
- [111] A. Popovic, M. de la Fuente, M. Engelhardt, and K. Radermacher, "Statistical validation metric for accuracy assessment in medical image segmentation," *International Journal of Computer Assisted Radiology and Surgery*, vol. 2, no. 3-4, pp. 169–181, dec 2007. [Online]. Available: <http://link.springer.com/10.1007/s11548-007-0125-1>
- [112] B. D. Ripley and G. Matheron, "Random Sets and Integral Geometry." *J. R. Stat. Soc. Ser. A*, vol. 139, no. 2, p. 277, 1976. [Online]. Available: <https://www.jstor.org/stable/10.2307/2345196?origin=crossref>
- [113] P. J. Diggle and J. Serra, "Image Analysis and Mathematical Morphology." *Biometrics*, vol. 39, no. 2, p. 536, jun 1983. [Online]. Available: <https://www.jstor.org/stable/2531038?origin=crossref>
- [114] L. D. Cohen, "On active contour models and balloons," *CVGIP: Image Understanding*, vol. 53, no. 2, pp. 211–218, mar 1991. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/104996609190028N>
- [115] L. Cohen and I. Cohen, "Finite-element methods for active contour models and balloons for 2-D and 3-D images," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 15, no. 11, pp. 1131–1147, 1993. [Online]. Available: <http://ieeexplore.ieee.org/document/244675/>
- [116] Chenyang Xu and J. Prince, "Snakes, shapes, and gradient vector flow," *IEEE Transactions on Image Processing*, vol. 7, no. 3, pp. 359–369, mar 1998. [Online]. Available: <http://ieeexplore.ieee.org/document/661186/>
- [117] C. Xu and J. L. Prince, "Generalized gradient vector flow external forces for active contours," *Signal Processing*, vol. 71, no. 2, pp. 131–139,

- dec 1998. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0165168498001406>
- [118] Y. Wu, Y. Jia, and Y. Wang, "Adaptive Diffusion Flow for Parametric Active Contours," in *2010 20th International Conference on Pattern Recognition*. IEEE, aug 2010, pp. 2788–2791. [Online]. Available: <http://ieeexplore.ieee.org/document/5597027/>
- [119] Y. Wu, Y. Wang, and Y. Jia, "Adaptive diffusion flow active contours for image segmentation," *Computer Vision and Image Understanding*, vol. 117, no. 10, pp. 1421–1435, oct 2013. [Online]. Available: <http://dx.doi.org/10.1016/j.cviu.2013.05.003>
<https://linkinghub.elsevier.com/retrieve/pii/S1077314213001033>
- [120] V. Caselles, F. Catté, T. Coll, and F. Dibos, "A geometric model for active contours in image processing," *Numerische Mathematik - Springer*, vol. 66, no. 1, pp. 1–31, 1993. [Online]. Available: <http://www.springerlink.com/index/J830811172172711.pdf>
- [121] C. Li, C. Xu, C. Gui, and M. D. Fox, "Distance regularized level set evolution and its application to image segmentation," *IEEE Trans Image Process*, vol. 19, no. 12, pp. 3243–3254, 2010. [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/20801742>
- [122] C. Li, C. Xu, K. M. Konwar, and M. D. Fox, "Fast Distance Preserving Level Set Evolution for Medical Image Segmentation," in *2006 9th International Conference on Control, Automation, Robotics and Vision*, no. 1. IEEE, 2006, pp. 1–7. [Online]. Available: <http://ieeexplore.ieee.org/document/4150341/>
- [123] Chunming Li, Chenyang Xu, Changfeng Gui, and M. Fox, "Level Set Evolution without Re-Initialization: A New Variational Formulation," in *2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'05)*, vol. 1. IEEE, 2005, pp. 430–436. [Online]. Available: <http://ieeexplore.ieee.org/document/1467299/>
- [124] K. Zhang, L. Zhang, H. Song, and D. Zhang, "Reinitialization-Free Level Set Evolution via Reaction Diffusion," *IEEE Transactions on Image Processing*, vol. 22, no. 1, pp. 258–271, jan 2013. [Online]. Available: <http://ieeexplore.ieee.org/document/6272358/>
- [125] D. Mumford and J. Shah, "Optimal approximations by piecewise smooth functions and associated variational problems," *Communications on Pure and Applied Mathematics*, vol. 42, no. 5, pp. 577–685, jul 1989. [Online]. Available: <http://doi.wiley.com/10.1002/cpa.3160420503>
- [126] A. Yezzi, A. Tsai, and A. Willsky, "A Fully Global Approach to Image Segmentation via Coupled Curve Evolution Equations," *Journal*

- of Visual Communication and Image Representation*, vol. 13, no. 1-2, pp. 195–216, 2002. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S1047320301905000>
- [127] K. Zhang, L. Zhang, H. Song, and W. Zhou, “Active contours with selective local or global segmentation: A new formulation and level set method,” *Image and Vision Computing*, vol. 28, no. 4, pp. 668–676, 2010. [Online]. Available: <http://dx.doi.org/10.1016/j.imavis.2009.10.009>
- [128] A. Tsai, A. Yezzi, and A. Willsky, “Curve evolution implementation of the Mumford-Shah functional for image segmentation, denoising, interpolation, and magnification,” *IEEE Transactions on Image Processing*, vol. 10, no. 8, pp. 1169–1186, 2001. [Online]. Available: <http://ieeexplore.ieee.org/document/935033/>
- [129] L. A. Vese and T. F. Chan, “A multiphase level set framework for image segmentation using the Mumford and Shah model,” *International Journal of Computer Vision*, vol. 50, no. 3, pp. 271–293, 2002. [Online]. Available: <http://link.springer.com/10.1023/A:1020874308076>
- [130] J. Piovano, M. Rousson, and T. Papadopoulos, *Efficient Segmentation of Piecewise Smooth Images*. Berlin, Heidelberg: Springer Berlin Heidelberg, 2007, pp. 709–720. [Online]. Available: https://doi.org/10.1007/978-3-540-72823-8_{_}61http://link.springer.com/10.1007/978-3-540-72823-8_{_}61
- [131] T. Brox and D. Cremers, *On the Statistical Interpretation of the Piecewise Smooth Mumford-Shah Functional*. Berlin, Heidelberg: Springer Berlin Heidelberg, 2007, pp. 203–213. [Online]. Available: https://doi.org/10.1007/978-3-540-72823-8_{_}18http://link.springer.com/10.1007/978-3-540-72823-8_{_}18
- [132] J. An, M. Rousson, and C. Xu, “Γ-Convergence Approximation to Piecewise Smooth Medical Image Segmentation,” in *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2007*. Berlin, Heidelberg: Springer Berlin Heidelberg, 2007, vol. 10, no. Pt 2, pp. 495–502. [Online]. Available: <http://www.ncbi.nlm.nih.gov/pubmed/18044605>http://link.springer.com/10.1007/978-3-540-75759-7_{_}60
- [133] K. Zhang, S. Xu, W. Zhou, and B. Liu, “Active contours based on image laplacian fitting energy,” *Chinese Journal of Electronics*, vol. 18, no. 2, pp. 281–284, 2009. [Online]. Available: http://manu57.magtech.com.cn/Jwk_{_}cje/EN/abstract/article_{_}2554.shtml
- [134] S. Lankton and A. Tannenbaum, “Localizing Region-Based Active Contours,” *IEEE Transactions on Image Processing*, vol. 17, no. 11, pp. 2029–2039, nov 2008. [Online]. Available: <http://ieeexplore.ieee.org/document/4636741/>

- [135] C. Li, C.-Y. Kao, J. C. Gore, and Z. Ding, "Implicit Active Contours Driven by Local Binary Fitting Energy," in *2007 IEEE Conference on Computer Vision and Pattern Recognition*. IEEE, jun 2007, pp. 1–7. [Online]. Available: <http://ieeexplore.ieee.org/document/4270039/>
- [136] Chunming Li, Chiu-Yen Kao, J. Gore, and Zhaohua Ding, "Minimization of Region-Scalable Fitting Energy for Image Segmentation," *IEEE Transactions on Image Processing*, vol. 17, no. 10, pp. 1940–1949, oct 2008. [Online]. Available: <http://ieeexplore.ieee.org/document/4623242/>
- [137] C. Li, R. Huang, Z. Ding, C. Gatenby, D. Metaxas, and J. Gore, "A Variational Level Set Approach to Segmentation and Bias Correction of Images with Intensity Inhomogeneity," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2008, vol. 5242 LNCS, no. PART 2, pp. 1083–1091. [Online]. Available: http://link.springer.com/10.1007/978-3-540-85990-1_{_}130
- [138] Chunming Li, Rui Huang, Zhaohua Ding, J. C. Gatenby, D. N. Metaxas, and J. C. Gore, "A Level Set Method for Image Segmentation in the Presence of Intensity Inhomogeneities With Application to MRI," *IEEE Transactions on Image Processing*, vol. 20, no. 7, pp. 2007–2016, jul 2011. [Online]. Available: <http://ieeexplore.ieee.org/document/5754584/>
- [139] K. Zhang, H. Song, and L. Zhang, "Active contours driven by local image fitting energy," *Pattern Recognition*, vol. 43, no. 4, pp. 1199–1206, apr 2010. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0031320309003835>
- [140] K. Zhang, L. Zhang, and S. Zhang, "A variational multiphase level set approach to simultaneous segmentation and bias correction," in *2010 IEEE International Conference on Image Processing*, no. x. IEEE, sep 2010, pp. 4105–4108. [Online]. Available: <http://ieeexplore.ieee.org/document/5651554/>
- [141] K. Zhang, L. Zhang, K.-m. Lam, and D. Zhang, "A Level Set Approach to Image Segmentation With Intensity Inhomogeneity," *IEEE Transactions on Cybernetics*, vol. 46, no. 2, pp. 546–557, 2016. [Online]. Available: <http://ieeexplore.ieee.org/document/7059203/>
- [142] X. F. Wang, D. S. Huang, and H. Xu, "An efficient local Chan-Vese model for image segmentation," *Pattern Recognition*, vol. 43, no. 3, pp. 603–618, 2010. [Online]. Available: <http://dx.doi.org/10.1016/j.patcog.2009.08.002>
- [143] S. Liu and Y. Peng, "A local region-based ChanVese model for image segmentation," *Pattern Recognition*, vol. 45, no. 7, pp. 2769–2779, 2012. [Online]. Available: <http://dx.doi.org/10.1016/j.patcog.2011.11.019>

- [144] L. Wang, L. He, A. Mishra, and C. Li, "Active contours driven by local Gaussian distribution fitting energy," *Signal Processing*, vol. 89, no. 12, pp. 2435–2447, 2009. [Online]. Available: <http://dx.doi.org/10.1016/j.sigpro.2009.03.014>
- [145] Z. Ji, Y. Xia, Q. Sun, G. Cao, and Q. Chen, "Active contours driven by local likelihood image fitting energy for image segmentation," *Information Sciences*, vol. 301, pp. 285–304, 2015. [Online]. Available: <http://dx.doi.org/10.1016/j.ins.2015.01.006>
- [146] L. Chen, Y. Zhou, Y. Wang, and J. Yang, "GACV: Geodesic-Aided C–V method," *Pattern Recognition*, vol. 39, no. 7, pp. 1391–1395, jul 2006. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0031320306000380>
- [147] H. Wang, T. Z. Huang, and Y. Q. Du, "An adaptive weighting parameter selection for improved integrated active contour model," *Optik*, vol. 126, no. 24, pp. 5331–5335, 2015. [Online]. Available: <http://dx.doi.org/10.1016/j.ijleo.2015.09.102>
- [148] S. Lankton, D. Nain, A. Yezzi, and A. Tannenbaum, "Hybrid Geodesic Region-Based Curve Evolutions for Image Segmentation," *Medical Imaging. International Society for Optics and Photonics*, vol. 6510, no. d, pp. 1–10, 2007. [Online]. Available: <http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=1299388>
- [149] L. Wang, C. Li, Q. Sun, D. Xia, and C.-Y. Kao, "Active contours driven by local and global intensity fitting energy with application to brain MR image segmentation," *Computerized Medical Imaging and Graphics*, vol. 33, no. 7, pp. 520–531, oct 2009. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0895611109000494>
- [150] N. Shi and J. Pan, "An improved active contours model for image segmentation by level set method," *Optik - International Journal for Light and Electron Optics*, vol. 127, no. 3, pp. 1037–1042, 2015. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0030402615012656>
- [151] S. Yuan, P. Monkam, S. Li, H. Song, and F. Zhang, "Active contour model via local and global intensity information for image segmentation," in *2017 36th Chinese Control Conference (CCC)*, vol. 186. IEEE, jul 2017, pp. 5618–5623. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0925231215020469><http://ieeexplore.ieee.org/document/8028249/>
- [152] H. Wang and T. Z. Huang, "An adaptive weighting parameter estimation between local and global intensity fitting energy for image segmentation," *Communications in Nonlinear Science and Numerical Simulation*, vol. 19, no. 9, pp. 3098–3105, 2014. [Online]. Available: <http://dx.doi.org/10.1016/j.cnsns.2014.02.015>

- [153] L. Zhao, S. Zheng, H. Wei, and L. Gui, "Adaptive active contour model driven by global and local intensity fitting energy for image segmentation," *Optik - International Journal for Light and Electron Optics*, vol. 140, pp. 908–920, 2017. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S003040261730551X>
- [154] H. Wang, T. Z. Huang, Z. Xu, and Y. Wang, "An active contour model and its algorithms with local and global Gaussian distribution fitting energies," *Information Sciences*, vol. 263, pp. 43–59, 2014. [Online]. Available: <http://dx.doi.org/10.1016/j.ins.2013.10.033>
- [155] Z. Liu, D. Zhou, Q. Lin, and J. Lin, "Active Contour Model Based on Local and Global Image Information," in *2015 7th International Conference on Intelligent Human-Machine Systems and Cybernetics*, vol. 186. IEEE, aug 2015, pp. 266–269. [Online]. Available: <http://ieeexplore.ieee.org/document/7334966/>
- [156] Z. Wang and Y.-j. Liu, "Active contour model by combining edge and region information discrete dynamic systems," *Advances in Mechanical Engineering*, vol. 9, no. 3, p. 168781401769294, mar 2017. [Online]. Available: <http://journals.sagepub.com/doi/10.1177/1687814017692947>
- [157] Chenyang Xu, A. Yezzi, and J. Prince, "On the relationship between parametric and geometric active contours," in *Conference Record of the Thirty-Fourth Asilomar Conference on Signals, Systems and Computers (Cat. No.00CH37154)*, vol. 1, no. October. IEEE, 2000, pp. 483–489. [Online]. Available: <http://ieeexplore.ieee.org/document/911003/>
- [158] J. Deng and H. Tsui, "A fast level set method for segmentation of low contrast noisy biomedical images," *Pattern Recognition Letters*, vol. 23, no. 1-3, pp. 161–169, jan 2002. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0167865501001131>
- [159] B. Liu, H. Cheng, J. Huang, J. Tian, J. Liu, and X. Tang, "Automated Segmentation of Ultrasonic Breast Lesions Using Statistical Texture Classification and Active Contour Based on Probability Distance," *Ultrasound in Medicine & Biology*, vol. 35, no. 8, pp. 1309–1324, aug 2009. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0301562908005978>
- [160] A. Nugroho, R. Hidayat, H. A. Nugroho, and J. Debayle, "Ultrasound object detection using morphological region-based active contour: an application system," *Int. J. Innov. Learn.*, vol. 29, no. 4, p. 412, 2021. [Online]. Available: <http://www.inderscience.com/link.php?id=115497>
- [161] A. A. Taha, A. Hanbury, and O. A. J. del Toro, "A formal method for selecting evaluation metrics for image segmentation," in *2014 IEEE Int.*

- Conf. Image Process.* IEEE, oct 2014, pp. 932–936. [Online]. Available: <http://ieeexplore.ieee.org/document/7025187/>
- [162] A. Nugroho, R. Hidayat, H. A. Nugroho, and J. Debayle, “Combinatorial active contour bilateral filter for ultrasound image segmentation,” *J. Med. Imaging*, vol. 7, no. 05, oct 2020. [Online]. Available: <https://www.spiedigitallibrary.org/journals/journal-of-medical-imaging/volume-7/issue-05/057003/Combinatorial-active-contour-bilateral-filter-for-ultrasound-image-segmentation/10.1117/1.JMI.7.5.057003.full>
- [163] J. M. Bland and D. G. Altman, “Statistical methods for assessing agreement between two methods of clinical measurement,” *International Journal of Nursing Studies*, vol. 47, no. 8, pp. 931–936, aug 2010. [Online]. Available: <http://linkinghub.elsevier.com/retrieve/pii/S0020748909003204>