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Abstract

Digital image acquisition and processing technique plays an important role in medical diagnosis. Images of living objects are taken using various modalities such as X-ray, Ultrasound, Computed Tomography (CT), Magnetic Resonance Imaging (MRI) etc. During the acquisition process, various distortions in the images are founded, which will negatively affect the diagnosis process on captured images. There by advanced digital image processing techniques for improving the quality of acquired image by removing noise components present in it becomes important. Among various modalities of medical image acquisition, Ultrasound imaging which is non-invasive in nature and lower acquisition cost is the most used application of high-frequency

sound waves to produce diagnostic images. Ultrasound images are degraded by an intrinsic artifact called 'speckle', which is the result of constructive and destructive coherent summation of ultrasound echoes. This paper discusses different types of filter techniques and multi-scale approach to suppress the speckle noise in ultrasound image.

Refer

ences

- Alamelumangai. N, Dr. DeviShree. J, "An Ultrasound Image Preprocessing System Using Memetic ANFIS Method", International Conference on Biology, Environment and Chemistry IPCBEE vol. 1 (2011), IACSIT Press, Singapore.
- Alamelumangai, N, Dr. DeviShree. J, "Novel Fuzzy Technique for Cancer Detection in Noisy Breast Ultrasound Images", American Journal of Applied Sciences 9 (5): 779-783, ISSN 1546-9239, 2012.
- Anutam and Rajni, "Comparative analysis of filters and wavelet based thresholding methods for image denoising", The international journal of multimedia and its application (IJMA), vol 6- No 3, June 2014.
- Bhausahab Shinde, Dnyandeo Mhaske, Machindra Patare, A. R. Dani , "Apply Different Filtering Techniques To Remove The Speckle Noise Using Medical Images", International Journal of Engineering Research and Applications (IJERA) ISSN: 2248-9622 www.ijera.com Vol. 2, Issue 1,Jan-Feb 2012, pp. 1071-1079.
- Burckhardt C. B. , "Speckle in Ultrasound B Mode Scans", IEEE Trans. Sonics Ultrasonics 1978;25:1-6.
- Eveline Pregitha. R. , Dr. V. Jegathesan and C. Ebbie Selvakumar "Speckle noise reduction in ultrasound fetal images using edge preserving adaptive shoch filters",International Journal of Scientific and Research Publications, Volume 2, Issue 3, March 2012 - ISSN 2250-3153.
- Hiremath Prema. P. S, Akkasaligar . T and Sharan Badiger, "Speckle noise reduction in medical Ultrasound images", Advancements and Breakthroughs in Ultrasound Imaging, pages 201-242; ISBN InTech, Janeza Trdine 9, 51000 Rijeka, Croatia.
- Jaspreet kaur , Rajneet kaur , "Speckle Noise Reduction in Ultrasound Images Using Wavelets: A Review", International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 3, March 2013 ISSN: 2277 128X
- Juan L. Mateo, Antonio Fernández-Caballero, "Finding out general tendencies in speckle noise reduction in ultrasound images", Expert Systems with Applications 36 (2009) 7786–7797.
- Er. Manpreet Kaur and Er. Danvir Mandal, "Speckle noise Reduction in Medical Ultrasound images using Particle Swarm Optimization with Artificial Neural Networks: Comparative Approach", International Journal of Computer Science and Communication Vol. 2, No. 2, July - December 2011, pp. 543-547.
- Er. Manpreet Kaur, Er. Gagandeep Kaur, " A Survey on Implementation of Discrete Wavelet Transform for Image Denoising",International Journal of Communications Networking System, ISSN: 2278-2427,Vol 02, Issue 01, June 2013.
- Mariana carmen nicolae, Lumini?a moraru, Laura onose, "Comparative Approach for Speckle Reduction in Medical Ultrasound images", ROMANIAN J. BIOPHYS. , Vol.

20, No. 1, P. 13–21, Bucharest, 2010.

- Mohamed Saleh Abuazoum "Efficient Analysis Of Medical Image De-Noising For Mri And Ultrasound Images"; Master's thesis, Universiti Tun Hussein Onn Malaysia, January 2012.
- Nishtha Attlas, Dr. Sheifali Gupta, "Wavelet Based Techniques for Speckle Noise Reduction in Ultrasound"; Int. Journal of Engineering Research and Applications www.ijera.com ISSN : 2248-9622, Vol. 4, Issue 2(Version 1), February 2014, pp. 508-513 512.
- Prager R. W. , Gee A. H. , Treece G. M. , and Berman L. , "Speckle detection in ultrasound images using first order statistics"; GUED/ F-INFENG/TR 415, University of Cambridge, Dept. of Engineering, July, 2002: 1–17.
- Prashant R. Deshmukh , Milindkumar V. Sarode , "Reduction of Speckle Noise and Image Enhancement of Images Using Filtering Technique"; International Journal of Advancements in Technology ISSN 0976-4860 Vol 2, No 1 January 2011.
- Ragesh N. K, Anil . A. R, Dr. R. Rajesh, "Digital Image Denoising in Medical Ultrasound Images: A Survey"; ICGST AIML-11 Conference, Dubai, UAE, 12-14 April 2011.
- Rakesh Kumar and B. S. Saini,"Improved Image Denoising Techniques Using Neighbouring Wavelet Coefficients of Optimal Wavelet with Adaptive Thresholding,"; International Journal of Computer Theory and Engineering, Vol. 4, No. 3, June 2012.
- Rupinderpal Kaur, Rajneet Kaur,"Survey of De-noising Methods Using Filters and Fast Wavelet Transform"; International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 2, February 2013 ISSN: 2277 128X.
- Rupinderpal Kaur, Rajneet Kaur, "Image Denoising Based on Wavelet Techniques Using Thresholding for Medical Images"; International Journal of Computer Trends and Technology (IJCTT) – ISSN: 2231-2803, volume 4 Issue 8– August 2013.
- Sachin D Ruikar, Dharmpal D Doye, "Wavelet Based Image Denoising Technique"; (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 2, No. 3, March 2011.
- Sethunadh R and Tessamma Thomas, "Spatially Adaptive image denoising using Undecimated Directionlet Transform,"; International Journal of Computer Applications, Vol. 84, No. 11, December 2013.
- Sivakumar, Nedumaran. D, "Comparative study of Speckle Noise Reduction of Ultrasound B-scan Images in Matrix Laboratory Environment"; International Journal of Computer Applications (0975 – 8887), Volume 10– No. 9, November 2010.
- Sudha. S, Suresh. G. R and Sukanesh. R, "Speckle Noise Reduction in Ultrasound Images by Wavelet Thresholding based on Weighted Variance"; International Journal of Computer Theory and Engineering, Vol. 1, No. 1, 1793-8201 April 2009.
- Suganya Devi S, Dr Suganya Devi D "Effective Noise Reduction Techniques for Despeckling Ultrasound Medical Images"; Journal of Computer Applications ISSN: 0974 – 1925, Volume-5, Issue EICA2012-1, February 10, 2012.
- Yongjian Y. and Acton S. T. "Speckle reducing anisotropic diffusion"; IEEE Trans. Image Processing. Nov. 2002; 11(11):1260–1270.
- http://homepages.inf.ed.ac.uk/rbf/HIPR2/hipr_top.htm, "Image processing learning resource";
- Wikipedia - <http://en.wikipedia.org/wiki>

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Index Terms

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Keywords

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