RESUME

Personnel Information

Name	:	**Sukhwinder Singh**
Date of Birth	:	27th April, 1969
Father's Name	:	S. Dalip Singh
Sex	:	Male
Nationality	:	Indian
Marital Status	:	Married
Address for correspondence	:	**Department of CSE** University Institute of Engineering and Technology Panjab University, Sector 25, Chandigarh-160014.
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Professional & Academic Qualifications

Examination Passed	*University/ Board*	*Year of Passing*	*% Marks*	*Division*
Ph.D.	IIT Roorkee, Roorkee	2006	-	-
M.E. (Computer Sc.& Engg.)	Thapar Institute of Engineering &Technology, Patiala	1999	9.81/10 CGPA 88.3%	First (University Medal)
B.Tech. (Computer Engg.)	G.N.D.U., Amritsar	1991	69.8%	First
Pre Engg.	G.N.D.U, Amritsar	1986	65.8%	First
Matriculation	P.S.E.B., Mohali	1984	71.4%	First with Distinction

Experience

- Worked as **Lecturer** in Department of Computer Sc.& Engg. at Sant Longowal Institute of Engineering & Technology, Longowal, India from 3rd September, 1992 to 9th October, 2002.
- Worked **Asst. Professor** in Department of Computer Sc.& Engg. at Sant Longowal Institute of Engineering & Technology, Longowal, India from 9th October, 2002 to 14th April, 2009.
- Working as **Professor** in Department of Computer Sc.& Engg. at University Institute of Engineering & Technology, Panjab University, Chandigarh, from 15th April, 2009 till date.

Awards /Distinctions

- University Medal for **1st Position** in M.E (Computer Sc. & Engg.) by Thapar Institute of Engineering and Technology, Patiala

Research Areas

➢ Medical Image Processing and Analysis, Biomedical Signal Processing, Information Retrieval, Wireless Sensor Networks, Body Area Networks, Cognitive Enhancement, Machine Intelligence Network Security

Phd. Students

Thesis Completed

S.No	Name	Completion Year	Thesis Title
1	Jagroop Singh	2013	Blocking Artifact Detection and Reduction in JPEG Compressed Images.
2	Mandeep Singh	2014	Processing and Analysis of Ultrasound Images for Tissue Characterization.
3	Birmohan Singh	2015	Computer Aided Diagnosis For Detection of Abnormalities in Mammograms.
4	Amit Kamra	2015	Computer Aided Diagnosis of Breast Cancer toward Detection of Subtle Signs.
5	Vipul Sharma	2016	Development of Semantic Gap Reduction Techniques for medical Image Retrieval System.
6	Deepika Koundal	2016	Automated System for Delineation of Thyroid Nodules in Ultrasound Images.
7	Navneet Kaur	2017	Design of Energy Efficient Framework for Wireless Body Area Networks (thesis submitted)
8	Garima Joshi	2019	Hand Gesture Recognition System for Interpretation of Indian Sign Language

Publications

(a) **Publications in International Journals**

1. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Optimization of Block Size for DCT-Based Medical Image Compression", *Journal of Medical Engineering and Technology,* Vol. 31, No. 2, pp. 129-143, 2007.
2. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Reduction of Blocking Artifacts in JPEG Compressed Images", *Digital Signal Processing*, Vol. 17, No. 1, pp. 225-243, 2007. **Impact Factor –2.241**
3. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "DWT-DCT hybrid scheme for Medical Image Compression" *Journal of Medical Engineering and Technology*, Vol. 31, No. 2, pp. 109-122, 2007.
4. K. Upendra, Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Online fingerprint verification" *Journal of Medical Engineering and Technology*, Vol. 31, No. 1, pp. 36-45, 2007.

5. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Adaptive Threshold Based Block Classification in Medical Image Compression for Teleradiology" *Computers in Biology and Medicine*, Vol. 37, No. 6, pp. 811-819, 2007. **Impact Factor –2.115**

6. Jagroop Singh, Sukhwinder Singh, Dilbag Singh, "Post-processing method for reducing blocking artifacts using a deblocking filter", *CiiT International Journal of Digital Image Processing*, DIP082009006, Aug. 2009.

7. Jagroop Singh, Sukhwinder Singh, Dilbag Singh and MoinUddin, "Efficient DCT domain blind measurement of blocking artifacts" *Journal of Information and Computing Science (UK),* vol. 5, no. 1, pp. 047-054, 2010.

8. Jagroop Singh, Sukhwinder Singh, Dilbag Singh and MoinUddin, "A signal adaptive filter for blocking effect reduction of JPEG compressed images", *International Journal of Electronics and Communications,* **(Elsevier),** vol. 65, pp. 827-839, 2011. **Impact Factor – 2.115**

9. Jagroop Singh, Sukhwinder Singh, Dilbag Singh and MoinUddin, "Detection method and filters for blocking effect reduction of highly compressed images, *Signal Processing: Image Communication,* **(Elsevier)** vol. 26, pp. 493-506, May 2011. **Impact Factor –2.073**

10. Jagroop Singh, Sukhwinder Singh, Dilbag Singh and MoinUddin, "Blocking artifact detection in block-based DCT compressed images "*International Journal Signal and Imaging Systems Engineering* **(Inder Science)**, vol. 4, pp. 181-188, 2011. **Scopus**

11. Amit Kamra, V. K Jain and Sukhwinder Singh, "Towards the Detection of Architecture Distortion in Mammograms: A Review**",** *International Journal of Computer Applications*, Vol. 46, Issue 7, pp. 44-49, 2012.

12. Amit Kamra, V. K Jain and Sukhwinder Singh, "A Novel method for detection of Architecture distortion in mammograms", *ACEEE Journal of Information Technology"*, Vol. 2, Issue 2, pp. 84-87, 2012.

13. Deepika Koundal, Savita Gupta and Sukhwinder Singh, "Computer-Aided Diagnosis of Thyroid Nodule: A Review" *International Journal of Computer Science & Engineering Survey* (IJCSES) Vol.3, No.4, pp. 67-83. ISSN: 0976-2760, 2012.

14. Mandeep Singh, Sukhwinder Singh and Savita Gupta, "A New Quantitative Metric for Liver Classification from Ultrasound Images", *International Journal of Computer and Electrical Engineering*, Vol. 4, No. 4, August 2012.

15. Mandeep Singh, Sukhwinder Singh and Savita Gupta, "An Adaptive speckle suppression filter based on local statistics and edge-map for ultrasound images", *Advanced Science Letters*, vol. 19, no. 8, pp. 2375-2379, 2013.

16. Mandeep Singh, Sukhwinder Singh and Savita Gupta. "An information fusion based method for liver classification using texture analysis of ultrasound images." *Information Fusion,* vol. 19, pp 91-96 (2014). **Impact Factor –6.639**

17. Amit Kamra, V. K Jain and Sukhwinder Singh, "Extraction of Orientation Field Using Gabor Filter and Gradient Based Approach for the Detection of Subtle Signs in

Mammograms**, *Journal of Medical Imaging and Health Informatics*. Volume 4, Number 3, June 2014, pp. 374-381(8). **Impact Factor – 0.549.**

18. Birmohan Singh, V.K. Jain and Sukhwinder Singh, "Mammogram mass classification using SVM with Texture, Shape Features and Hierarchical Centroid Method" *Journal of Medical Imaging and Health Informatics*. Volume 4, Number 5, October 2014, pp. 687-696(10). **Impact Factor –0.549**

19. Vipul Sharma and Sukhwinder Singh, "CFS-SMO based classification of breast density using multiple texture models", *Medical & Biological Engineering & Computing* [Springer Berlin Heidelberg], Vol. 52, Issue 6, pp. 521-529, 2014. [Science Citation Index-Thomson Reuters], **Impact Factor – 1.797.**

20. Vipul Sharma and Sukhwinder Singh, "Automated classification of fatty and dense mammograms", *Journal of Medical Imaging & Health Informatics* [American Scientific Publisher], Vol. 5, Issue 3, pp. 520-526, 2015. [Science Citation Index Expanded-Thomson Reuters], **Impact Factor – 0.877.**

21. Kamra, Amit & Jain, V & Singh, Sukhwinder & Mittal, Sunil. (2015), "Characterization of Architectural Distortion in Mammograms Based on Texture Analysis Using Support Vector Machine Classifier with Clinical Evaluation", *Journal of Digital Imaging*. 29. 10.1007/s10278-015-9807-3. **Impact Factor – 0.549**

22. Deepika Koundal, Savita Gupta, and Sukhwinder Singh. "Speckle reduction method for thyroid ultrasound images in neutrosophic domain." *IET Image Processing* 10, no. 2 (2016): 167-175. **Impact Factor –1.401**

23. Deepika Koundal, Savita Gupta, and Sukhwinder Singh. "Nakagami-based total variation method for speckle reduction in thyroid ultrasound images." Proceedings of the Institution of Mechanical Engineers, Part H: *Journal of Engineering in Medicine* 230, no. 2 (2016): 97-110. **Impact Factor –1.144**

24. Deepika Koundal, Savita Gupta, and Sukhwinder Singh. "Automated delineation of thyroid nodules in ultrasound images using spatial neutrosophic clustering and level set." *Applied Soft Computing* 40 (2016): 86-97. **Impact Factor –3.907**

25. Kaur, Navneet, and Sukhwinder Singh. "Optimized cost effective and energy efficient routing protocol for wireless body area networks." *Ad Hoc Networks* Vol. 61 (2017): 65-84. **Impact Factor –3.151**

26. Sran, Paramveer & Gupta, Savita & Singh, Sukhwinder. (2017), "Recent Advances and Perspective of Studies on Visual Attention Models for ROI Extraction in Medical Images", *International Journal of Control Theory and Applications*. 9. 145-149.

27. Koundal, D., S. Gupta, and S. Singh. "Neutrosophic Based Nakagami Total Variation Method for Speckle Suppression in Thyroid Ultrasound Images." **IRBM** 39, no. 1 (2018): 43-53. **Impact Factor –0.897**

28. Koundal, Deepika, Savita Gupta, and Sukhwinder Singh. "Computer aided thyroid nodule detection system using medical ultrasound images." *Biomedical Signal Processing and Control* 40 (2018): 117-130. **Impact Factor –2.783**

29. Joshi, Garima, Renu Vig, and Sukhwinder Singh. "DCA-based unimodal feature-level fusion of orthogonal moments for Indian sign language dataset." IET *Computer Vision* Vol. 12, no. 5 (2018): 570-577. **Impact Factor –1.087**

30. Kaur, Simranjit, Sukhwinder Singh, Priti Arun, Damanjeet Kaur, and Manoj Bajaj. "Event-Related Potential Analysis of ADHD and Control Adults During a Sustained Attention Task." *Clinical EEG and neuroscience* (2019): 1550059419842707. **Impact Factor –1.807**

(b) Papers accepted in International Conferences:

31. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Removing Blocking Artifacts in Compressed Medical Images" *Proceedings of Ist International BioEngineering Conference 2004, (IBEC-2004), Singapore, Sept. 8-10, 2004*, pp.101-104.

32. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "SVM Based System for classification of Microcalcifications in Digital Mammograms", *28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, held on August 30-Spetember 3, 2006 in New York, USA, pp. 4747-4750.

33. Sukhwinder Singh, Vinod Kumar, and H.K. Verma, "Adaptive Threshold for Block Classification for DCT-Based Medical Image Compression," *Proceedings of 3rd International Conference on Computer Application in Electrical Engineering-Recent Advances (CERA'05) Sept 28-Oct. 1, 2005*, Roorkee, India, pp. 475-478.

34. Sunil K. Soni, Ajat Shatru Arora, Sukhwinder Singh, Jagroop Singh, "Realization of Microprocessor based ultrasonic Blood flow meter using Pulsed Doppler Technique" *Proceedings of International Conference on "Biomedical Engineering-2001"*, 24-26 January, 2001 at Anna University, Chennai.

35. Mandeep Singh, Sukhwinder Singh and Savita Gupta, "Comparative Analysis of Spatial filters for Speckle Reduction in Ultrasound Images', *World Congress on Computer Science and Information Engineering CSIE-09*, vol. 6, pp. 228-232, 2009.

36. Jagroop Singh, Sukhwinder Singh, Dilbag Singh and MoinUddin, "Blocking artifact detection in compressed images" *4th International Conference on Computer applications in Electrical Engineering Resent Advances, CERA-09, IIT, Roorkee, Feb. 19-21, 2010*.

37. Sukhwinder Singh, "Morphological-operations based digital Mammogram Enhancement", *In Proceedings of International Conference of Biomedical Engineering and Assisted Technologies (BEATS),* 17-19 December, 2010

38. Mandeep Singh, Savita Gupta and Sukhwinder Singh, "A new measure of echogenicity of ultrasound images for liver classification," *24th Canadian Conference on Electrical and Computer Engineering (CCECE),* 8-11 May 2011.

39. Deepika Koundal, Savita Gupta and Sukhwinder Singh, "Speckle Reduction filter in Neutrosophic domain" *2nd International Conference of Biomedical Engineering and Assisted Technologies (BEATS),* pp.786-790, 2012.

40. Deepika Koundal, Savita Gupta and Sukhwinder Singh, "Survey of Computer-Aided Diagnosis of Thyroid Nodules in Medical Ultrasound Images", *Proceedings of the Second International Conference on advances in Computing and information Technology (ACITY)* AISC 177, pp. 459-467. Vol. 2 springer-Verlag Berlin Heidelberg, 2012.

41. Maggi Bansal, Vipul Sharma and Sukhwinder Singh, "Comparison of Texture Models for Efficient Ultrasound Image Retrieval", *Proceedings SPIE 8670, Medical Imaging: Computer-Aided Diagnosis, Florida, USA,* pp. 86702C, 2013.

42. Vipul Sharma and Sukhwinder Singh, "Content Based Image Retrieval in Mammograms: A Survey", *In Proceedings of International Conference on Soft Computing, Artificial Intelligence, Pattern Recognition, Biomedical Engineering & Associated Technologies (SAP-BEATS- 13),* Jodhpur, 23-24 Feb 2013.

43. Navneet Kaur and Sukhwinder Singh, "Thermal Aware Routing protocols in WBAN: A Survey", *In Proceedings of International Conference on Soft Computing, Artificial Intelligence, Pattern Recognition, Biomedical Engineering & Associated Technologies (SAP-BEATS- 13),* Jodhpur, 23-24 Feb 2013.

44. Simranjit Kaur, Vipul Sharma, Sukhwinder Singh and Savita Gupta, "A content based framework for mass retrieval in mammograms", *Proceedings SPIE 9035, Medical Imaging: Computer Aided Diagnosis,* San Diego, **USA**, 2014.

45. Mandeep Singh, Savita Gupta and Sukhwinder Singh, "Investigations on ROI selection from ultrasound images for liver classification". IEEE 27th Canadian Conference on Electrical and Computer Engineering (CCECE), 2014, PP: 1-6.

46. Vishraj, R., Gupta, S., & Singh, S. (2019). Correction of Segmented Lung Boundary for Inclusion of Injured Diffused Regions from Chest HRCT Images. In Proceedings of 2nd International Conference on Communication, Computing and Networking (pp. 457-467). Springer, Singapore.

47. Koundal, D., Vishraj, R., Gupta, S., & Singh, S. (2015, December). An automatic ROI extraction technique for Thyroid Ultrasound image. In 2015 2nd International Conference on Recent Advances in Engineering & Computational Sciences (RAECS) (pp. 1-5). IEEE.

48. Joshi, Garima & Renu, Vig & Singh, Sukhwinder. (2018), "Analysis of Zernike Moment-Based Features for Sign Language Recognition", in book: Intelligent Communication, Control and Devices, pp.1335-1343 , DOI: 10.1007/978-981-10-5903-2_140.

49. Simranjit Kaur.,Sukhwinder.Singh, Priti Arun., Damanjit Kaur. (2019) Analysis of Resting State EEG Signals of Adults with Attention-Deficit Hyperactivity Disorder. In: Chaki R., Cortesi A., Saeed K., Chaki N. (eds) Advanced Computing and Systems for Security. Advances in Intelligent Systems and Computing, vol 897. Springer, Singapore

50. Singh, J., Singh, S., Gupta, S., & Chavan, B. S. (2019). Analysis of Stimuli Discrimination in Indian Patients with Chronic Schizophrenia. In Advanced Computing and Systems for Security (pp. 49-59). Springer, Singapore.

51. Kaur, S., Singh, S., & Kaur, D. (2019). Frequency Regulation in Smart Grids Using Electric Vehicles Considering Real-Time Pricing. In Proceedings of 2nd International Conference on Communication, Computing and Networking (pp. 323-334). Springer, Singapore.

(c) Papers accepted in National Conferences:

52. Sukhwinder Singh, Renu Vig, B.S. Sohi, "SNMP MIB for Interactive Voice Response System" proceedings of ISTE National Symposium of Information Technology, 11-12 February, 1999, Institution of Electronics and Telecommunication Engineers (IETE) Chandigarh.

53. Savita Gupta, Sukhwinder Singh, "Design of a Video Conferencing System for Distance Education" proceedings of ISTE seminar on "Future Role of Polytechnics in Human Resource Development" on 12th November, 1999 at SLIET, Longowal.

54. R.C. Chauhan, Anil Singla, and Sukhwinder Singh, "Technical Education in the new Millennium", Proceedings of National Seminar on, "Human Values, Technical Education and Human Resource Development", 30th November 1999, SLIET, Longowal, India, p.40-44.

55. R.C. Chauhan, Sunil K. Soni, Savita Gupta, Sukhwinder Singh, "Role of Computer Networks in Health Care Systems" proceedings of 15th National Convention of Electronics & Telecommunication Engineers and Seminar on "Communication Super Highways: Strategy & challenges" and Annual Paper meeting, 12-13 March, 2000 at The Institution of Engineers (I), Jabalpur-482001 (MP), p. 30-34.

56. Manoj K. Sachan, Sukhwinder Singh, Sunil K. Soni, "Application of Neural Networks in Biomedical Signal Processing" proceedings of National Conference on "Trends in Industrial Electronics, Transducers, Controls & Communication-TIET.Com-2000", 14-15 November, 2000 at Thapar Institute of Engg. & Tech., Patiala, p. 227-229.

57. Sukhwinder Singh, Sunil K. Soni, Jagroop Singh, "Clinical Automated Signal Interpretation" proceedings of 16th National Convention of Electronics & Telecommunication Engineers on "Computer Communication Controls & Instrumentation CCCI-2001", 30-31March, 2001 at SLIET, Longowal, p. 105-110.

58. V.K. Jain, Sukhwinder Singh, Akash Sethi, Sawinder Sharma, "Building Healthy Student –Teacher Relationship", proceedings of seminar on "Achieving Excellence in Education", 5th September, 2001, SLIET, Longowal, p. 47-51.

59. R.C. Chauhan, A.S. Arora, S.K. Soni, Sukhwinder Singh, "Telemedicine: Application and Challenges", proceedings of All India Seminar on "Challenges Ahead with Information Technology CAIT-2002", 19-20 January, 2002, at SLIET, Longowal, p. 151-156.

60. Deepika Koundal, Savita Gupta and Sukhwinder Singh, "Applications of Neutrosophic and Intuitionistic Fuzzy Set on Image Processing", National Conference on Green Technologies: Smart and Efficient Management (GTSEM-2012) SLIET, Longowal, 2012.

61. Vipul Sharma and Sukhwinder Singh. "Content Based Medical Image Retrieval: A Survey". In proceedings of National Conference on Green Technologies: Smart & Efficient Management (GTSEM-12) organized by SLIET, Longowal on 24th-25th February, 2012.

62. Kakamanshadi, Gholamreza & Gupta, Savita & Singh, Sukhwinder. (2015), ''A Survey on Fault Tolerance Techniques in Wireless Sensor Networks'', 10.1109/ICGCIoT.2015.7380451.

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