

**UNIVERSITY INSTITUTE OF ENGINEERING & TECHNOLOGY
PANJAB UNIVERSITY, CHANDIGARH -160014**

FACULTY PROFILE



1. Name: Dr Renu Cheema Vig
2. Designation: Director, UIET
3. Department: Electronics and Communication Engineering
4. Educational Background:

PhD

ME-Electronics & Communication Engineering

BE- Electronics & Communication Engineering

5. Research Areas: **Signal Processing, Soft Computing Techniques**
6. Experience: More than 27 years

S.No.	Institute	Designation	Duration
1.	University Institute of Engineering & Technology	Director	Sep. 2009 to till date
2.	University Institute of Engineering & Technology	Professor	Sept 2005 to Sept 2009
3.	University Institute of Engineering & Technology	Reader	Oct 2003 to Sept 2005
4.	National Institute of Technical Teachers Training Institute	Assistant Professor	Nov 1997 to Oct 2003
5.	Panjab Engineering College	Lecturer	Jan 1992 to Nov 1997
6.	Panjab Engineering College	Teaching Assistant	July 1989 to Jan 1992
7.	Electronics For You	Technical Editor	Feb 1987 to May 1988
8.	Panjab Engineering College	Teaching Assistant	Aug 1985 to Dec 1986

7. List of Publications:

National/International Journals

1. Renu Vig and Y.C.Chopra,Ranking Behaviour in Fuzzy Simulation, Panjab University Research Bulletin,Vol 48,PartsI-IV,1998,pp 1-10,ISSN:0555-7631
2. Nirmal Singh, Renu Vig and J.K.Sharma,Identification of MIMO Systems By Input Output Takangi-Sugeno Fuzzy Models , Lecture Notes in Computer Science vol 2074 , Springer 2001,pp 1050-1059, ISSN:0302-9743
3. Nirmal Singh, Renu Vig and J.K.Sharma, Linguistic Fuzzy Modeling for Industrial Applications, Journal of Scientific and Industrial Research,Vol 60,Nov 2001,pp851-859,ISSN:0022-4456
4. Nirmal Singh,Renu Vig and J.K.Sharma ,Fuzzy Modeling for Intelligent Ignition Timing Control, Journal of The Institution of Engineers (India),Vol 83,July 2002,pp 78-83 ,ISSN:0251-1096
- 5.Pushpa R. Suri,Renu Vig and Shalini Vermani,A New Digital Signature Scheme, Journal of Computer Society of India ,Vol 34, No 4,Oct-Dec 2004,pp48-54,ISSN:0254-7813
- 6.R Vig,N M Handa,H K Bali and Sridhar,Fuzzy Diagnostic System for Coronary Artery Disease, Journal of The Institution of Engineers,Vol 85,November 2004,PP41-46,ISSN:0970-9843
7. Pushpa R. Suri,Renu Vig and Shalini Vermani ,Crptographic Techniques, Panjab University Research Journal(Science),Vol 54,2004,pp53-60,ISSN:0555-7631
- 8.Maitreyee Dutta and Renu Vig ,Speech Compression with Masked Modulated Lapped Transform and SPIHT Algorithm, WSEAS Transactions on Systems,issue 11,volume 4,November 2005,pp 2157-2162,ISSN:1109-2777
- 9.Maitreyee Dutta and Renu Vig, Analysis Of Speech Compression Using Warped Lpc And MLT-SPIHT Algorithm, WSEAS Transaction on Systems ,issue 12, Volume 5, November 2006,pp 2699-2707, ISSN:1109-2777
10. Shalini Vermani, Pushpa R. Suri,and Renu Vig , Advanced Chaffing and Winnowing to Reduce Bandwidth Overhead, Journal of Computer Society of India ,Vol 36,Issue No 4,Oct-Dec 2006,pp 39-46,ISSN:0254-7813

11. Neelu Jain and Renu Vig, Vector Quantization Technique using DCCR Mechanism for EMG Signal Compression , WSEAS Transaction on Signal Processing , Issue 3, Volume 3, March 2007, pp 289-296, ISSN:1790-5052
12. Rita Mahajan, P Abrol and Renu Vig , A New Class of Fault Tolerant Multistage Interconnection Network-Extra Module Shuffle Network, Journal of The Institution of Engineers(India), Volume 88, pages 17-23, November 2007, ISSN:0971-0469
13. Rita Mahajan and Renu Vig , Performance and Reliability Analysis of New Fault-Tolerant Advance Omega Network, WSEAS Transactions on Computers, issue 8, volume 7, pp1280-1290, August 2008, ISSN:1109-2750
14. Neelu Jain and Renu Vig , Wavelet Based Vector Quantization with Treecode Vectors for EMG Signal Compression, Journal of Scientific & Industrial Research, volume 67, pp1064-1071, Dec 2008, ISSN:0022-4456
15. Amol P. Bhondekar, Renu Vig, Madan Lal Singla, C. Ghanshyam, Pawan Kapoor, Genetic Algorithm Based Node Placement Methodology for Wireless Sensor Networks, published in Lecture Notes in Engineering and Computer Science, Vol 2172, pp106-112, March 2009, ISSN:2078-0958
16. Amol P Bhondekar, Mopsy Dhiman, Anupama Sharma, Aridam Bhakta, Abhijit Ganguli, S.S. Bari, Renu Vig, Pawan Kapoor, Madan L. Singla, A Novel iTongue for Indian Black Tea Discrimination, Sensors and Actuators B: Chemical, Vol 148, pp 601-609, 2010, ISSN:0925-4005
17. Th. Tangkeshwar, P.K. Bansal, Renu Vig and Seema Bawa ' Recognition of Handwritten Character of Manipuri Script, International Journal of Computers , Vol 5, No 10, Oct 2010 , pp 1570-1574, ISSN:1796-203X
18. Neelam Goyal, Mukesh Kumar and Renu Vig , Consistency Enforcement Using Ontology on Web, Journal of Computers, Vol 5, No 10, Oct 2010, pp 1520-1526, ISSN:1796-203X
19. Preeti Aggarwal, Renu Vig, Sonali Bhadoria, C.G. Dethé, Role of Segmentation in Medical Imaging: A Comparative Study, International Journal of Computer Applications, Vol 29, Issue 1, September 2011, ISBN: 978-93-80864-72-0
20. Amol P Bhondekar, Rishemjit Kaur, Ritesh Kumar, Renu Vig, Pawan Kapur, A Novel Approach using Dynamic Social Impact Theory for Optimization of Impedance –Tongue(iTongue), Chemometrics and Intelligent

Laboratory Systems, vol 109, Issue 1, Nov 2011, ISSN 0169-7439

21. Amol P Bhondekar, Vig R, Gulati A, Singla M, Kapur P, Performance Evaluation of a Novel iTongue for Indian Black Tea Discrimination, IEEE Sensors Journal, Vol 11, Issue 12, Dec 2011, ISSN: 1530-437X

22. Jaskirat Kaur, Sunil Agrawal, Renu Vig, A Comparative Analysis of Thresholding and Edge Detection Segmentation Techniques, International Journal of Computer Applications, Vol 39, No 15, Feb 2012, pp 29-34, ISSN: 0975-8887

23. Mukesh Kumar, Renu Vig, Learning Capable Focused Crawler for Information Technology Domain, Journal of Computer Applications, Vol 43, No 23, April 2012, ISSN: 0975-8887

24. Mukesh Kumar, Renu Vig, Term –frequency Inverse Document Frequency Definition Semantics (TIDS) Based Focused Web Crawler, published by Springer in Communications in Computer and Information Science Series, Volume 270-2012, ISBN: 978-642-29215-6, BOOK TITLED Global Trends in Information Systems and Software Applications

25. A Monga and R Vig, An Ultra Miniature MEMS Capacitor for Arterial Pressure Measurement, Journal of The Institution of Engineers (India): Series B, Vol 93, Issue 4, pp 271-275, December 2012 ISSN: 2250-2106

26. Preeti Aggarwal, Renu Vig, H K Sardana, Patient –Wise Versus Nodule Wise Classification of Annotated Pulmonary Nodules using Pathologically Confirmed Cases, Journal of Computers, Vol 8, No 11, Nov 13

27. Rupali Verma, Maitreyee Dutta, Renu Vig, Modified Montgomery for RSA Cryptosystem, International Journal of Computer, Information Science and Engineering, Vol 7, No 12, 2013

28. Mangat V, Vig R, An Algorithm for Mining Usable Rules Using a Holistic Swarm Based Approach, Journal of Computer Science, Vol 10, Issue 4, pp 585-592, 2014

29. Verma R, Dutta M, Vig R, Carry Save Common Multiplicand Montgomery for RSA Cryptosystem, American Journal of Applied Sciences, Vol 11, Issue 5, pp 851-856, May 2014.

30. [Aggarwal, P., Sardana, H.K., Vig, R. , Classification of annotated pulmonary nodules with pathologically confirmed malignant, benign and metastasis cases, International Journal of Imaging and Robotics ,Vol 12 \(1\), pp. 22-38,2014](#)

31. Mukesh Kumar,Renu Vig,Focused Crawling Based Upon Tf-Idf Semantics and Hub Score Learning, Journal of Emerging Technologies in Web Intelligence, Vol. 5, No. 1, February 2013

32. Mukesh Kumar,Renu Vig,Hybrid Focused Crawling Based Upon VSM Similarity,WordNet Semantics and Hub Score Learning ,International Journal of Information and Management Sciences,Vol 24 ,pp 249-263,2013

33.Veenu Mangat,Renu Vig ,Novel Associative Classifier based on Dynamic Adaptive PSO:Application to Determining Candidates for Thoracic Surgery,Expert Systems with Applications,Vol 41,pp 8234-8244,2014

National/International Conferences

1. Renu Vig,Deepak Bagai and Y.C.Chopra , Medical Diagnostic Expert System, Fifth International Conference on Human Computer Interaction, Volume 2, Elsevier 1993, pp 790-795,ISBN 0-444-89540-X

2. Nirmal Singh, Renu Vig and J.K.Sharma, A Fuzzy Modeling For Emission Control of an Automotive Engine, International Conference on Computational Intelligence for Modeling Control and Automation,Las Vegas,USA,July,2001, Paper No.01-292,ISBN:0858898470

3. Nirmal Singh, Renu Vig and J.K.Sharma,ICE Idle Speed Control Using Fuzzy Logic,Published in Electronic Engine Controls:Engine Control,Neural Networks and Non-Linear Systems,2002-01-1151,SP-1704,SAE World Congress,March 2002,Detroit,USA

4. Pushpa R. Suri,Renu Vig and Shalini Vermani ,A New Encryption Scheme,National Conference on Software Engineering Principles and Practices – SEPP'04,2004 at TIET,Patiala,pp 218-223

5. Pushpa R. Suri,Renu Vig and Shalini Vermani,Improved Certificate Revocation in Public Key Infrastructure,National Seminar on Role of

Informatics in Uttranchal,2004,Kumaun University,S.S.J.Campus,Almora,pp52-53

6. Pushpa R. Suri,Renu Vig and Shalini Vermani ,Password Based Key Exchange Protocol, National Conference on Trends of Computational Techniques in Engineering,Oct 15-16,2004 ,SHSL Central Institute of Engg. And Technology, Longowal,pp 326-328

7. Pushpa R. Suri,Renu Vig and Shalini Vermani, An Efficient Approach to Certificate Revocation,National Conference on Electronic Circuit and Communication Systems,2004,TIET,Patiala,pp103-106

8. Pushpa R. Suri,Renu Vig and Shalini Vermani, Chaffing and Winnowing:An Efficient Approach to Provide Confidentiality using Authentication Primitives , International Conference on Advance Computing and Communication,16-18 Dec,2004,Ahmedabad,pp 271-275,2004.

9.Th Tankeshwar,P.K.Bansal,Renu Vig,H.S.Kasana,A novel approach to off-line handwritten character recognition of Manipuri Script, National Conference on Bioinformatics Computing,18-19 March 2005,TIET,Patiala,pp 365-371

10.Rita Mahajan,Preeti Abrol,Renu Vig, Reliability Analysis of Fault Tolerant Multistage Interconnection Network - Extra Module Network (EMN),International Conference on Parallel and Distributed Computing Systems,pp103-108,2005

11.Th Tankeshwar,P.K.Bansal,Renu Vig,H.S.Kasana,Off-line handwritten Manipuri character recognition using K-L divergence by probabilistic model, National Workshop on Trends in Advance Computing,23-24,January 2006,Tejpur University,pp 163-169

12. Maitreyee Dutta and Renu Vig, An Improved Method Of Speech Compression Using Warped LPC And MLT-SPIHT Algorithm,” International Conference on Signal,Speech and Signal Processing,pp85-94, 2006

13.Th Tankeshwar,P.K.Bansal,Renu Vig,Seema Bawa,Recognition of off-line handwritten digits of Manipuri Script, National Conference on Trends in Advance Computing,22-23 March 2007,Tejpur University,pp 203-207

14.Swinder Kaur,Renu Vig,Efficient Implementation of AES Algorithm in FPGA Device ,published in proceedings of International Conference on

Computational Intelligence and Multimedia Applications, Vol 2, pp 179-187, 2007, ISBN:0-7695-3050-8

15. Garg R, Renu Vig, An Efficient Montgomery Multiplication Algorithm and RSA Cryptographic Processor, published in proceedings of International Conference on Computational Intelligence and Multimedia Applications, vol 2, pp 188-195, 2007, ISBN:0-7695-3050-8

16. Renu Vig and Ravi Tandon, Performance Analysis of Elliptic Curve Cryptography on Reconfigurable Hardware, published in Lecture Notes in Engineering and Computer Science, Volume 1, pages 261-265, July 2008, ISBN:978-988-98671-9-5

17. Mukesh Kumar and Renu Vig, Design of CORE: context ontology rule enhanced focused web crawler, published in proceedings of International Conference on Advances in Computing, Communication and Control by ACM, pp 494-497, 2009, ISBN:978-1-60558-351-8

18. Nidhi Dhiman, Renu Vig, Rekha Kumari, Comparative Analysis of Various Image Enhancement Techniques for Brightness Preservation, published in proceedings of International Conference on Wireless Communication, Optical Communication and Networks, pp 97-102, Nov 27-29, 2010

19. Rekha Sharma, Renu Vig, Reena Rani, Comparative Analysis of Denoising Techniques for Removal of High Density Salt and Pepper Noise in Images, published in proceedings of International Conference on Wireless Communication, Optical Communication and Networks, pp 87-92, Nov 27-29, 2010

20. Mukesh Kumar, Renu Vig, Term-Frequency Inverse – Document Frequency Definition Semantic Based Focused Web Crawler, published in proceedings of International Conference on Recent Trends in Computing, Communication and Information Technologies, pp 31-36, Dec 9-11, 2011

21. Mukesh Kumar, Renu Vig, Learnable Focused Meta Crawling Through Web, published in Procedia Technology, Elsevier Vol 6, 2nd International Conference on Communication, Computing & Security, pp 606-611, 2012

22. Preeti Aggarwal, Renu Vig and H K Sardana, Largest Versus Smallest Nodules Marked by Different Radiologists in Chest, CT Scans for Lung Cancer Detection, International MultiConference of Engineers and Computer Scientists 2013 Vol I, IMECS 2013, March 13-15, 2013, Hong Kong

23.Veenu Mangat ,Renu Vig ,Hybrid Miner :Effective Rule Mining Based on a Hybrid Dynamic Swarm Method,International Conference on Artificial Intelligence ,July 22-25,2013,Las Vegas ISBN:1-60132-247-X

24.Preeti Agarwal ,Renu Vig,H.K.Sardana,Performance Evaluation of Different Query Sets on Expanded Diagnosed Dataset Using Content Based Image Retrieval International Conference on Image Processing,Computer Vision,& Pattern Recognition,July 22-25,2013 Las Vegas

25.Preeti Aggarwal ,H K Sardana,Renu Vig,Correlation between Biopsy Confirmed Cases and Radiologist's Annotations in the Detection of Lung Nodules by Expanding the Diagnostic Database Using Content Based Image Retrieval ,International Conference on Computer Analysis of Images and Patterns,Springer Lecture Notes in Computer Science,Vol 8047,pp 531-538,2013

8. Projects/Consultancy:

Sponsored Projects undertaken:

S.No	Name of Project	Sponsoring Agency	Amount Sanctioned
1.	Web Server	MHRD	12Lakhs
2.	Computer Applications	MHRD	8Lakhs
3.	Computer Networks	MHRD	8Lakhs
4.	Test Process Enhancement	Infosys Technologies Ltd	
5.	Development of Software Protection Tools	DIT	14Lakhs
6.	Modeling and Simulation of Nano Scale MOSFETS at room temperature	DIT	34.50Lakhs
7.	Active Noise Control	UGC	46 Lakhs

9. Achievements/Awards etc:

Academic Awards:

- Awarded gold medal by Panjab University for standing first in B.E. across all branches in Punjab Engineering College
- Awarded Role of Honour for standing third in Pre-Engg. in Panjab University
- Awarded The N K Iyengar Memorial Prize for the paper Fuzzy Modelling for Ignition Timing Control in 2003

- Awarded The Corps of Engineers Prize for the paper Fuzzy Diagnostic System for Coronary Artery Disease in 2005
- Appreciation letter from Dr M.P.Ravindra ,Vice President and Head,Education and Research Dept.,Infosys Technologies Ltd for Sabbatical Project undertaken at Infosys Technologies Ltd in 2005