Faculty Profile

Name	:	**Dr Shaifali M. Arora**
Designation	:	**Associate Professor**
Qualifications	:	**Ph.D., M.Tech(ECE), B.Tech(ECE)**
Phone	:	**011-25528117 (Extn: 138)**
Email	:	**shaifali04@msit.in**

Area of Interest/Specialization: Electronics & Communications Engg., Signals, Image and Video Processing, Embedded Systems, Artificial Intelligence

Experience	:	**19 years**

Key Publications:

1. Kadian, Poonam, **Shaifali M. Arora**, and Nidhi Arora.2021 "Robust Digital Watermarking Techniques for Copyright Protection of Digital Data: A Survey." Wireless Personal Communications 2021: 1-25.

2. **Arora, S.M.,** Rajpal, N. and Khanna, K., 2019. A new approach with enhanced accuracy in zero motion prejudgment for motion estimation in real-time applications. Journal of Real-Time Image Processing, 16,4, 989-1005

3. Kadian, Poonam, Nidhi Arora, and **Shaifali M. Arora**. 2019, "A Highly Secure and Robust Copyright Protection Method for Grayscale Images using DWTSVD.", International Journal of Recent Technology and Engineering

4. Kadian, Poonam, Nidhi Arora, and **Shaifali M. Arora**. 2019, "Role of Scaling Factor in Robust Digital Watermarking" International Journal of Innovative Technology and Exploring Engineering (IJITEE), Vol :8,11, 1658-1669

5. Pareek, A.; **Arora, S. M.** 2017. Breast cancer detection techniques using medical image processing. International Journal of Multidisciplinary Education and Research, 2, 3,79-82

6. Poonam. and **Arora, S.M.,** 2017, Digital Watermarking: An Introduction, International Journal of Applied Research 3 (4), 128-131

7. **Arora, S.M.**, Rajpal, N., Purwar, R., 2017. A new fast motion estimation algorithm using adaptive size diamond pattern search with early search termination., International Journal of Computational Vision and Robotics

8. **Arora, S.M.,** Rajpal, N., Khanna, K., 2017. A Novel Hybrid Approach for Fast Block Based Motion Estimation. Accepted for publication in International Journal of Interactive Multimedia and Artificial Intelligence.

9. **Arora, S.M**., Rajpal, N., Khanna, K. and Purwar, R., 2016. Improved accuracy in initial search center prediction to fasten motion estimation in h. 264/AVC. IETE Journal of Research, 62(6), pp.842-851.

10. **Arora, S.M.,** Rajpal, N., Khanna, K. and Purwar, R., 2016. Comparative analysis of various search center selection methods for fast motion estimation. IJAR, 2(4), pp.183-186.

11. **Arora, S.M**., 2016, Fast Motion Estimation by Early Search Termination. International Journal of Academic Research and Development, 7(1), pp 51-62

12. **Arora, S.M**., 2016, Trends and Issues in developing fast motion estimation algorithms. International Journal of Applied Research, 2(9), pp 607-613

13. **Arora, S.M**., 2016, Variable search windows for slow, medium and fast motion sequences. International Journal of Research in Advanced Engineering and Technology, 2(3), pp 165-167

14. **Arora, S.M.,** 2016, Fast motion estimation algorithms. International Journal of Multidisciplinary Research and Development, 3(3), pp 165-167

15. Khanna, K. and **Arora, S.M.,** 2016. Ant Colony Optimization towards Image Processing. Indian Journal of Science and Technology, 9(48).

16. Kavita, K., Navin, R. and **Madan, A.S**., 2016. Piecewise feature extraction and artificial neural networks: an approach towards curve reconstruction. Indian Journal of Science and Technology, 9(28).

17. Khanna, K., Rajpal, N., Dureja, A. and **Arora, S.M**., 2016. Surface Reconstruction using Feature based Approach with Radial Basis Function Neural Network. IJCTA, 9(19), pp. 9239-925

18. Batra, B., Singh, S., Sharma, J. and **Arora, S.M.,** 2016, Computational analysis of edge detection operators. International Journal of Applied Research, 2(11)

19. Singh, A.K., Roy, S., Sodhi, S., Goel, D. and **Arora, S.M.,** 2014. SmartX Virtuality: A Smarter way to Interact Virtually with Physical Objects. International Journal of Scientific and Research Publications, 4(6).

Papers presented in Conferences

1. Mishti Gautam, **Shaifali M. Arora**, 2021, Smart Monitoring and Fault Detection of Sewer System (SMFD) , National Conference on Advances in Metrology, 2021

2.   Kadian, P., Arora, N. and **Arora, S.M.,** 2020, Robust Watermarking Schemes for Copyright Protection of Digital Data: A Survey , International Conference on Emerging Technologies in Data Science in data Mining and Information Security, IEM, Kolkata

3.   Kadian, P., Arora, N. and **Arora, S.M.,** 2019, March. Performance Evaluation of Robust Watermarking Using DWT-SVD and RDWT-SVD. In 2019 6th International Conference on Signal Processing and Integrated Networks (SPIN) (pp. 987-991). IEEE.

4.   **Arora, S. M.** , P. Kadian 2018. A DWT-SVD based robust digital watermarking for digitalimages. Procedia computer science, 132, 1441-1448.

5.   **Arora, S.M.,** Khanna, K., 2016, November. Dynamic Two Level Threshold Estimation For Zero Motion Prejudgment: A Step Towards Fast Motion Estimation. Advances in Computing and Data Sciences (ICACDS), 2016. First International conference.

6.   **Arora, S.M.,** Rajpal, N. and Purwar, R., 2015, February. Dynamic pattern search algorithm with zero motion prejudgment for fast motion estimation. In Advanced Computing & Communication Technologies (ACCT), 2015 Fifth International Conference on (pp. 138-142). IEEE.

7.   **Arora, S.M.,** Rajpal, N. and Purwar, R., 2014, September. New dynamic pattern search based fast motion estimation algorithm. In Advances in Computing, Communications and Informatics (ICACCI, 2014 International Conference on (pp. 979-985). IEEE.

8.   **Arora, S.M.** and Rajpal, N., 2014, September. Survey of fast block motion estimation algorithms. In Advances in Computing, Communications and Informatics (ICACCI, 2014 International Conference on (pp. 2022-2026). IEEE.

9.   **Arora, S.M.** and Rajpal, N., 2014, February. Comparative analysis of motion estimation algorithms on slow, medium and fast video sequences. In Optimization, Reliabilty, and Information Technology (ICROIT), 2014 International Conference on (pp. 422-427). IEEE.

10.   Chatrath, J., Gupta, P., Ahuja, P., Goel, A. and **Arora, S.M**., 2014, February. Real time human face detection and tracking. In Signal Processing and Integrated Networks (SPIN), 2014 International Conference on (pp. 705-710). IEEE.

11.   Gupta, S. and **Arora, S.M.,** 2011. Motion Estimation Method between Diamond Search and Three Step Search. In Proceedings of National Conference On Web and Knowledge Based Systems (WKBS) Emerging Trends and Perspectives (p. 33).

12.   **Madan, S.,** 2010, October. Optimizing transition band samples in FIR filters by using particle swarm optimization. Advances in Digital Signal Processing (NCADSP), 2010. In national conference on (pp 203-209).

13. **Madan, S**., 2006, November. Microprocessor based automatic room light controller with up/down counter. Emerging trends in Electrical, Electronics and Coommunication Engineering (EETEEC), 2006. In National conference on (pp 188-192)

14. Kaur , S., **Madan, S**., 2006, November. Noise removal in Medical Images. Recent Advances in Electronics & Communication Technology (RAECS), 2006, National Conference on(pp 486-489).

15. **Madan, S**., Kaur, S. 2006, November. Simulation of MFCC based Speaker Recognition System. Recent Advances in Electronics & Communication Technology (RAECS), 2006 National Conference on (pp 449-452).

16. **Madan, S**. Kaur, S., 2006 , July. Implementation of MFCC Based Speaker Recognition System on MATLAB. Wireless Networks & Embedded Systems, (WNES), 2006, National Conference on (pp 50-53)

17. Kaur , S., **Madan, S.,** 2006, February. Image segmentation using MATLAB. Electronic Circuits & Communication Systems(ECCS), 2006, National Conference on (pp132-135).

18. **Madan, S.,** Kaur, S., 2006, February. Image compression using neural Networks. Electronic Circuits & Communication Systems (ECCS), 2006, National Conference on (pp 127-131).

19. Bhambri, P., Rattan, M., **Madan, S.,** 2005, February. Institution for a Sustainable Civilization: Negotiating Changes in a Technological Culture. In Technical Education in a Globalized Environment (TEGE), 2005, National Conference on (pp 7-9).

20. **Madan, S**., Rattan, M., Bhambri, P. 2005, March. Information Retrieval using soft Computing Techniques. In Bioinformatics Computing (NCBC), 2005, National Conference on (pp 159-163).

21. Rattan, M., **Madan, S.,** Bhambri , P., 2004, December.Smart antenna Technology for Mobile Communication. In Issues & Trends in Wireless Networks (ITWN), 2004 National Conference on (pp 91-94).

22. Kaur, S., **Madan, S.,** 2004, November. Implementation of ICT Enabled education. In ICT ENABLED EDUCATION (ICTEE), 2004 National Seminar.

Awards and Recognitions

Awarded with **Certificate of Excellence in Research**, 2019 by Surajmal Memorial Education Society in 2019.

Awarded with **Certificate of Appreciation** for achieving excellent results from Surajmal Memorial Education Society in 2016.

Awarded with Certificate of Appreciation from Director, MSIT for delivering expert lecture on "Deep Learning and Text Analysis Using Deep Neural Networks" at MSIT in 2018.

Awarded with Certificate of Appreciation from North Cap university for successfully organizing a **Session** in International conference on Computational Intelligence and Data Science.(ICCIDS 2018)

Awarded with **FACE of the QUARTER** (Best Teacher award) award in Jan, 2008 by honorable Director of Chitkara Trust for my Punctuality, Excellent feedback from students, Design of special experiments in Labs, Taking initiative and successfully completing various conferences and workshops. In every quarter of the year, this special award is given to one of the faculty members associated with "**CHITKARA TRUST**" for their extra ordinary performance.

Awarded with **scholarship certificate** from Punjab School Education Board for having 33rd rank in matriculation examination at state level.

Patent/Copyright

Published a patent " A Smart Healthcare Monitoring System using Internet of Things" on 16/07/2021 with application number 202141030807.

Sponsored Project/Consultancy

NA

Book Chapter/Books published

- Optimizing Transition Band Samples in FIR Filters By Using Particle Swarm Optimization, AkiNik Publications, ISBN: 978-93-85895-45-6, 2016
- Block-Based Motion Estimation: Concepts and Challenges, Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing,IGI Global pp 51-76; July 2017
- ARPS: An Efficient fast block matching algorithm for motion estimation, Lambert Academic Publishing, Germany, ISBN(978-620-3-46496-2)

Ph.D Supervised:

Supervised one Ph. D. scholar as Co-guide.

Memberships of Professional bodies:

Registered as a Life Time Member(LM-43690) with Indian Society of Technical Education (I.S.T.E) NEW DELHI

Other Contributions

Some of my special contributions apart from routine departmental and institute level duties are:

- ➢ Convener of AVESIS'2020

- ➢ Was the In charge of Institute Industry cell from 2017-2019 and complied institute data with sheer dedication that Institute got various awards during this period. **Awards Received by MSIT corresponding to the compilation of data for various Survey forms specified above:**
  - Ranked in the band (**151-200**) in **NIRF** by Ministry of **HRD(Only Private college of GGSIPU in Rank Band 1-200)**
  - **Best Private Engineering College in Delhi –(**survey Dialogue India-2018)
  - **1st in NCR, 3rd in North Zone and 14th position** out of best 165 Private Engineering Colleges - (Survey by India Today -2018)
  - **AAA+** ranking by 360 Degrees Magazine.
  - **The best engineering college** of North zone and 7th amongst top engineering colleges of India (DQUEST Survey.)

- ➢ Incharge of Report compilation for Suraj Sujan from 2017-2019.
- ➢ Delivered **expert lectures** in various FDPs outside the institute.
- ➢ Set up **Digital Image Processing Lab** in ECE department.
- ➢ Framed the front pages and layout of Lab manuals of Electronics and Communications Engineering department for **ISO standardization** at MSIT.
- ➢ I have taken initiative for setting up **hardware experiments in DSP Lab** which have been appreciated by various inspection teams.
- ➢ Organised the pre-final-2 of **WorldSkillsAbuDhabi 2017** competition.
- ➢ Organised **Project Competition-2014 at GGSIPU** along with Dr. Puneet Azad (HOD,ECE Dept.).