



# Dr. Heena Rahul Kher



## Communication Address:

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## EDUCATION

**HSC** - Narmada Vidyalaya, Bharuch- 1997 ---- First Class with Distinction

**B.E.** (Instrumentation and Control) – South Gujarat University, Surat – 2001 ---- First Class with Distinction

**M.E.** (Microprocessors Systems and Applications) – M.S. University, Baroda – 2006 ---- First Class

**Ph.D.** (Electronics and Communication Engineering) – S. P. University, Vidyanagar – 2014

## EXPERIENCE

Assistant Professor | **A. D. Patel Institute of Technology, New V.V. Nagar**

25<sup>th</sup> March , 2008 – till date

## TOTAL TEACHING EXPERIENCE:

18 Years

## AREA OF INTEREST:

Deep Learning, Digital Image Processing, Signal Analysis and Transform, Biomedical Signal Processing, Operation Research, Microprocessors and Microcontrollers based applications, Control systems, Digital Fundamentals

## PG/UG THESIS GUIDANCE, DPC, RESEARCH PAPERS & STTPS ATTENDED

- Total 10 PG Thesis and 11 UG Projects guided
- Ph.D. DPC member of 3 students
- Total 30 Research Papers presented / published
- More than 32 STTPs/ Workshops/ Seminars attended

## RESEARCH PROJECT COMPLETED:

Title: Simulation and Design of an Automatic Number Plate Identification

Funding agency: GUJCOST, Gandhinagar

Fund received: 1.75 Lakhs

Project Span: June 2014 – December 2016

## SPECIAL ACHIEVEMENTS

Received Best Paper Award in 22nd ISTE State Annual Faculty convention 2017 and National Conference on Engineering Innovations for Social and Environmental Development on 30th December 2017 Jointly organized by ISTE Gujarat Section and ADIT.

## COMPUTER SKILLS:

- S/W Languages: C, C++, SQL
- Programming Languages – Matlab and Python
- H/W Languages: VHDL
- Visual Basic 6.0, HTML, DHTML, Java script, Linux
- Microprocessor: 8085, 8086, 80386, Pentium
- Microcontroller & its Applications (8051)
- DSP Processor: TMS320VC54X

## PROFESSIONAL MEMBERSHIP:

- IEEE Member - 2010
- Member, IEEE (Institute of Electrical and Electronics Engineers) and Signal Processing Society from 31<sup>st</sup> August, 2016 to 31<sup>st</sup> December, 2017
- Life Member, ISTE (Indian Society for Technical Education)

## PROFESSIONAL ACTIVITIES:

IQAC member since September 2015

PG Coordinator from August 2014 to June 2017 (3 years)

Member of ISO process: Classroom teaching since February 2013

Member of ISO process: Administration since January 2018

ISTE Faculty chapter – Department coordinator

SSIP (Student Start-up and Innovation Policy) departmental coordinator

IDP / UDP Project Coordinator for the AY: 2012-13, AY: 2018 -19 and AY: 2019 - 20

Department Timetable committee member for AY: 2008-09, AY: 2009-10 and AY: 2014-15.

Coordinator of admission committee at department level since August 2013.

Department purchase committee member

Lab in-charge – Measurement and Control laboratory

Faculty coordinator – Society of Transcending Innovations

Reviewer of various International Conferences, IET Radar, Sonar & Navigation Journal, IEEE Access Journal

Editorial Board member in STM Journals and editor in the journal of “Current Trends in Signal Processing”

Member of ADIT Central committee since November 2019

Member of Women Development Cell and Women Internal Complaint Committee since November 2019

Mahatma Gandhi House Master since January 2020

## PG THESIS GUIDANCE AND UG PROJECTS

Sr No	Year	Course	Title
1	2012-13	ME Dissertation	Image Registration Algorithms
2	2013-14	ME Dissertation	Algorithms for Multiple License Plate Detection
3	2014-15	ME Dissertation	Road sign recognition for driver assistance in complex background
4	2014-15	ME Dissertation	Speckle noise reduction in SAR images
5	2015-16	ME Dissertation	Design of an algorithm for Brain Mapping through Fingerprints
6	2015-16	ME Dissertation	Design of an Algorithm for Automatic Segmentation of Spine Images
7	2015-16	ME Dissertation	Algorithm for Classification of Cardiac Arrhythmias from ECG Signal
8	2016– 17	ME Dissertation	Offline software receiver for IRNSS restricted service signal
9	2017– 18	ME Dissertation	Design of an Algorithm for Facial Expression Recognition
10	2019– 20	ME Dissertation	Automatic Image Captioning using Deep Learning
11	2011-12	BE Project	Study and implementation of various smart sensors used in Automation system
12	2011-12	BE Project	Design and Implementation of Ethernet controlled LED scrolling display
13	2012-13	BE Project	Wireless control of street light
14	2012-13	BE Project	Fuzzy logic based Drowsiness detection
15	2013-14	BE Project	RFID based Electronic Toll tax system
16	2013-14	BE Project	Cavity Detection and Human Identification of dental X – ray image of Human tooth
17	2015-16	BE Project	Feature extraction in Fingerprint images
18	2016 - 17	BE Project	Wireless guide for blind and visually impaired
19	2018 - 19	BE Project	Multimodal Biometric System
20	2019 - 20	BE Project	Automatic Attendance system using Image Processing

21	2019 - 20	BE Project	Sign language recognition of dumb and deaf
22	2019 - 20	BE Project	Spherical robot in surveillance and hazardous area

### LIST OF PUBLICATION:

1. Heena R. Kher, "Image Compression using SPIHT coding method", 2nd National Conference on Information and Emerging Technologies organized by Department of Information and Technology, Institute of Engg. & Tech., Bhaddal, Panjab on 7th – 8th Sep, 2007.
2. Heena R. Kher, "Effect of various constituent wavelets on contextual compression of ultrasound medical images", 2nd National Conference on Networks, Intelligence & Computing Systems organized by Department of Information & Technology, Coimbatore (TN) on 7th February, 2008.
3. Rahul K. Kher, Heena R. Kher, "Performance Analysis of various constituent wavelets for contextual compression of ultrasound medical images", International Conference (WORLDCOMP '08) on Image Processing, Computer vision & Pattern recognition (IPCV'08) at Las Vegas, Nevada, USA during July 14 – 17 , 2008, pages: 83 – 85.
4. Falgun Thakkar, Chintan Modi, Rahul K. Kher, Heena R. Kher, "Selecting most favourable basis function for Compressing Natural and Medical Images using Wavelet Transform Coding", International Conference (WORLDCOMP '09) on Image Processing, Computer vision & Pattern recognition (IPCV'09) at Las Vegas, Nevada, USA during July 13 – 16, 2009.
5. Rahul K. Kher, Tanmay Pawar, Heena R. Kher, "Medical Image Analysis: Recent Trends and Future Scopes", International Conference (ICSSA '09) on Signals, Systems and Automation 2009 at G. H. Patel College of Engineering & Technology, V.V. Nagar on 28-29 Dec, 2009.
6. Falgun Thakkar, Chintan Modi, Rahul K. Kher, Heena R. Kher, "Comparative study of different quantization techniques for natural and medical image compression", International Conference (ICSSA '09) on Signals, Systems and Automation 2009 at G. H. Patel College of Engineering & Technology, V.V. Nagar on 28-29 Dec, 2009.
7. Heena R. Kher, Mehfuza Holia, Vishvjit Thakar, "Registration of License Plate Images Captured at Different Angles using Time and Frequency Domain Techniques", International Conference (ICISC '11) on Information, Signal & Communication 2011 at A. D. Patel Institute of Technology, New V.V. Nagar on 5 -6 Feb, 2011.
8. Mehfuza Holia, Heena R. Kher, Vishvjit Thakar, "Registration of License Plate Images Captured at Different Angles using Mutual Information", IEEE International Conference on Computational Intelligence and Computing Research, ICCIC 2011 during Dec. 16, 2011 - Dec. 18, 2011 IEEE ICCIC-Cape Institute of Technology, Leveingipuram, Kanyakumari, India, Pages: 989-997.
9. Kavita Jain, Heena R. Kher, "Mutual Information Based Image Registration", International Journal of Graphics and Image Processing, Vol. 2, Issue 4, November 2012, Pages: 257-263.
10. Kavita Jain, Heena R. Kher, "Quality based Pixel Evaluation for Registered Images Based on Mutual Information", International conference on Intelligent systems and signal processing, at G.H. Patel college of engineering and technology during 1st-2nd March, 2013.
11. Kavita Jain, Heena R. Kher, "Registering Multi-view Images by Mutual Information and their Quality

- Evaluation”, ADIT Journal of Engineering, December 2012, Pages: 7 – 12.
12. Kavita Jain, Heena R. Kher, “Registration of Images Based on Fuzzy and Mutual Information: a Survey”, Vibrant Gujarat, February, 2013.
  13. Heena Kher, Dr. V. K. Thakar, “Scale Invariant Feature Transform based Image Matching and Registration” fifth International Conference on Signal and Image Processing, Bengaluru, India during 8th – 10th January, 2014, Pages:50-55.
  14. Heena Kher, Dr. Vishvijit Thakar, “Fast Computation Algorithm of Image Registration using Increment Sign Correlation and M-Estimators” in 4th Nirma University International Conference on Engineering, Ahmedabad, NUI CONE 2013 during 28th – 30th November, 2013, Pages:1-4.
  15. Maitree Bhavsar, Dr. Heena Kher, “Multiple License Plate Detection Algorithm”, International Journal of Darshan Institute on Engineering Research and Emerging Technology, Vol. 3, No.2, 2014, pp.01-06
  16. Heena R Kher, “Implementation of Image Registration for Satellite Images using Mutual Information and Particle Swarm Optimization Techniques”, International Journal of Computer Applications Volume 97, No., Pages: 7-14, July 2014.
  17. Pranali A. Hatwar, Dr. Heena R. Kher, “Analysis of Speckle Noise Reduction in Synthetic Aperture Radar Images”, International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181, Vol. 4 Issue 01, January-2015, pp: 508 – 512.
  18. Priya D. Nagarkar, Dr. Heena R. Kher, “Algorithm for Road Sign Detection for Driver Assistance from Complex Background”, International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181, Vol. 4 Issue 01, January-2015, pp: 548 – 542.
  19. Pranali A. Hatwar, Heena R. Kher, “Wavelet Based Speckle Noise Reduction in Synthetic Aperture Radar Images”, Journal of Software Engineering Tools & Technology Trends, ISSN: 2394-7292(online), Volume 2, Issue 1, pp: 1-5.
  20. Priya Nagarkar, Heena Kher, “An Algorithm for Road Sign Detection and Recognition using HOG and SVM”, Journal of Operating systems Development and Trends, Vol. 2, No. 1, 2015, pp: 1-6.
  21. Neha Thumber, Heena R. Kher, “A Review on Classification of Cardiac Arrhythmias from ECG Signal”, National Conference on Emerging Research Trends in Engineering, during 4th – 6th April, 2016 Jointly Organized by SPFU Gujarat & Vishwakarma Govt Engineering College, Ahmedabad, pp: 78 - 82
  22. Sandhya Prajapati and Heena Kher, “Removal of Over Segmentation Problem in MRI Spine Images Segmentation using Watershed Algorithm” 5th International Conference on Recent Trends in Engineering and Technology during 28th to 30th April, 2016 at SNJB’s KBJ college of Engineering, Chandwad, Nasik, McGraw Hill Education Pvt. Ltd., pp: 43-47, International Journal of Modern Trends in Engineering and Research, pp: 663 – 667 (Special Issue of ICRTET’2016)
  23. Simeen Khan and Heena Kher, “Feature Extraction of Fingerprints for Brain Mapping”, 5th International Conference on Recent Trends in Engineering and Technology during 28th to 30th April, 2016 at SNJB’s KBJ college of Engineering, Chandwad, Nasik, McGraw Hill Education Pvt. Ltd., pp: 48-52, International Journal of Modern Trends in Engineering and Research, pp: 668 – 672 (Special Issue of ICRTET’2016)
  24. Neha Thumber, Dr. Heena R. Kher, “A Review on QRS detection of cardiac Arrhythmias from ECG

- signal”, 7th National Conference on Emerging Vistas of Technology in 21st Century during 8th – 9th April, 2016 organized by Faculty of engineering and technology, Parul University, Vadodara, pp:93 – 96
25. Simeen Khan and Heena Kher, “A Review on Fingerprint Classification for Brain Mapping” GIT- Journal of Engineering and Technology (2016, Ninth Volume, National Level Research Journal- ISSN 2249 – 6157, pp: 60 - 64
  26. Dr. Hetal Patel, Dr. Heena Kher, Akshay Kiran, "Design and Implementation of License Plate Recognition System using Raspberry Pi", International Conference on Advances in Computing, Communication and Informatics, Faculty of Technology & Engineering, The M S University of Baroda, Vadodara on 25th February, 2017
  27. Kajal Parmar, Dr. Heena Kher, Prof. Mikita Gandhi, "Facial Expression Recognition Using Uniform Local Binary Patterns and Support Vector Machine", 22nd ISTE State Annual Faculty convention 2017 and National Conference on Engineering Innovations for Social and Environmental Development on 30th December, 2017 Jointly organized by ISTE Gujarat Section and ADIT.
  28. Kajal Parmar, Dr. Heena Kher, Prof. Mikita Gandhi, "Facial Expression Recognition Using Convolutional Neural Network”, International Conference on Women in Science & Technology at Birla Vishvakarma Mahavidyalaya during 28th – 30th June, 2018.
  29. Dr. Heena Kher, Dr. Hetal Patel and Tejendra Panchal, "Automatic License Plate Recognition from Live streaming using Stroke width Transform and Artificial Neural Network”, International Journal of Darshan Institute on Engineering Research and Emerging Technologies, Vol. 7, No. 2, December 2018, pp. 08- 16
  30. Nidhi Rathod, Dr. Heena Kher, and Dr. Hetal Patel, “Deep Learning based Algorithm for Image Captioning”, International Conference on History and Research Development in Mathematics, with Applications in Science and Technology, Madhuben and Bhanubhai Patel Institute of Technology New Vallabh Vidhyanagar, Dec 17 – 19, 2019.