Dr. Hetal N. Patel
Karamsad, Gujarat
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Student Focused Technical Education Teacher

Dedicated to Creating a Positive Learning Environment & Making Difference in Student Lives.

Education & Certification:

Degree	University	Discipline/ Specialization	Year of passing	Grade
Ph.D.	S. P. University, V. V. Nagar	Topic: Investigations of Image Processing Algorithms for the Food and Agriculture Applications	2013	-
M.E.	M. S. University, Baroda	Microprocessor Systems & Application	2005	**76.5%**
B.E.	S. P. University, V. V. Nagar	Electronics	2000	**73.67%**

Experience in Education:

Position	Duration	Department	Institute Details
Head of the Department	June-2017- Present	EC Department	A.D. Patel Institute of Technology. New V.V. Nagar
Full-Time Professor	July-2013- Present		
Full-Time Associate Professor	June 2006 – June-2013		
Full-Time Lecturer	Nov.2000-June2006		

Publications:

- ➢ **Books:**
    1) **Tejas Gandhi, Hetal Patel and Darshana Prajapati(2015)** , Image Compression using Fractal, *LAP Lambert Academic Publishing*.

- ➢ **National Journal:**

    1. Patel H. N.(2005), "Human Face Recognition System using Eigenfaces", ADIT Journal of Engineering, Vol-2, No-1, pp: 7-14.

    2. Dabhi V.M. and Patel H. N. (2006), "Microcontroller based Digital Clock with Calendar", ADIT Journal of Engineering, Vol-3, No-1, pp: 54-59.

    3. Prajapati P.R. and Patel H. N. (2010), "Embedded system of Automatic Level Control based on FPGA", ADIT Journal of Engineering, Vol-7, No-1, pp: 67-71.

4. Vachhani D. and Patel H. N.(2012), "Automatic Detection and Tracking of Moving Objects using Kalman Filter", ADIT Journal of Engineering, Vol-9, No-1, pp:32-35.

5. Jay Mangi, Nikhil Asudani, Mohammad Ibrahim Khan and Hetal Patel (2013), "Automatic Car License Plate Detection System", ADIT Journal of Engineering, Vol-10, No-1, pp:51-55.

6. Hitesh Sangada and Hetal Patel(2013) , "Design of an image Super Resolution Algorithm", ADIT Journal of Engineering, Vol-10, No-1, pp:56-61.

7. Khushboo Desai Hetal Patel (2015), "An Algorithm for License Plate Detection using Wavelet Transform", Journal of Operating Systems Development & Trends, Vol-2, Issue-1, pp:7-14.

8. Tejas Gandhi, Hetal Patel and Darshana Prajapati (2015), "Fractal Geometry and its application to Image compression", Journal of Image Processing & Pattern Recognition Progress, Vol-2,Issue-2,pp:4-12.

9. Shreya Vyas, Anup Shah and Hetal Patel(2015), " Color marks removal from Doucment Images to improve OCR accuracy", ADIT Journal Of Engineering, Vol-11, No-1, pp:14-18.

10. Gamit Tejal, Hetal Patel and Darshana Prjapati(2015), "Design of an Algorithm for Image watermarking using Fractal Mathematics", ADIT Journal of Engineering, Vol-12, No. 1, December,2015

11. Ragini R. and Hetal Patel (2015), " Real time video mosaicing using harris corner detection with RANSAC, ADIT Journal of Engineering, Vol-12, No. 1, December,2015

12. Shahan Vohra , Khanjika Arora and Hetal patel(2015), " Design of Real time defect detection algorithm for processing of "PAPAD", ADIT Journal of Engineering, Vol-12, No. 1, December,2015

13. Dipanjali Khant, Hetal Patel and Darshana Prajapati (2016), " Design of Image steganography Algorithm based on Local Region Property of a Fractal Cover Images, ADIT Journal of Engineering, Vol-13, No-1, December,2016

14. Hetal Patel and Tejendra Panchal, "ALPR System Under Varying Illumination and Motion Conditions", Kalpa Publications in Engineering, Volume 1, 2017, Pages 1–8

15. Krishna Wadiwala and Hetal Patel, " Homomorphic Encryption Property Algorithms", Research & Reviews: A Journal of Embedded System & Applications ,ISSN: 2395-6712(Online), ISSN:2321-8533(Print0, Vol-5, Issue 3, 2018, Pages 7-11.

16. Yadav Vinay, Patel Hetal and Shreeji Shah(2019), " Design and Analysis of Noise Suppression techniques for speech signal", Journal of Applied Science and Computations , Vol-6, Issue - 4, pp: 2708-2717, ISSN: 1076-5131

17. 17. Mikita Gandhi, V. K. Thakar and Hetal Patel (2019), " Handwritten Gujarati Numeral Recognition using Wavelet transform", Journal of Applied Science and Computations , Vol-6, Issue - 4, pp: 2699-2707, ISSN: 1076-5131 .

> ## International Journal:

1. Patel, H. N., Jain, R. K. and Joshi, M. V. (2011) "Fruit Detection using improved multiple feature based algorithm", International Journal on Computer Applications, Vol. 13, No-2, pp 1-54 (ISSN 0975-8887).
2. Patel, H. N., Jain, R. K. and Joshi, M. V. (2012) "Automatic Segmentation and Yield Measurement of Fruit using Shape Analysis", International Journal on Computer Applications, Vol. 45, Issue 7, pp 19-24 (ISSN 0975-8887).
3. Patel, H. N., Jain, R. K. and Joshi, M. V. (2012) "Non-Destructive Quality Analysis of Indian Fermented Food using X-ray Microtomography and Image Processing", Research and Review: Journal of Food Science and Technology , (ISSN 2278-2249), Vol. 1, Issue 3, pp 7-21.
4. Patel, H. N. and Jain, R. K. (2012) "On-line Quality Analysis of Horticulture Products Using Machine Vision", International Journal of Scientific and Technology Research (ISSN 2277-8616), Vol. 1, Issue 9, pp 80-84.
5. Patel, H. N., Jain, R. K. and Joshi, M. V. (2012) "Non-Destructive Porosity Calculation of an Indian Fermented Food "KHAMAN" using X-ray Microtomography and Image Processing", International Journal on Computer Applications (ISSN 0975-8887), Vol. 56 , Issue 4, pp 44-49.
6. Patel Ankit, Patel, H. N. (2013) " Face Mosaicing using Multiresolution Spline: A Review", International Journal of science and Modern Engineering (ISSN 2319-6386), Vol. 1 , Issue 6, pp 21-25.
7. Shah Mitesh, Patel H. N. (2013) "Design of a new Video compression algorithm using Accordion function", International Journal of science and Modern Engineering (ISSN 2319-6386), Vol. 1 , Issue 6, pp 40-43.
8. Jinal Patel, Anup Shah and Hetal Patel(2015), "Skew angle Detection and Correction using Radon Transform", International Journal of Electronics, Electrical and Computational System, pp:1-6,Vol-4, Special Issue.
9. Hetal Patel, Khushboo Desai and Tejendra Panchal (2015), "An Algorithm For Automatic License Plate Detection From Video Using Corner Features", IEEE Xplore,2015
10. Tejendra Panchal, Hetal Patel and Ami Panchal(2016), "License Plate Detection Using Harris Corner And Character Segmentation By Integrated Approach Image", S Science Direct, Procedia Computer Science,2016.
11. Hetal Patel and Payal Modi (2016), "Straightening Uniformly Folded Document Image",Journal of Electrical & Electronic Systems, Vol-5, Issue-3, pp:1-7,doi: 10.4172/2332-0796.1000191
12. Hetal Patel , Dipanjali Khant and Darshana Prajapati, " Design of an Algorithm for Image Steganography using Fractal Mathematics", International Journal of Advanced Computing and Communication Systems (IJACCS) , Vol.3 Issue.3 , pp:1-6, 2016.
13. Hetal Patel, Dipanjali Khant and Darshana Prajapati(2017), "Design Of A Color Palette Based Image Steganography Algorithm For Fractal Images", IEEE Xplore,2017
14. Heena Kher, Hetal Patel and Tejendra Panchal(2018)," 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, 2018 ,pp:8-16

15. Robinson Paul, V. K.Thakar and Hetal Patel(2019), " State estimation of Stochastic systems with random lossy measurement based on DLDKF estimation algorithm", Journal of Emerging Technologies and Innovative Research- an International open access journal, ISSN :2349-5162, Vol-6, Issue-3, March-2019

16. Mikita R Gandhi, Dr. Vishvjit Thakar , Dr. Hetal Patel(2019)," Gujarati Handwritten Character Recognition Using Convolutional Neural Network ", Journal of Emerging Technologies and Innovative Research (JETIR) , ISSN UGC Approved (Journal No: 63975) ,Volume 6 ,Issue 5 ,pp:518-523,May-2019

17. Robinson P. Paul , Dr. Vishvjit Thakkar , Dr. Hetal Patel (2019)," : A Simple and Novel Algorithm for State Estimation of Continuous Time Linear Stochastic Dynamic Systems Excited By Random Inputs ", International Journal of Innovative Technology and Exploring Engineering, Link: https://www.scopus.com/sourceid/21100889409 , ISSN: 2278-3075.

➢ International Conference:

1) **Hasnain Vohra and Hetal Patel (2013),** "Optimising Boundary maps for Image Segmentation", *International Conference on Signal, System and Communication*, ISBN: 978-1-4799-0317-7-13, pp: 174-178.

2) **Jinal Patel, Anup Shah and Hetal Patel(2015),** "Skew angle Detection and Correction using Radon Transform", International conference on Recent Development in Engineering, Science and Management (ICRDESM-15)

3) **Hetal Patel, Khushboo Desai and Tejendra Panchal(2015), "**An algorithm for automatic license plate detection from video using corner features", *IEEE International Conference on Information Processing,* 16-19 December, 2015, Pune.

4) **Payal Modi, Jinal Patel and Hetal Patel (2016),** "Straightening the folded document image",IEEE International Conference on Electronics and Communication Systems (ICECS-16) Karpagam College of Engg,. Tamilnadu, Coimbatore, 25th to 26th February,2016

5) **Hetal Patel, Dipanjali Khant and Darshana Prajapati(2016),** "Design of an algorithm for image steganography using fractal mathematics", 4th International Conference on Advanced Computing and Communication Systems (ICACCS-2017), EEE ISBN No: 978-1-5090-4558-7

6) **Hetal Patel and Tejedra Panchal(2017),** " ALPR system for image and video data under varying illumination and motion conditions *",*"Research and Innovations in Science, Engineering & Technology" ,(ICRISET-2017)

Organized by BVM Engineering College, Vallabh Vidyanagar, Gujarat, India,17 -19 February, 2017

7) **Hetal Patel, Heena Kher and Akshay Kiran(2017),** "Design and Implementation of License Plate Recognition System using Raspberry Pi", international conference on advances in computing, communication and informatics (icacci'17), Organized by M.S.University, Baroda, Gujarat, 25 Febrauary,2017.

8) **Hetal patel, Dipanjali Khant and Darshana Prajapati(2017),** " Design of a color palette based image steganography algorithm for Fractal images", IEEE Conference on Wireless communication, Signal processing and Networking, WiSPNET 2017, 22-24 March-2017, Chennai, India.

9) **Krishna Wadiwala, Deepak Mishra, Hetal Patel(2018),** " Channel Power Estimation for DVBRCS to DVBS2 Onboard DSP Payload", Second International Conference on Smart Innovations in Communications and Computational Sciences(ICSICCS-2018), Devi Ahilya University, Indore, MP,28-29 April,2018.

➢ **National Conference:**

1) **Anil Kshatriya and Hetal Patel (2008),** "FPGA based differential phase shift keying modulator-demodulator", National Conference on advanced communication(NCAC-08).

2) **Shaishav Parmar and Hetal Patel (2013),** "Image assisted human identification using dental radiograph: a survey", *National Conference on Power systems, Embedded systems, power electronics, communication, control and instrumentation PEPCCI-2013*, ISBN: 978-81-923462-1-2, pp: 259-266.

➢ **Expert Talk Delivered:**

i. Topic : Signal and spectral analysis, periodic signal and Fourier series, spectrum analysis & signal bandwidth, Filtering, Distortion & equalization for first year students of EC, IT, CP and EE branch on 25/4/15 at ADIT Auditorium.

ii. Topic: Feature Extraction Techniques in Image Processing. at the ISTE approved Short Term Training Programme (STTP) on "Recent Trends in Video Processing & Soft Computing" during 22-26 June, 2015, D.D.I.T., Nadiad.

iii. Delivered an expert talk on " Feature Extraction" at STTP on "Recent Trends in Video Processing and Soft Computing on 10th August,2015 at Dharasinh Desai Institute of Technology, Nadiad

iv.   Presented 02 hour expert session on "Introduction to Electronics and Communication Engg." For First year students of IT, CP, EE and EC Students" at the auditorium of ADIT. on 19th August,2015

v.   Delivered an expert talk on "Wavelet Transform and Multiresolution analysis" technically sponsored by IEEE ADIT Student branch and organized by Information Technology dept., ADIT on 16th April, 2016.

vi.   Presented an expert talk on "Empowering Girls through Technical education and Employment" organized by Equal Opportunity Cell, Rashtriya Uchchatar Shiksha Abhiyanksha, Surat on 22nd April,2016.

vii.   Presented an expert talk on "Real time Image and Video processing" at BVM engg. College for 03 Hrs. On 24/5/16 from 2:00pm to 5:00pm

viii.   Presented an expert session on "Feature extraction for Remote Sensing Applications", during one week short term training program on digital image and signal processing applications at GCET College for 02 Hrs on 23/11/16 from 3:30pm to 5:30pm.

ix.   Presented an expert session on "Image processing with Deep Learning" during All India IEEE Computer Society Students and Young Professionals Congress (AICSSYC,19) at A.D.Patel Institute of Technology on 12/10/19 from 3:30 pm to 4:30pm.

➢ **Achievements:**

Certificates won :

i.   Outstanding Academic Audit Point Score for the academic year 2014-15.

ii.   Significant Contribution to the college development in various portfolios like Women Empowerment Cell as a Chair, IEEE student branch Counselor and many more.

iii.   Organizing committee member in 22nd ISTE state Annual faculty convention 2017 and National Conference on "Engineering Innovations for Social and Environmental development"

iv.   External member in Constitution of Project Evaluation Committee (PEC) for project sanctioned by AICTE under MODROB.

v.   Local organizing committee member in 2nd International conference on "Women in Science & Technology: Creating sustainable career"at BVM Engineering college during 28-30 June,2018.

vi.   Awarded as " IEEE Senior member"

> **Project guided:**

- **List of UG Projects Guided:**

1. Project Title: Implementation of Median filter using FPGA
   > Students' Name: Ashish V. Patel, Parth C. Upadhyay

2. Project Title: Automatic Detection and Tracking of Moving Objects
   > Students' Name: Dainik Vachhani and Sheshant Fataniya

3. Project Title : Comarative Analysis of Various Digital Watermarking Algorithms
   > Students' Name: Nishad Darji, Mihir Karavadra and Ashish Thanki

4. Project Title: Embedded system of low level image processing operators
   > Students' Name: Kavita Jain and Prarthana Dhandarfale

5. Project Title: Automatic Car License Plate Recognition System
   > Students' Name: Jay Mangi, Nikhil Asudani and Mohamad Ibrahim Khan

6. Project Title: Car License Plate Detection System
   > Students' Name: Vishwa kelaiya and Sonal Patel

7. Project Title: Design of a Color, Texture and Brightness based Image Segmentation Algorithm
   > Students' Name: Hasnain Vohra and Dhruv Patel

8. Project Title: FPGA Based Digital IC Tester
   > Students' Name: Vishwa Kelaiya and Sonal Patel

9. Project Title:Ultrasonic Distance measurement using robotic car
   > Students' Name: Modhiya Dhrumil and Goriya Mahek

10. Project Title: Image Compression and Transmission
    > Students' Name: Prerak Doshi, Mihir Patel and Dinesh Chaudhari

11. Project Title: Quality Analysis of the Indian processing food "PAPAD"
    > Students' Name: Khanjita and Sahan Vohra

12. Project Title: Design and Simulation of Sensor based smart glove for smart presentation
    - Students' Name: Dhrubharthi Goswami, Shantanu Chauhan and Soni Shivam

➢ **List of PG Projects Guided:**

1. Project Title: Investigation of an Image Processing Algorithm for Feature Extraction of Human Teeth.
   ➢ Student's Name: Shaishav Parmar

2. Project Title: To study and implement video Compression Algorithm
   ➢ Student's Name: Shah MItesh S.

3. Project Title; Design of an Image Processing Algorithm for Pose-Invariant Face Identification
   ➢ Student's Name: Ankitkumar N. Patel

4. Project Title: Image Compression using Fractals
   ➢ Student's Name: Tejas N. Gandhi

5. Project Title: Algorithm for Object Detection and Skew Correction invariant to background and Illumination
   ➢ Student's Name: Patel Jinal K.

6. Project Title: Image Pre-processing for Improving OCR Accuracy
   ➢ Student's Name: Shreyaben H. Vyas

7. Project Title: Design of an algorithm for License Plate Recognition system using wavelet transform.
   ➢ Student's Name: Desai Khushboo S.

8. Project Title: Design of an algorithm for License Plate Recognition system for the video data under varying illumination and motion conditions
   ➢ Student's Name: Ragini Chaudhari

9. Project Title: Algorithm for background independent multi nodal document identification and processing
   ➢ Student's Name: Payal Modi

10. Project Title: Design of an algorithm for Image Watermarking using Fractal Mathematics
    ➢ Student's Name: Gamit Tejal

11. Project Title: Design of an algorithm for License Plate Recognition system for the video data under varying illumination and motion conditions
    ➢ Student's Name: Tejendra Panchal

12. Project Title: Design of an algorithm for image steganography using fractal mathematics
    ➢ Student's Name: Khant Dipanjali R.

13. Project Title: FPGA based Power Estimation of Channelized Signal

> ➢ Student's Name: Krishna Wadiwala

14. Project Title: Design and Implementation of Noise Removal Techniques for Different Digital Speech Application Areas

> ➢ Student's Name: Vinay Yadav

> ➢ **List of Ph.D. Projects Guiding:**

Name of the student	Year of registration	Title of the research	Current designation along with Institute name
Hansa Shingrakhia	2018	Automatic video summarization for sports application	Assistant professor (senior scale), electronics & communication engineering department , Indus university ,Ahmadabad
Chintan Dave	2018	Adaptive image dehazing model by parameter extraction using Deep learning	Assistant professor, Vishvakarma Government engineering college
Harshul Yagnik	2018	Motion estimation and abnormal event detection for visual Surveillance on roads	Assistant professor, EC Department, A.D. Patel Institute of Technology, New V.V. Nagar
Jigar Ashokkumar Soni	2015	Design of an algorithm for image processing application in indian agriculture field.	Assistant professor ,Shree V & K Patel Institute of Engineering- Kadi (Mehsana).
Rishikesh ShaileshKumar Bhavsar	2014	Design an Algorithm for Gujarati Character Recognition	Assistant Professor, EC Department,Shankersinh Vaghela Bapu Institute of Technology,Gandhinagar- Mansa Highway, Gandhinagar
Mikita Gandhi	2014	Investigation on algorithm for improving accuracy in OCR	Assistant professor, EC Department, A.D. Patel Institute of Technology, New V.V. Nagar
Robinson Pravinchandra Paul	2014	Stochastic hybrid system: Estimation and control technique	Assistant professor, EC Department, Birla Vishvakarma Mahavidyalaya, V.V.Nagar

➢ **Sanctioned Research Projects:**

Project Title	Funding Agency	Sanctioned Amount in INR	Project Span	Investigator
Simulation and Design of an Automatic Number Plate Identification Algorithm for Indian Vehicles	GUJCOST, Gandhinagar	1.75 Lakhs	June 2014 – May 2016	Dr. Hetal Patel
Simulation and Design of a Color Image Watermarking Algorithm using Fractal Mathematics	GUJCOST, Gandhinagar	1.99 Lakhs	June 2015 – May 2017	PI: Dr. D. J. Prajapati Co-PI: Dr. Hetal N. Patel
Design of an algorithm for Urban feature extraction and classification for satellite image	RESPOND- Indian Space Research Organization(ISRO), Department of science, Bengaluru	16.31 Lakhs	September 2019 – August 2021	PI: Dr. Hetal Patel Co-PI: Mikita Parikh

Hetal Patel