Sharnil Pandya
Research Faculty, Symbiosis Centre for Applied Artificial Intelligence and Associate Professor, Department of Computer Science, Symbiosis Institute of Technology, Symbiosis International University, India.
sharnil.pandya84@gmail.com
sharnil.pandya@scaai.siu.edu.in;sharnil.pandya@sitpune.edu.in
Skype: 9429130543
+91-9429130543
+91-7016812479
Google Scholar Citations 868, HI-22, i10-30

Objective: To seek an opportunity for working in an academically and scientifically dynamic environment, where I will actively participate as a researcher in developing assistive technologies, architectures and frameworks. To learn through experience and keep me up-to-date with latest primitives and techniques.

Background: Ph.D. in Computer Science and Electrical Engineering with teaching and research experience. I have Published more than 50 reputable international conference papers and SCI-index journal papers on various aspects of acoustic and sound, healthcare, and computer vision.

Present Work: I am an Associate Professor. My responsibility is to conduct and support research teaching related to Embedded System Design, IoT, and Deep Learning courses. The research focus is based on Health Informatics (Preventive healthcare, Ambient Assisted Living, and AI-based Decision Making, and Assistive Technologies).

The subject of Interest: Machine Learning, Deep Learning, Artificial Intelligence, Internet of Things, Digital Signal Processing, Image Processing, Wireless Sensors Network, and Embedded Systems.

Research Skills:

- Acoustics and Sound
- Digital Enhanced Living
- Behavioral pattern generation and Anomaly Detection
- Image processing for the healthcare
- Assistive Technology for wellness
- Intelligent Non-Speech Audio Assistance

- Neonatal Preventive Healthcare Monitoring
- Transfer Learning
- HL7 Version 2, Clinical Document Architecture (CDA) & Fast Health Interoperability Resources (FHIR)

Education:

Ph.D. Major: **Computer Engineering**
R K University, India
Duration: Jan 2012- Oct 2015
Thesis Title: Centralized and Decentralized Timestamp based approach for Wireless Sensor Networks
Grades: Exceptional Ph.D. Scholar India

M.Tech. Major: **Professional Computing**
Swinburne University, Melbourne, Australia
Passing Year: 2009
Grades: 65%

B.E. Major: **Information Technology**
Dharamsinh Desai University, India
Passing Year: 2007
Grades: 74.21%

Diploma Major: **Information Technology**
Nirma University, India
Passing Year: 2007
Grades: 74.21%

PATENTS PUBLISHED

July 2016

Title	:	A NOVEL UNSUPERVISED VIDEO SURVEILLANCE SYSTEM
No	:	3552/MUM/2014
Status	:	Published and First Examination Report Filed.

April 2017

Title	:	Remotely operable systems use gestures or voice commands
No	:	552/MUM/2015
Status	:	Published and First Examination Report Filed.

July 2018

Title	:	System of turning on or off vehicle systems using a smart phone SYSTEM
No	:	201621025867

Status	:	Published and First Examination Report Filed.

April 2021

Title	:	AN AIR-COOLING SYSTEM AND METHOD THEREOF
No	:	202021047628
Status	:	Published .

RESEARCH GRANT-FUNDS SECURED UNDER VARIOUS PROJECTS

December 2019 – December 2021

Title	:	Ablation Studies on Reentry Capsule with Strong Coupling to flow dynamics *(Parallel Computing using Python MPI libraries and building a super computer using Raspberry Pi)*
Funded by	:	Defense Research and Development Organization (DRDO), India, Major Project (grant number DGTM/ARDB/GIA/19-20/0174, 21k USD[15,24,000 INR])

December 2016 – December 2018

Title	:	An efficient load balancing algorithm for cloud computing environments
Funded by		Department of Science and Technology, Government of Gujarat(GUJCOST), Major Project (grant number GUJCOST/MRP/2016-17/510, 1.7k USD[1, 25, 000 INR])

Programming Languages and Tools:

Programming, Networking, and Hardware	:	C, Java, MATLAB, Python, Microcontroller, Lab view, HTML5, Javascript, web page, Qualnet, HL7
Database	:	SQL Server, MySQL, NoSQL(MongoDB).

List of some of the teaching subjects:

1. Data Communication
2. Digital Signal Processing
3. Cognitive Science and Artificial Intelligence
4. Neural Networks
5. Fundamentals of Internet of Things
6. Internet of Things Applications
7. Data Analytics for Healthcare
8. Embedded Systems
9. Network Security (Wireless Security and Blockchain Development)

Selected Publications Lists (indexed by Scopus/WoS)

1) Ghayvat, H., **Pandya, S.**, Bhattacharya, P., Zuhair, M. et al., CP-BDHCA: Blockchain-based Confidentiality-Privacy preserving Big Data scheme for healthcare clouds and applications, IEEE Journal of Biomedical and Health Informatics(J-BHI), doi: 10.1109/JBHI.2021.3097237.

2) **Pandya Sharnil,** Sur, A, Solke, N, COVIDSAVIOUR: A Novel Sensor-Fusion and Deep Learning-Based Framework for Virus Outbreaks, Frontiers in Public Health, 2021. doi: 10.3389/fpubh.2021.797808
[as the corresponding and First author]

3) **Pandya, S.** and Ghayvat, H.**,** Ambient acoustic event assistive framework for identification, detection, and recognition of unknown acoustic events of a residence. Advanced Engineering Informatics, 47, p.1012, 2021, Elsevier.
[as the corresponding and First author]

4) Ghayvat, H., Awais, M., Gope, P., **Pandya, S.** and Majumdar, S., 2021. ReCognizing SUspect and PredictiNg ThE SpRead of Contagion Based on Mobile Phone LoCation DaTa (COUNTERACT): A System of identifying COVID-19 infectious and hazardous sites, detecting disease outbreaks based on the internet of things, edge computing, and artificial intelligence. Sustainable Cities and Society, p.102798, Elsevier.

5) **Pandya, Sharnil**, Aanchal Thakur, Santosh Saxena, Nandita Jassal, Chirag Patel, Kirit Modi, Pooja Shah, Rahul Joshi, Sudhanshu Gonge, Kalyani Kadam, and Prachi Kadam. A Study of the Recent Trends of Immunology: Key Challenges, Domains, Applications, Datasets, and Future Directions, Sensors, 2021, no. 23: 7786. https://doi.org/10.3390/s21237786
[as the first and corresponding author]

6) Abolfazl Mehbodniya, L. Arokia Jesu Prabhu, Julian L. Webber, Dilip Kumar Sharma, **Pandya, Sharnil**, Fetal Health Classification from Cardiotocographic Data Using Machine Learning, Expert Systems, Wiley, 2021.

7) Mishra, N. and **Pandya, S.**, Internet of Things Applications, Security Challenges, Attacks, Intrusion Detection, and Future Visions: A Systematic Review, IEEE Access, April 2021.

[as the corresponding author]

8) Nivedita Mishra, **Pandya, Sharnil** Chirag Patel et al. Memcached: An Experimental Study of DDoS Attacks for the Wellbeing of IoT applications", Sensors, 2021.
[as the corresponding author]

9) Shah A, Ahirrao S, **Pandya S**, Kotecha K and Rathod S, Smart Cardiac Framework for an Early Detection of Cardiac Arrest Condition and Risk, Frontiers in Public Health, 2021. doi: 10.3389/fpubh.2021.762303
[as the corresponding Author]

10) Sushruta Mishra,Hrudaya Kumar Tripathy,Hiren Kumar Thakkar,Deepak Garg,Ketan Kotecha*,**Sharnil Pandya**, An Explainable Intelligence Driven Query Prioritization using Balanced Decision Tree Approach for Multi Level Psychological Disorders Assessment, Frontiers in Public Health, 2021 doi: 10.3389/fpubh.2021.797808

11) Ghayvat, H.; Awais, M.; **Pandya, S.**; Ren, H.; Akbarzadeh, S.; Chandra Mukhopadhyay, S.; Chen, C.; Gope, P.; Chouhan, A.; Chen, W. Smart Aging System: Uncovering the Hidden Wellness Parameter for Well-Being Monitoring and Anomaly Detection. Sensors, 19, 766.

12) **Pandya, S.**, Sur, A. and Kotecha, K., "Smart epidemic tunnel: IoT-based sensor-fusion assistive technology for COVID-19 disinfection", International Journal of Pervasive Computing and Communications, Emerald Publishing.
[as the corresponding and First author]

13) Srivastava, A., Jain, S., Miranda, R., Patil, S., **Pandya, S**., Kotecha K. 2021. Deep learning-based respiratory sound analysis for detection of chronic obstructive pulmonary disease. PeerJ Computer Science 7:e369.

14) Karn, A.L., **Pandya, S.**, Mehbodniya, A. et al. An integrated approach for sustainable development of wastewater treatment and management system using IoT in smart cities. Soft Computing, Springer, 2021. https://doi.org/10.1007/s00500-021-06244-9

15) **Pandya, S.**, Ghayvat, H., Sur, A., Awais, M., Kotecha, K., Saxena, S., Jassal, N., Pingale, G. Pollution Weather Prediction System: Smart Outdoor Pollution Monitoring and Prediction for Healthy Breathing and Living. Sensors, 2020, 20, 5448.
[as the corresponding and First author]

16) Awais, M., Ghayvat, H., Krishnan Pandarathodiyil, A., Nabillah Ghani, W.M., Ramanathan, A., **Pandya, S.**, Walter, N., Saad, M.N., Zain, R.B., Faye, I. Healthcare Professional in the Loop (HPIL): Classification of Standard and Oral Cancer-Causing Anomalous Regions of Oral Cavity Using Textural Analysis Technique in Autofluorescence Imaging. Sensors, 2020, 20, 5780.

17) Patel, C.I., Labana, D., **Pandya, S.**, Modi, K., Ghayvat, H. and Awais, M., 2020. Histogram of Oriented Gradient-Based Fusion of Features for Human Action

Recognition in Action Video Sequences. Sensors, 20(24), p.7299.

18) **Pandya, S.**, Ghayvat, H.; Kotecha, K.; Awais, M.; Akbarzadeh, S.; Gope, P.; Mukhopadhyay, S.C.; Chen, W. Smart Home Anti-Theft System: A Novel Approach for Near Real-Time Monitoring and Smart Home Security for Wellness Protocol. Appl. Syst. Innov.
[as First author]

19) Barot, V., Kapadia, V., & **Pandya, S.**, QoS Enabled IoT Based Low Cost Air Quality Monitoring System with Power Consumption Optimization, Cybernetics and Information Technologies, 2020, 20(2), 122-140, Bulgarian Academy of Science.

20) **Pandya, S.**, Wakchaure MA, Shankar R, Annam JR. Analysis of NOMA-OFDM 5G wireless system using deep neural network. The Journal of Defense Modeling and Simulation.
[as First author]

21) Mehta P, **Pandya S**., Kotecha K. 2021. Harvesting social media sentiment analysis to enhance stock market prediction using deep learning, PeerJ Computer Science 7:e369.
[as the corresponding author]

22) Sur S., **Pandya, S.**, Ramesh P. Sah, Ketan Kotecha & Swapnil Narkhede, Influence of bed temperature on performance of silica gel/methanol adsorption refrigeration system at adsorption equilibrium, Particulate Science and Technology.

23) Sur, A., Sah, R., **Pandya, S.**, Milk storage system for remote areas using solar thermal energy and adsorption cooling, Materials Today, Volume 28, Part 3, 2020.

Conference Papers:

24) H. Ghayvat, **Pandya, S.,** and A. Patel, "Deep Learning Model for Acoustics Signal Based Preventive Healthcare Monitoring and Activity of Daily Living," 2nd International Conference on Data, Engineering and Applications (IDEA), Bhopal, India, 2020, pp. 1-7, doi: 10.1109/IDEA49133.2020.9170666

25) **Pandya, S.**, Shah, J., Joshi, N., **Ghayvat, H**., Mukhopadhyay, S.C. and Yap, M.H., 2016, November. A novel hybrid based recommendation system based on clustering and association mining. In Sensing Technology (ICST), 2016 10th International Conference on (pp. 1-6). IEEE.

26) **Pandya, S.**, W. Patel, H. Ghayvat, "NXTGeUH: Ubiquitous Healthcare System for Vital Signs Monitoring & Falls Detection", IEEE International Conference, Symbiosis International University, December 2018.

27) Garg D., Patel P., **Pandya, S.**, K. Kotecha, "A Deep Learning Approach for Face Detection using YOLO", IEEE International Conference, Symbiosis International university, December 2018.

28) Ghayvat, H., **Pandya, S.**, "Wellness Sensor Network for modeling Activity of Daily Livings – Proposal and Off-Line Preliminary Analysis" IEEE International Conference, Galgotias University, New Delhi, December 2018.

29) **Pandya, S.**, Ghayvat, H., Shah, J., Joshi, N., A Novel Hybrid based Recommendation System based on Clustering and Association Mining, 10th IEEE International Conference on Sensing technology and Machine Intelligence (ICST-2016), Nanjing, China, November 2016.

30) **Pandya, S.**, W. Patel, An Adaptive Approach towards designing a Smart Health-care Real-Time Monitoring System based on IoT and Data Mining, 3rd IEEE International Conference on Sensing technology and Machine Intelligence (ICST- 2016), Dubai, November 2016.
31) **Pandya, S.**, Ghayvat, H., Kotecha, K., Wandra, K., Advanced AODV Approach For Efficient Detection And Mitigation Of WORMHOLE Attack IN MANET, 10th IEEE International Conference on Sensing technology and Machine Intelligence (ICST-2016), Nanjing, China, November 2016.
32) **Pandya, S.**, H. Dandvate ―New Approach for frequent item set generation based on Mirabit Hashing Algorithm‖, IEEE International Conference on Inventive Computation technologies (ICICT), 26 August, India, 2016.
33) **Pandya, S.**, Patel, W., Mistry, V., i-MsRTRM: Developing an IoT based iNTELLIGENT Medicare System for Real-time Remote Health Monitoring, 8th IEEE International Conference on Computational Intelligence and Communications Networks (CICN-2016), Tehari, India, 23-25th December 2016.
34) **Pandya, S.**, Shah, J., Joshi, N., Ghayvat, H., Mukhopadhyay, S.C. and Yap, M.H., 2016, November. A novel hybrid based recommendation system based on clustering and association mining. In Sensing Technology (ICST), 2016 10th International Conference on (pp. 1-6). IEEE.
35) Shah, J., **Pandya, S.**, N. Joshi, K. Kotecha, D. B. Choksi, Load Balancing in Cloud Computing: Methodological Survey on Different Types of Load Balancing Algorithms‖, IEEE International Conference on Trends in Electronis and Informatics, Tamilnadu, India, May 2017.
36) **Pandya, S.**, Vyas, D. and Bhatt, D., A Survey on Various Machine Learning Techniques‖, International Conference on Emerging trends in Scientific Research (ICETSR-2015), ISBN no: 978-81-92346-0-5, 2015.
37) **Pandya, S.**, Wandra, K., Shah, J., A Hybrid Based Recommendation System to overcome the problem of sparcity‖, International Conference on emerging trends in scientific research, December, 2015.
38) Vyas, S., **Pandya, S.**, A Survey on Various Issues in Wireless Sensor Networks, National Conference on Computer Science& Security (COCSS-2013), ISBN no: 978-81-92346-0-5.

Book Chapters

39) Pandya S. et al. (2021) Precision Agriculture: Methodologies, Practices and Applications. In: Singh P.K., Wierzchoń S.T., Tanwar S., Ganzha M., Rodrigues J.J.P.C. (eds) Proceedings of Second International Conference on Computing, Communications, and Cyber-Security. Lecture Notes in Networks and Systems, vol 203. Springer, Singapore. https://doi.org/10.1007/978-981-16-0733-2_12

40) Pandya S. et al. (2021) A Novel Multicast Secure MQTT Messaging Protocol Framework for IoT-Related Issues. In: Singh P.K., Wierzchoń S.T., Tanwar S., Ganzha M., Rodrigues J.J.P.C. (eds) Proceedings of Second International Conference on Computing, Communications, and Cyber-Security. Lecture Notes in Networks and Systems, vol 203. Springer, Singapore. https://doi.org/10.1007/978-981-16-0733-2_24

41) Pandya S. et al. (2021) Smart Aging Wellness Sensor Networks: A Near Real-Time Daily Activity Health Monitoring, Anomaly Detection and Alert System. In: Singh P.K., Wierzchoń S.T., Tanwar S., Ganzha M., Rodrigues J.J.P.C. (eds) Proceedings of Second International Conference on Computing, Communications, and Cyber-Security. Lecture Notes in Networks and Systems, vol 203. Springer, Singapore. https://doi.org/10.1007/978-981-16-0733-2_

42) Rashmi W., Mahesh V., Anirban S., Sharnil P., Khalid M. (2021) Hybrid Solar PVT Systems for Thermal Energy Storage: Role of Nanomaterials, Challenges, and Opportunities. In: Tripathi D., Sharma R.K. (eds) Energy Systems and Nanotechnology. Advances in Sustainability Science and Technology. Springer, Singapore. https://doi.org/10.1007/978-981-16-1256-5_9

Related Professional Experience:

1. Symbiosis Centre for Applied Artificial Intelligence and Symbiosis Institute of Technology, Symbiosis International University. Position: Associate Professor (full-time)
   Duration: Oct 2019 onwards
   Responsibility:
   Research: My responsibility was to conduct and support research teaching related to Health Computer Interaction. I was investigating and developing IoT based assistive technologies for healthcare. I have addressed the challenges of digital and audio signal processing of daily living activities, considering the privacy aspects, recognizing the behavioral pattern andanomaly, electronic health record management, and analysis.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught Voice & Data Communication, Microprocessors & Microcontroller, Analog & Digital Communication, Digital Signal Processing, Soft Computing, and Distributed Computing.

2. Department of Computer Science and Eng., Navrachana University, India
   Position: Associate Professor(full-time)
   Duration: Aug 2018 to Oct 2019
   Responsibility:
   Research: Performing research on IoT-based preventive healthcare systems for elderly and Neonatal sleep behavioral pattern generation and anomaly diagnosis. I supervised final years Bachelor & Master students for their degree projects in IoT, Digital Signal Processing, Image Processing, and Deep Learning. I taught Embedded System & Application, Wireless Communication Engineering, and Reconfigurable Computing.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught Voice & Data Communication, Microprocessors & Microcontroller, Analog & Digital Communication, Digital Signal Processing, Soft Computing, and Distributed Computing.

3. Department of Computer Science and Eng., P P Savani University, India
   Position: Associate Professor(full-time)
   Duration: Nov 2017 to Aug 2018
   Responsibility:
   Research: Performing extensive research on healthcare based on IoT.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught Voice & Data Communication, Microprocessors & Microcontroller, Analog & Digital Communication, Digital Signal Processing, Soft Computing, and Distributed Computing.

4. Department of Computer Science and Engineering, Parul University, India
   Position: Associate Professor(full-time)
   Duration: July 2015 – Oct 2017
   Responsibility: My primary focus was researching the area of preventive healthcare monitoring to develop an ambient assisted living-based smart home.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught in the area of IoT, Wireless Communication, Human-Computer Interaction, andMachine Learning. I supervised Bachelor & Master's students for their degree projectsconsidering several Wireless Sensing and Data Analytics aspects.

5. Department of Computer Science and Engineering, Nirma University, India
   Position: Assistant Professor(full-time)
   Duration: Oct 2012-July 2015
   Responsibility: My primary focus was researching the area of preventive healthcare monitoring to develop an ambient assisted living-based smart home.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught in the area of IoT, Wireless Communication, Human-Computer Interaction, andMachine Learning. I supervised Bachelor & Master's students for their degree projectsconsidering several Wireless Sensing and Data Analytics aspects.

6. Department of Computer Science and Engineering, NSIT, India
   Position: Assistant Professor and
   Head(full-time)
   Duration: June 2012 to Oct 2012
   Responsibility: My primary focus was researching the area of preventive healthcare monitoring to develop an ambient assisted living-based smart home.
   Responsibility: Teaching and supervising students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught Signals and Systems, Digital Signal Processing, Microcontrollers and Embedded Systems, Computer Networks, Digital Image Processing.

7. Department of Computer Science and Engineering, Ganpat University, India
   Position: Assistant Professor(full-time)
   Duration: June 2011 to June 2012
   Responsibility: My primary focus was researching the area of preventive healthcare monitoring to develop an ambient assisted living-based smart home.
   Teaching: Teaching and supervising Students to perform extensive research on the various aspects of Computer Science and Information Technology. I taught in the area of IoT, Wireless Communication, Human-Computer Interaction, andMachine Learning. I supervised Bachelor & Master's students for their degree projectsconsidering several Wireless Sensing and Data Analytics aspects.

8. Shriram Printers, India
   Position: IT Manager

Duration: Aug 2009 to June 2011
Responsibility: My primary focus was to handle the IT operations and Data Analytics aspects.

Professional Associations:

Chairman IEEE Swinburne Univerisity student branch 2007-2009
IEEE student member 2013
Technical committee member of ICST, I2MTC, IEEE BHI, IEEE BSN CSNT, IEEE BHI/BSN since 2013.

Invited Reviewer for the Following Journals:

IEEE Transaction on Industrial Electronics.
IEEE IoT Journal.
IEEE Sensors Journal.
IEEE Access.
peerJ Computer Science.
Advanced Engineering Informatics, Elsevier.
Transactions on Emerging Communications and Technologies(Wiley)
Sensors (MDPI AG, Switzerland)

References:

Subhas Chandra Mukhopadhyay, Professor
Mechanical/Electronics Engineering, Discipline Leader, Mechatronics Engineering Degree Programme, Distinguished Lecturer, IEEE Sensors Council
FIEEE (USA), FIEE (UK), FIETE (India) and Topical Editor, IEEE Sensors Journal
Associate Editor, IEEE Transactions on Instrumentation and Measurements,
Chair, IEEE IMS TC-18 (http://tc18.ieee-ims.org), Department of Engineering (E6B1.11) Macquarie University, NSW 2109 Australia, Tel: +61 2 9850 6510, F: +61 2 9850 9128 M: + 61 4 2147 4818
Email: subhas.mukhopadhyay@mq.edu.au

Prof. Ing. Carl James Debono, Professor
Communications & Computer Engineering
Faculty of Information & Communication Technology
Level 1, Block A, Room 11, ICT Building
University of Malta, Tel: +356 2340 2076
Email: carl.debono@um.edu.mt