



**Head - BCA/CSE/Data Science
Assistant Professor**

Dr. Ashish Jani

School of Engineering and Technology



Qualifications

PhD, Post-Doctoral Fellow

Areas of Interest

Data Science, IOT, Computer Vision

Contact Details

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Profile

Working as a Professor and Head of CSE, IT, BCA and Data Science Programs. He has done M. Sc. in Information Technology and Ph. D. in Embedded Systems. He has a rich experience of 14 years teaching Computer Science and Applications. He has done Post-Doctoral Research Work at Florida Atlantic University, Boca Raton, Florida, USA. He has received grant from Gujarat Council for Science & Technology (GUJCOST) for his project on ELearning. He has written four books in the field of Computer Science and Applications like Mobile Computing published by S. Chand.

Research and Publications

- Statistical and Spectral Analysis of Wind speed data for Wind Energy Assessment, International Journal of Innovations and Advancement in Computer Science, Nov 2017, 2347- 8616
- Comparative Analysis for Watermark Embedment, Extraction and Image Authentication using Different Colour Components of RGB Image, International Journal of Computer Engineering and Applications (Nov 2017), 2321-3469
- Super Pixel Segmentation Supported Digital Image Watermarking for Tamper Detection of Digital Assets, National Conference on sustainable Computing and Information Technology SCIT-2017 (March 2017), Information Technology SCIT-2017 (March 2017) ISBN 978-81933591-2-9
- A Study of Feature Extraction and Selection Techniques for Brain Abnormalities Classification, International Journal of Advances in Science Engineering and Technology, IRAJ Vol-5, Iss-1, Spy. Issue-2 (Feb.-2017), 2321-9009
- Review on Watermarking Scheme for Image Authentication and Tamper Detection, 512-519, International Journal of Latest Trends in Engineering and Technology Volume 8, 2278-621X (Online) 2319-3778 (Print)

- Prediction of Wind Power Potential by Wind Speed Probability Distribution for A Site – Mistelgau, 150-155, International Journal of Recent Trends in Engineering & Research, Volume O2, Issue 06, June 2016
- A Study and Analysis of Wind Turbine Towers with Rotor Size at IRA-International Journal of Technology Engineering, Vol.4 Issue 3, 2016 4480 Different Heights, 164-171
- AA Systematic Approach for Brain Data Mining and Advanced Computing ISBN: 978- Abnormality Identification from Biomedical (SAPIENCE) 1-4673-Images, 210-213 8594-7 IEEE Proceedings, 2016
- Pattern Detection Framework for MRI Part of the Advances in Intelligent Systems 2194- Images and Labelling, 323-332 and Computing book series (AISC, volume 381) 5357 Proceeding Springer, September 2015
- Performance Analysis and Enhancement of UTM International Journal of Modern Education and Device in Local Area Network, 43-52 Computer Science, Nov 2013 (Print) 2075-017X (Online)
- 3D affine registration using teaching learning-based optimization - 3D Research, Springer September, 2 092- 6731
- A Bespoke Technique for Secret Messaging, International Journal of Computer Network and Information Security (IJCNIS) Vol. 5, (April-2013) 2074-9104 (Online), Hong Kong (Print), 40-46
- Capitalizing Data Mining in Bioinformatics for International Journal of Computer Biological Data Analysis, 12-17 Applications in Engineering, Technology & Science Vol. 5 Issue I, 0974-3596, March 2013
- Adaptive Learning International Journal of Computer Environments, Model and Applications in Engineering, Technology Standards & Science, 0974-3596116 Vol. 5 Issue I March 2013
- A Spanking New Framework of Enhanced Learning Applications in Engineering, Technology For & Science Distance Education, International Journal of Computer Technology, 0974-3596, 49-53 Vol. 5 Issue March 2013
- A Novel Digital Watermarking Algorithm using Random Matrix Image, International Journal of Computer Applications, 0975-8887, 18-21 New York Vol. 61 No 2, Jan 2013
- Comparison of Session Initiation Protocol with TCP and UDP Over Network, 404-406, International Journal of Computer Applications in Engineering, Technology & Science, 0974-3596, Sept 2009
- Design and Implementation of Sleep Transistor, International Journal of Computer Applications in Engineering, Technology & Science, 0974-3596, Vol. 5 Issue I Dec 2008
- Digital Repository Structure for Multiple Learning Objects Blending Supporting Active E-Learning Technology, International Journal of Computer Intelligence & Communication 2278-6732
- Predictive Analysis of Bio Medical Data using Clustering Data Mining Techniques, International Journal of Modern Engineering Research (IJMER) SSN: 2075-0161

Books Published

1. Mobile Computing, S. Chand Publication, New Delhi
2. Programming using C# and ASP.NET, Akshat Publication Wadhwan
3. Client Server using VB 6.0, Books India Publication, Ahmedabad
4. Embedded System, published for Saurashtra University, Rajkot

Article Published in National Level Magazines

1. Article on "Embedded System on Mission Control ", published in national level magazine – "Electronics for you" , Sept '04, Vol 36 No 9.
2. Article on "Nano Technology - I" published in national level magazine–"Electronics for you" Nov '04, Vol 36 No 11.
3. Article on "Nano Technology - II" published in national level magazine–"Electronics for you" Nov '04, Vol 36 No 12.
4. Article on "Smell the Electronic Way" published in national level magazine–"Electronics for you" Feb '05, Vol 37 No 02.
5. Article on "The Internet for Beginners" published in national level magazine–"Electronics for you" May '05, Vol 37 No 05.

6. Article on "Cryptography" published in national level magazine – "Electronics for you" June '05, Vol 37 No 06.
7. Article on "All About SMT" published in national level magazine – "Electronics for you" July '05, Vol 37 No 07.
8. Article on "Networking Security using Firewall ", published in national level magazine–"Electronics for you" Sept '05, Vol 37 No 09.
9. Article on "The Future Belongs to SPINTRONICS" published in national level magazine–"Electronics for you" Dec '05, Vol 37 No 12.
10. Article on "CYBORG", published in national level magazine–"Electronics for you" Dec '05, Vol 37 No 12.
11. Article on "Take Tour to A World virtually Real" published in national level magazine–"Electronics for you" Jan '06, Vol 38 No 01.
12. A Article on "Virtual Reality" published in national level magazine–"Information Technology" Mar '06, Vol 15 No 05.
13. A Article on "Wearable Technology" published in national level magazine–"Electronics for you" Apr '07, Vol 39 No 04.

Certificate Courses Developed

- Developed and conducted certificate course "Data Analytics with Python" at School of Engineering, P P Savani University
- Design and developed certificate course on "Development of Internet of Things"

Professional Certificate Acquired

- Deep Learning - IBM Data Scientist with Python - Data Camp
- Machine Learning A-Z™: Hands-On Python & R In Data Science
- Data Science Foundations - Level 2 (V2) – IBM
- Python for Data Science - IBM Deep Learning - IBM
- Data Science Foundations - Level 1 – IBM

Projects

3D affine registration using teaching-learning based optimization

3D image registration is an emerging research field in the study of computer vision. In this paper, two effective global optimization methods are considered for the 3D registration of point clouds. Experiments were conducted by applying each algorithm and their performance was evaluated with respect to rigidity, similarity and affine transformations. Comparison of algorithms and its effectiveness was tested for the average performance to find the global solution for minimizing the error in the terms of distance between the model cloud and the data cloud. The parameters for the transformation matrix were considered as the design variables. Further comparisons of the considered methods were done for the computational effort, computational time and the convergence of the algorithm. The results reveal that the use of TLBO was outstanding for image processing application involving 3D registration.

Brain MRI/CT Images Feature Extraction to Enhance Abnormalities Quantification

The research initiative in this paper focused on brain image feature extraction and its organized storage filtered of from abnormalities located on the brain Magnetic Resonance (MR) and Computer Tomography (CT) scan images which are pre-processed. Methods/Statistical Analysis: For this study, abnormalities such as brain tumour & brain haemorrhage are taken into consideration as they share many common characteristics which can be diagnose using same implementation methodology. The MRI & CT brain images were studied so as to explore various phases such as brain image extraction, brain image transformation and brain image progression on it. Findings: This work integrates the phases in a computer based system which facilitates the use of the processes in an integrated, distinctive and sequenced manner with ease and comfort in its uses. The brain image extraction and brain image transformation phase inculcates merging of patient's MRI or CT Dicom image slices into single image, noise reduction by three different methods, noise selection based on Peak Signal to Noise Ratio (PSNR) and Mean Squared Error (MSE) error metrics, skull removal and lastly image enhancement. The outcome of this stage is inputted to brain image progression phase where image is characterizing into T1-weighted, T2-weighted and PD-weighted for segmentation where uncommon areas are fragmented using T1-w, T2-w

and PD-w brightness and intensity values. Finally based on segmented results, the features are extracted and selected for empowering classification capacity and detection accuracy.

Application: Experiments are conducted on more than 200 brain MRI/CT image datasets and promising results were reported.

Face Recognition Software module for Green Cloud iSoft Pvt. Ltd.

Face Recognition System with Liveliness using Deep Learning Framework (such as Tensor Flow, Keras, PyTorch) and Flask API

In this project I basically tried to introduce a Automatic Surveillance System that reduces the human effort. The automation of this project is done using the Facial Recognition System with Liveliness. I first sorted out the problems faced in existing surveillance system such as human errors, slow response in emergency situation, delay in authentication, less productive, more manpower etc. Our focus was to eliminate this problems in our system by sending an instant alert in case of security breach or emergency, applying facial recognition in real-time for identity verification etc.

Students performance prediction of engineering students

This work aims to develop student's academic performance prediction model, for the Bachelor degree students in Computer Engineering using selected classification methods; Decision Tree and Random Forest Algorithm and other algorithms.

Sales prediction of Supermarket

This work aims to develop Sales prediction of Supermarket model, for the supermarket located in different location using machine learning algorithms.

