

PROFILE

Faculty Name	Dr. C. Nandini	
Designation	Vice Principal, Professor & Head, Dept. of CSE Dayananda Sagar Academy of Technology & Management Bangalore-82	
Educational Qualification	B.E, M.Tech, Ph.D, LMISTE,CSI	
Experience in Years	31 years	
Area of Interest	Computer Vision, Machine Learning, Image Processing, Pattern Recognition, Crypto Biometrics, Data Mining.	
Email ID Mobile No	laasyanandini@gmail.com hodcse@dsatm.edu.in 9972634890	

Personal Details

- Date of Birth: 05/03/1972
- Hobbies: Cooking ,Karnatak classical Singing, Gardening
- Languages Known: Kannada, English, Hindi

Educational Details

VTU (SJCE, Dept of Computer Science & Engineering, Mysore)	Ph.D.	Ph.D. in Computer Science & Information Science Engineering (Visvesvaraya Technological University, Belgaum) Year-2009. Thesis Titled -“Determining feasible human recognition system through Biometric Approaches”.		
Mysore University (National Institute of Engineering, Mysore)	M. Tech	1996	70.00	Distinction
Mysore University (National Institute of Engineering ,Mysore)	B.E	1993	68.00	First
K.P.U.E. Board	PUC	1989	79.25	Distinction
K. S. S. E. Board	SSLC	1987	71.33	Distinction

Professional Experience - 31 years					
Sl. No.	Institute	Designation	Date of Joining	Duration	Experience
1.	Dayananda Sagar Academy of Technology & Management Bangalore-82	Vice Principal, Professor & Head, Dept. of CS&E	01-08-2011 to Date	14 Years	Administrati on/Teaching / Research
2.	Dayananda Sagar College of Engineering, Bangalore-78	Professor ,CSE Dept.	01-02-2010 to 31-07-2011	1 year 6 Months	Teaching/Re search
3.	Vidya Vikas Institute of Engg. & Technology, Mysore-10	Assistant Professor & Head, CSE & MCA Dept. (2004 to	Oct 1999 to 31-01-10	10 years 4 Months	Research /Administra tion/Teachi ng
4.	Vidyavardhaka College of Engineering, Mysore -2	Sr.Lecturer,Dept of EEE	Oct.1998 to Oct. 1999	01 years	Teaching
5.	A.I.T, Chickmagalur	Lecturer,Dept of EEE	Nov. 1993 to Oct. 1998	05 years	Teaching

Research Grants Fetched :

Start up Grant from NIVEDI September 2023 :Received a grant of Rs 3 lakhs from the Indian Council of Agricultural Research (ICAR) under the NEO: Encouraging Idea Stage Entrepreneurs to Work on their Innovative Ideas to Prototype program. We have incubated in DSATM with a start up Name LNS FarmerInfo LLP- 2023 .

- As a coordinator and PI of **UBA** got Rs 100000/- Grant on 1-3-2024 project (No. RP-03525G) under UBA 2.0. Project Titled "Establishment of micro hydro power plant in water stream for rural applications"Submitted Under Subject Expert Group Rural Energy Systems .
- Project coordinator for **AICTE-SPICES** no.10-136/AICTE/IDC/SPICS/2020-21,Rs100000/.
- **VTU Research Grants:** Principal Investigator for the Project entitled “ *Gait based Unauthorized Recognition for Covert Security System*” sanctioned with a grant of **Rs 07.23 lakhs** in 2010-11 in DSCE VTU/Aca./2010-11/A-9/11376.
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- **Karnataka State Council for Science and Technology Research Grants:** Under 34th series: 2010-2011 for the project entitled “ Automatic Localization of Backward Collision of Vehicles Using a camera”,Ref No-34S0599
- **The Free Scale Cup Kit project** sanctioned by Shenoy Systems ,Government of India
- **Karnataka State Council for Science and Technology Research Grants:** Under 41th series:41S_BE_0388, 2017-2018 for the project entitled “ Developing an IOT Based Controller to enhance Process performance of Conventional Drilling Machine.
- **Karnataka State Council for Science and Technology Research Grants:** Under 43rd series:43S_BE_3005, 2019-2020 for the project entitled “ Women in Armour(An IOT BasedWomen Safety Device) stream A
- **Unnath Bharath Abhiyan** – Principal Investigator at DSATM -2019-20 -Rs 50000/-
- **Mcafee Research Scholar programme** – Extent of AI Usability on Games : Rs50000/- 2019-20

Awards:

- EDEN-k-tech BioXcelerate Winner- 2025-26 Under the WEscalate Initiative for excellence & Innovation as a Women-led Venture s
- Awarded from Brain Wonders on 8th EDULEADERS SUMMIT 2023 from

Universal Mentors Association on 25th August 2023 .

- Awarded for best paper in the International Conference on Recent trends in Machine learning, IOT, smart Cities & Applications (ICMISC 2022) held in CMR Institute of Technology, Hyderabad, Telangana, India on 28th March 2022.
- Felicitated on International Women's Day being organized by State Centre of The Institution of Engineers (India) ,Karnataka State Centre on Tuesday, 8th March 2022 at 10.30 am at Institution premises.
- Dr. C. Nandini was awarded with “Dr. APJ Abdul Kalam Teacher’s Excellence Award-2020”, from Shikshak Kalyan Foundation in association with AICTE in Constitution of India Club , New Delhi
- Dr. C. Nandini was awarded with “Women Research Award” by VDGGOOD International Scientist Awards 2021
- Awarded from Computer Society of India in recognition of Significant Contribution to the CSI Activities –“Paper presenter at International Conference” Region V- 2017-19.
- HOD of the year Award 2019 by Institute of Scholars Insc , Unit of SDPL.www.insc.in
- Awarded For **Research Publications by VGST**, Government of Karnataka for FY: 2016-17.
- Awarded for Research excellence in Indo-American education summit 2016 for Educational excellence awards.
- Awarded best paper presented /Best Content in the International Conference held in Kuala Lumpur, Malaysia, on 1-8-2016 from IIER
- Rajiv Gandhi Education Excellence Award for outstanding achievements in the field of Education October 2013.
- Recognized as Indian Researcher by Washington DC News.net., Air BBC and Others in June 2008.
- Article “Walking in style” was published in The Science news *Telegraph* on June 23rd 2008 Calcutta.
- Awarded best paper presented in the International Conference held in Hyderabad Jan 2006.
- Biographical reference Recognized in Marquis who’s Who in the World

PATENTS FILED AND GRANTED:

- **Patent No 567473 Granted on 16-6-2025**, "System and Method for Handling Degradation in Character Recognition" - Indian patent
- **Patent no 529328 Granted on 20-3-24**, Titled “Quantum visual Cryptography with multimodal based Biometric encryption system for data security in – IOT system” - Indian patent

- [Patent no 439373 Granted on 19-7-2023](#) , Titled “Authentication and Generation of Cryptography Key using Gait Biometric Features”- Indian patent.
- Appl No.202441093213- Teeth Cap with Vibration Alert to Prevent Hardware Disease in Cattle -06/12/2024.
- Appl No. 202441093374- Neck Wearable with Sound Alert for Preventing Hardware Disease in Cattle- 06/12/2024
- Appl No. 202441094104- Solar Powered Waste Segregation System-13/12/2024
- Appl No. 202441093639- Intelligent Lift Management System for Designation - Based Access and Efficiency Optimization Using IoT and AI in Educational Institutions-06/12/2024
- Appl No .202441104035- Integrated FASTag System For Automated Toll And Parking Payment- 03-01-2025.
- Appl No. 202441103953- Motion-Powered Charging System For Wireless Earbuds Using Faraday's Law-03-01-2025
- Artificial Intelligence Rule based Visual Crypto Steganography Method for Secure Data Communication in IoT System Using Block Chain Technology, 202141028988A, 09/07/2021
- System and Method for Handling Degradation in Character Recognition, 202141010390, 12/03/2021
- Appl No:202041008031-High Speed and Secure Back propagation Learning using Upright Partioned Data With IOT -06-03-2020.
- Appl No:201741020865A – Method, System and Apparatus for Determining Retouched Regions on Facial Images using Hierarchical learning Techniques.-21-12-2018.

BOOK CHAPTER

- Shiva Sumanth Reddy, and C. Nandini. **“A Framework with IOAHT for Heat Stress Detection and Haemoprotozoan Disease Classification Using Multimodal Approach Combining LSTM and CNN.”** Proceedings of International Conference on Recent Trends in Computing, Springer Nature Singapore, 21 March 2023, pp. 281–295.DOI: 10.1007/978-981-19-8825-7_25. https://link.springer.com/chapter/10.1007/978-981-19-8825-7_25
- Jahnavi. S and C Nandini **“Multifold Secured Bank Application Authentication Service Using Random Visual Cryptography and Multimodal Steganography with Blockchain Technology”** Proceedings of 3rd International Conference on Recent Trends in Machine Learning, IoT, Smart Cities and Applications ,ICMISC 2022, Springer – February 2023 ,Pages 119-135,Print ISBN 978-981-19-6087-1.
- C. Nandini and Jahnavi. S **“Quantum Cryptography and Blockchain System: Fast and Secured Digital Communication System”** in Data Engineering and

Intelligent Computing pp 453-46, proceedings of ICICC 2020, ISBN: 978-981-16-0170-5, Springer- May 2021.

PRODUCT DEVELOPMENT

- Product Development Using IOT in association with Apogee Tech Global Inc
- Print F()

Students Advisor

Doctoral programme:

1. Dr. Mohammed Tajuddin - Ph.D candidate (Awarded 2018)
2. Dr. Meenakshi Sundaram - Ph.D candidate (Awarded 2019)
3. Mr. Shiv sumanth Reddy - Ph.D candidate (Awarded 2024)
4. Ms. Janhavi S - Ph.D candidate (Awarded 2024)
5. Mr. Anoop G. L - Ph.D candidate (Awarded 2024)
6. Mr. Girish N - Ph.D Candidate (Awarded 2024)
7. Mrs. Manasa Sandeep - Ph.D Candidate (Pre Ph.d comprehensive Viva Completed)
8. Mrs. Shilpa M - Ph.D Candidate (Pre Ph.d comprehensive Viva Completed)

Invited Presentations and Talk

- ♦ Hands on Workshop in Digital Image Processing Techniques using MAT LAB at Acharya Institute of Technology on 22-10-2019
- ♦ Cyber security & Cybercrimes at BMSCE, Bengaluru on 25th Aug 2018, from IIIE-BC-12-Council Meet.
- ♦ Delivered Two Day Faculty Development Programme on” Avenues in Image Processing & Pattern Recognition Techniques for Research Program”, January 27th-28th 2016 in DSATM, Bangalore-82
- ♦ Invited Speaker at SJBIT, Bangalore for Faculty development Programme, July 26th 2010.

Courses Thought

Internet of Things	Computer Organisation
Digital Image Processing	Operating Systems
Information and Network security	Pattern Recognition
Artificial Intelligence & Expert System	Advanced Microprocessor
Microprocessor	Embedded computing systems
Data Compression	Computer Programming in C
Analog & Digital Electronic Circuits	Data Structures using C
Computer Vision	

International Journal Publications

1. Dr.C.Nandini, International Journal of Research Publication and Review, "AN implementation of Cervical cancer Prediction using Machine Learning" Volume 6, Issue 7, 06-July 2025.
2. Dr. Shalini S, Dr.C.Nandini, Lakshmi MR, Koustav Biswas, L Divyashree, Mitayi Ajay Kumar, Monika V, 10th International Conference on ICT for Sustainable development "Autism Spectrum Disorder Early Detection and Supports Platform with OpenCV, VGG16 Deep Learning model and NLP concepts" 17-19- Jly 2025.
3. Dr. C. Nandini, International Journal on Internet of Things and smart Computing Environment "Sustaaain-A-Pet: IOT-Powered Smart Pet Care for Energy Generation" Volume 1, Issue 2, Year 2025.
4. Dr.C.Nandini, Journal of Big Data Technology and Business Analytics "PathshalaGPT: A Socratic AI Companion for Multilingual Government Classrooms" Volume 4, Issue 3, Year 2025
5. Dr.C.Nandini , International conference on artificial intelligent and networking (ICAIN- 2025, "AI – Enhanced Depression Detection and Medication Assistance" 6th - 7th October 2025 (Springer)
6. Dr.C.Nandini, International Conference of Advances and Trends in Engineering and Scientific Theory. "Biometric Blockchain with Finger-Print-based Secret Sharing" (ICATEST-2025 19th-20th September 2025.(Plot Shaping Gen-Next)
7. Dr. C. Nandini, Swathi, Hanumantha Bharath, Harisha Md, Karan Jaisawal, Shubham Tulsyan,"Design and implementation of ai agent-based snake game using deep q-networks and heuristic search International Research Journal of Modernization in Engineering Technology and Science, e-ISSN: 2582-5208,impact Factor- 8.187,Website URL: Volume:07/Issue:04/April-2025, www.irjmets.com
8. Pradeep Kumar K, Chethan K Murthy, Salma Itagi, Jeevaraj R, Mary Jasmine, Nethra H L, C Nandini, Manasa Sandeep, mparative Analysis of Machine Learning Models For Lung Cancer Detection, International Conference on Artificial Intelligence, Computation, Communication and Network Security(AICCONS) 5-6th June 2025, Springer.
9. S.Shalini ,C.Nandini, M.R. Lakshmi, Biswas, Koustav,Divyashree, L Ajay Kumar, Mitayi ,V. Monika, "AI-Enhanced Comprehensive Autism Detection and Support Platform for all ages", Proceedings of the International Conference on Innovative Computing & Communication (ICICC,2024 May 6th,2025).), SSRN: <https://ssrn.com/abstract=5241652> or <http://dx.doi.org/10.2139/ssrn.5241652> (springer Q4)
10. Dr.C.Nandini , International Research Journal of modernization in engineering Tehnology and Science (IRJMETS), "Breast cancer detection using machine learning – A Review" Volume 07, Issue 01, January 2025
11. Prof. Priyanka V Gudada , Anirudh L , Gurudatta C S , Ranjith S Sherigar , Chirag Gowda, Dr.CNandini, "BlackHatNet: An Intelligent Offensive Framework for Penetration Testing using Machine Learning and Threat Modeling "© June 2025 | 180226 International journal of innovative research in technology ijirt | Volume 12 Issue 1 | ISSN: 2349-6002

- 12.** Dr C Nandini , Prof Swathi A, Hanumantha Bharat ,Harisha MD ,Karan Jaisawal, Shubham Tulsyan, "Prediction and Analysis of Performance in Cricket Match Using Machine Learning and AI-based Modeling" with PAPER ID : IRJMETS70100080936 has been published in International Research Journal of Modernization in Engineering Technology & Science (IRJMETS) Volume 7 Issue 1, January 2025.
- 13.** Nandini C, Shilpa M , Lakshana K , Lalithashree P , Mohini V, Monica Kattimani M "AI Based Robust DNA Motif Discovery", International Research Journal of Modernization in Engineering Technology and Science(IRJMETS), ISSN:2582-5208, Volume.07, Issue 01, pp.5737-5741,January 2025. www.irjmets.com, Impact Factor- 8.187
- 14.** G. L. Anoop, C. Nandini, E. Naresh, 3TFL-XLnet-CP: A Novel Transformer-Based Crop Yield Prediction Framework with Weighted Loss Based 3-Tier Feature Learning Model, SN Computer Science, <https://doi.org/10.1007/s42979-025-03778-9>, 12/03/2025. (Q1 Springer nature)
- 15.** C. Nandini, Manasa, Vikash Janwa, Shreya Rai, Sumeet Patil,"Cervical cancer detection using deep learning, International Research Journal of Modernization in Engineering Technology and Science, ,Volume:07/Issue:01/January-2025 ,e-ISSN: 2582-5208, Impact Factor- 8.187.
- 16.** C Nandini, Mrs. Nethra H L, Aman Chaudhary, Aman Kumar, Ashutosh Ranjan, Ayush Kumar ,"Machine Learning as a Tool for Intrusion Detection and Data Security (2024) International Journal of Research Publication and Reviews, ISSN 2582-7421 Vol 6, no 1, pp 4619-4629 January 2025(impact factor -6.844)
- 17.** C Nandini , Nuthana ,AI Based Sustainable Solutions for Companion Animals " International journal of creative research thoughts" Volume 13, Issue 2 February 2025 , ISSN: 2320-2882(Impact factor: 7.97) Journal No: 43602(19)
- 18.** C.Nandini ,Moulya R Hegd, P.Midhu Chandana, Preethi B Hosur, K.Nandini, Motif-Based Gene Analysis Pipe Line for Cancer Type classification " International Journal of Research Publications and Reviews" ISSN No: 2582-7421 Volume 5 Issue -12(Impact Factor 6.844)
- 19.** C Nandini , Deepika Nivedana B ,Deepika V D, Harshitha B C , K V Bhuvana,"AI-Driven Patient Medicine Assistance And Depression Analysis ",International Journal of Creative research Thoughts(IJCRT), volume 13,Issue 2 February 2025, ISSN:2320-2882
- 1.** C.Nandini, Anagha Burrki S , Bhavatharani S ,Devyash Jangid, Himanshu K M Casewise - AI Powered legal Assistant." International Journal of Creative Research Thoughts - 2024 IJCRT, Volume 12, Issue 12 December 2024 ,ISSN: 2320-2882
- 2.** Nandini C, Arpitha Vasudev, Vijay Suprith S, Syed Suhail, Sai Sireesh G T, Praveen Kumar "A Study on Cryptographic Algorithms for Data Confidentiality and Integrity" e-ISSN: 3048-6386, Vol. 2, Issue 1 (January – April, 2025)pp: (1-9)
- 3.** Reddy, S.S. and Nandini, C. " A comprehensive Review of Machine Learning Approaches in Livestock Health Monitoring. Journal of Big data technology and

4. Dr. C Nandini, " An Extensive Survey on 3D Face Reconstruction based on Passive Method ", IRJET, Dec-21, P2395-0072, Volume 8, Issue 12.
5. Nagaraj, G., & Channegowda, N. "Video Forgery Detection using an Improved BAT with Stacked Auto Encoder Model". Journal of Advanced Research in Applied Sciences and Engineering Technology, 42(2), 175–187. (2024). <https://doi.org/10.37934/araset.42.2.175187> Scopus indexed, SJR 0.27 , H index 11 Q2.
6. Jahnavi, S., Nandini, C. Secure two fold transmission of features using multimodal mask steganography and naive based random visual cryptography system. International Journal of System Assurance Engineering and Management (2024). Volume 14, Issue 6 <https://doi.org/10.1007/s13198-022-01701-6>. (Scopus Indexed, Springer publications)-Q2 SJR 0.45 , H index 39- Q2
7. Reddy, S.S. and Nandini, C. , "Detection of communicable and non-communicable diseases using hyperparameter optimization with Bi-LSTM model in pathology images", International Journal of Intelligent Computing and Cybernetics, Vol. 2023. (Q2 journal)<https://doi.org/10.1108/IJICC-11-2021-0260>. SJR 0.56 , H index 25 Q2.
8. N.Girish, C. Nandini ,” Inter-Frame Video Forgery detection Using UFS-MSRC Algorithm and LSTM Network” International Journal of Modelling, Simulation, and Scientific Computing (2023)2341013, World Scientific Publishing Company. DOI:10.1142/S1793962323410131 – Q4 SJR 0.24 , H index 23 Q4
9. Nandini, C., and Shiva Sumanth Reddy. “Detection of Communicable and Non-Communicable Disease Using Lenet-Bi-Lstm Model in Pathology Images.” International Journal of System Assurance Engineering and Management, springer India- 2022, doi:10.1007/s13198-022-01702-5. (journal) SJR 0.45 , H index 39-Q2
10. Jahnavi. S and C Nandini, "Hybrid Hyper Chaotic Map with LSB for Image Encryption and Decryption“, Scalable Computing: Practice and Experience, ISSN1895-1767, Volume 23, Issues 4, pp. 181–191, Dec 22, 2022 DOI 10.12694/scpe.v23i4. (Scopus)-Q3 SJR 0.31 , H index 25
11. Raj Kumar, Smitha, Altaf Raja Anuhya,Dr C Nandini“ Controlling Multiple Applications with Hand Gesture Using Convolution Neural Network”, International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.10, Issue 4, pp.e73-e78, April 2022 SJR 0.53 , H index 60 Q2
12. Dr C Nandini,Adrita choudhruy, shreyas, “Determination of Recipe by Analysis Of Various Ingredients”, International Journal of Research in Engineering, Science

- and Management, IJRESM, Volume 5, Issue 4, April 2022
13. Dr C Nandini ,Antara Mukherjee, Bhoomika “Smart Health Prediction System Using Machine Learning Techniques.”, International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.10, Issue 4, pp.e73-e78, April 2022, Impact factor: 7.97 – SJR 0.53 , H index 60 Q2
 14. Reddy, Shiva, et al. “Edge Boost Curve Transform and Modified ReliefF Algorithm for Communicable and Non Communicable Disease Detection Using Pathology Images.” International Journal of Intelligent Engineering and Systems, vol. 14, no. 2, 2021, (Q2 Journal)pp. 463–473, doi:10.22266/ijies2021.0430.42.
 15. S. S. Reddy and C. Nandini, "Early Detection of Estrus and Heat stress using IoAHT and Analytics in Indian Cattle to overcome Repeat-Breeding-Syndrome," 2019 1st International Conference on Advanced Technologies in Intelligent Control, Environment, Computing & Communication Engineering (ICATIECE), Bangalore, India, 2019, pp. 220-224, doi: 10.1109/ICATIECE45860.2019.9063780.
 16. Rohan Agrawal, Rohan Rajesh Purundhar, Siddharth Mehta, Yash Bhalla, Dr. C. Nandini, Lyrebird: Voice-To-Text Note Making Automated Software with Speech Recognition, www.ijrpr.com ,ISSN 2582-7421, International Journal of Research Publication and Reviews Vol(2) Issue (7) (2021) Page 272-276.
 17. Manasa Sandeep, C. Nandini, “An Extensive Survey on 3D Face Reconstruction based on Passive Method” in International Research Journal of Engineering and Technology (IRJET), Volume 8 Issue 12 December 2021
 18. Girish , C Nandini ,”Detection of Frame Duplication Using Multi Scale Local Oriented Feature Descriptors” International Journal of Intelligent Engineering Systems(IJIES), Vol.14, No3,2021, DOI:10.22266 -scopus
 19. Merikapudi, Sheshaish, Dr. Shrishail Math, Dr. C. Nandini, Dr. Mahammed Rafi, “A google net assisted cnn architecture combined with feature attention blocks and gaussian distribution for video face recognition and verification” International Journal of Electrical Engineering and Technology (IJEET) ,Volume 12, Issue 1, January 2021, pp. 30-42, Article ID: IJEET_12_01_004 .
 20. Anoop G L, C. Nandini, “Classification of Rice Blast, Brown Spot, Leaf Blight and Hispa paddy Leaf diseases in Transformed YUV Color Space ”, volume 20, Issue 13, October 2022, page 4172-4182, DOI:10.48047/NQ.2022.20.13.NQ88506
 21. Jahnavi, S. and Nandini C, Novel Multifold secured system by combining Multimodal Mask Steganography and Naive based Random Visual Cryptography system for Digital Communication, Journal of Computational and Theoretical Nanoscience, in an issue "Energy Efficient Computing Using Low Powered Techniques, Vol 17, Issue 12, Pg. No. 5279-5295, American Scientific Publishers, 2020. (SCOPUS Indexed)Q4
 22. Seshiah Merikapudi, Dr Shrishail Math ,Dr. C.Nandini, Dr Mahammed Rafi,”Face Recognition Using CNN Trained With Histogram Equalization Based Image Enhancement Scheme”International Journal of Molecular & Clinical Medicine ISSN 2515-8260, Volume 07, Issue 08,2020 page no 2940-2950.
 23. Anoop G L, C. Nandini, “Rice crop yield prediction using multi-level Machine Learning Technique ”, Journal of Computational and Theoretical Nanoscience, Volume 17, Numbers 9-10, September/October 2020, pp 4280-

- 4286(7),DOI:<https://doi.org/10.1166/jctn.2020.9062>
24. Shilpa M, C.Nandini,"Breast Cancer Diagnosis and prediction Using Machine Learning Algorithm",International Journal of Science & Research (IJSR) ,Research Gate Impactactor(2018):0.28SJIF(2019):7.583DOI:10.21275/SR20427091616, vol 9, issue4 , April 2020, page no 1653-1655.
 25. Manasa Sandeep, C.Nandini,"Smart Access to a Smart Home",International Journal of Science & Research (IJSR) ,Research Gate Impact factor(2018):0.28SJIF(2018):7.426 DOI:10.21275/ART20 203616, vol 8, issue12 , December 2019, page no 1664-1668.
 26. Anoop G.L, C. Nandini, "Detection & Classification of Ring, Rust & Yellow Sugarcane leaf diseases", International Journal of Engineering & Advanced Technolgy, IJEAT, ISSN 2249-8958, vol 8, issue 6 , Aug 2019, page no 3310-3315.
 27. Girish N , C.Nandini," A review on Digital Video Forgery Detection Techniques in Cyber Forensics", Science, Technology & Development ,volume VIII Issue ,IX September 2019.page no 235-239, ISSN: 0950-0707
 28. Jahnavi .S ,C.Nandini ," A Naïve Based Share Generation Using Random Visual Crypto Technic", International Journal of Innovative Technology & Exporing Engineering IJITEE, Vol 8, issue 12 , October 2019 . (SCOPUS Indexed)
 29. ManasaSandeep, C. Nandini" IOT Based Smart Farming System", International Research Journal of Engineering and Technology IRJET, vol 5 issue 9- Sep 2018,pp1033-1036, e- ISSN: 2395-0056.
 30. Jahnavi S, C. Nandini, " Digital Data Security using Visual Cryptography and Steganography Techniques : An Extensive Review",Journal of Emerging Technologies and innovative Research(JETIR) september 2018, volume 5, Issue 9,pp212-218. ISSN- 2349-5162.(UGC)
 31. Shilpa M, C. Nandini, " Heart Disease and Diabetes Diagnosis using Predictive Data Mining", International Research Journal of Engineering and Technology IRJET, vol 5 issue 9- Sep 2018 ISSN: 2395-0056.
 32. Meenakshi sundaram, C. Nandini ,"ASRD:Algorithm for Spliced Region Detection in Digital Image Forensics, Springer International Publishing AG 2017 software engineering trends and tec Springer International Publishing AG 2017,R. Silhavy et al. (eds.), Software Engineering Trends and Techniques in Intelligent Systems,Advances in Intelligent Systems and Computing 575, DOI 10.1007/978-3-319-57141-6_10.
 33. Dr.Saravana kumar.R, Dr. C. Nandini" Affinity propagation with Background Knowledge using pairwise Constraints",SSRG-IJCSE International Journal of computer science and Engineering-vol 4 issue 2- feb 2017.
 34. Dr.Saravana kumar.R, Dr. C. Nandini" ," A survey on the concepts and challenges of Big Data: Beyond the Hype", Advances in computational sciences & Technology, ISSN 0973-6107, vol 10, no 5 (2017), pp.875-884.
 35. C. Nandini, Shiva Sumanth Reddy, "Early Detection of Diseases in cattle to Increase the Yield",International Journal of Recent Trends in Engineering & Research, IJRTER,vol2.Issue12: Dec2016, ISSN:2455-1457. Performance Measurement
 36. Mohammed Tajuddin, C.Nandini, " Multimodal Biometric to Generate the key for Data Security using Retina and Fingerprint Features ",International Journal of Engineering sciences & Management, vol6, Issue 3, July-September 2016, ISSN:2277-5528.

37. C Nandini, Anoop g.l, "Classification and Grading the level of paddy Leaf Diseases using Multi Classifiers", IIER,pp.27-31, ISBN978-93-86083-75-3, August1st 2016.
38. Mohammed Tajuddin, C.Nandini, " Secured crypto Biometric System using Retina ",International Advanced Research Journal in Science , Engineering & Technology, vol2, Issue 1, January 2015, ISSN:2393-8021.
39. Mohammed Tajuddin, C.Nandini, "Crypto Biometric Key Generation" International Journal of Engineering Research & Technology, vol3, Issue 14, January 2015, ISSN:2278-0181.
40. Meenakshi sundaram,C. Nandini," Feature based Image Authentication using Symmetric surround Saliency mapping in Image Forensics", International journal of computer applications (0975-8887) vol 104-no13, oct 2014.
41. Meenakshi sundaram,C. Nandini,"Investigational study of Image Forensic Applications, Techniques and Research Directions ", International Journal of Emerging Technology and Advanced Engineering, ISSN 2250-2459, ISO 9001:2008 certified journal, volume 4,Issue 8, August 2014.
42. Sonal N Kharecha,C. Nandini,"Human Gait Identification using Depth Gradient Histogram Energy Image", International Journal of Engineering and Computer Science. ISSN: 2319-7242,vol3,issue6, june 2014,pp 6788-6794.
43. Mohammed Tajuddin, C.Nandini, " More Secured cryptographic Key Generation through Retinal Biometric using EBI Algorithm", International journal of Engineering Innovation & Research, vol3, Issue 5,2014, ISSN:2277-5668.
44. Springer Link " An Agent –Based Negotiating System with Multiple Trust Parameter Evaluation across networks". ICT and Critical Infrastructure : Proceedings of the 48th Annual Convention of Computer Society of India-Vol- I. Advances in Intelligent Systems and Computing volume 248,2014,pp 433-440. Author: C. Nandini, Mohammed Tajuddin.
45. Mohammed Tajuddin, C. Nandini," Cryptographic Key Generation using Retina Biometric Parameter", International Journal of Engineering and Innovative Technology (IJEIT),Volume3,Issue1,July 2013.ISSN:2277-3754.ISO 9001:2008 Certified.
46. Sonal Nimesh Kharecha,C. Nandini,C.N. RaviKumar,"Non-Intrusive Human Gait Authentication System for 2D and 3D Data", International Journal of Automated Identification Technology (IJAIT) ,5(2),July- December 2013,pp 57-62.
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International Conferences

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 6. Jahnavi S, C Nandini, “Smart Anti-Theft Door locking System”, First International Conference on Advanced Technologies in Intelligence Control, Environment, Computing and Communication Engineering, ICATIECE-2019, 19th- 20th March 2019, DSATM Bangalore
 7. Manasa Sandeep, C Nandini, “Implementation of IoT based smart cooking environment”, First International Conference on Advanced Technologies in Intelligence Control, Environment, Computing and Communication Engineering, ICATIECE-2019, 19th- 20th March 2019, DSATM Bangalore
 8. Shiv Sumanth Reddy, C Nandini, “Early Detection of Estrus and Heat stress using IoAHT and Analytics in Indian Cattle to overcome repeat breeding syndrome”, First International Conference on Advanced Technologies in Intelligence Control, Environment, Computing and Communication Engineering, ICATIECE-2019, 19th- 20th March 2019, DSATM Bangalore
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 13. Meenakshi Sundaram A, Nandini .C ,” Copy Move Forgery -A Survey “, International Conference on Advanced computing, communication and Networks , ICACCN , Chandigarh , 2-3 June -2011.
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2. Dr. C. Nandini ,Megha Kumari, Mithlesh Kumar Sigh, Yashaswini L, Bakal Manjusha Jayant, "A wireless Iot system towards gait detection in stroke patients " NCCSTM-2019, ISBN: 978-93-81195-97-0, Dayananda Sagar Academy of Technology & Management, Bengaluru-82.
3. Dr. C. Nandini, Aishwarya Naik, Niveditha S, Jacinth H, Pooja S, Dr. C. Nandini, "Watermarking technology for protecting copyright combining discrete cosine transform (dct) & discrete wavelet transform (dwt) NCCSTM-2019, ISBN: 978-93-81195-97-0, Dayananda Sagar Academy of Technology & Management, Bengaluru-82.
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5. Pooja n , prabneetkaur, pruthvi s ,swapna patel G, Dr.C.Nandini ,jahnavi.s "Smart anti-theft door locking system using facial recognition" National Conference on convergence of science, Technology and Management NCCSTM-

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6. Manisha Rani, Joyeeta C, Ojus kumar ,Naveen Kumar, Dr.C.Nandini
“Microcontroller based accuracy improviser kit drilling Machine “,”National
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 7. Prashanth J ,Rajesh Ereddy ,S V Bala Venkat Prasad ,Sheshanth Kumar K ,Dr. C
Nandini, Anoop G L,” Military object detection and tracking”, ” National
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 8. Suraj Mandal ,Twinkle Agarwal, Swaraj Paul, ThyagaRaju R, Dr.C.Nandini
“Assistive unit for physically disabled” National Conference on convergence of
science, Technology and Management NCCSTM-2018,3rd May, ISBN:978-93-
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 9. Akshay Ranga, Akarsh H.P, Ashwin, Bharath, Dr.C.Nandini Mr.Anoop G L,
“Multipurpose gesture interface using sixth sense technology” National
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 10. Deepika K.H, Champa P, Bindu L, Anushree N.S, Dr. C. Nandini, Mrs. Manasa
Sandeep,”Agricultural field automation system for farmers,” National Conference
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 11. Deepika Narendran, Rithu Soumyaj, Pramit Paul, Swapnil Powar,Dr. C Nandini,
Mr. Anoop g l,”Rice crop yield production using data mining”, ,” National
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 12. Aishwarya.R.M, Akanksha Roy, Bhawna Mishra, Keshab Bong, Dr. C. Nandini,
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 14. Bindu L, Champa, Anushree N S, Deepika K H C. Nandini, Manasa Sandeep
“Agricultural Field Automation System For Farmers”, Fourth National Conference
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 15. Aishwarya K Sanji, Akhila A,Bindu S,Lavanya R,Dr.C Nandini, Mr.Anoop G
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 16. Aishwarya.S.B, Anant.N.Katti, B Samskruti, ChandraPrabhu.Y.P, Dr.C
Nandini,Mr.ShivaSumantReddy, “Detection of lung cancer on CT images using
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18. Aishwarya Sudhindra, ApthaHC, Hemanth Pratap, [4] Indu N, Dr.C Nandini,Shilpa M," smart tool kit for visually impaired people" Third National Conference on convergence of science, Technology and Management NCCSTM-2017,19th May, ISBN:978-93-85682-48-3 DSATM,Bangalore-82
19. Misbah Talat,Muthulakshmi M, Shaguftha Tabassum, Sonali Tandon,Dr C Nandini,Jahanavi S," cyber intelligence", Third National Conference on convergence of science, Technology and Management NCCSTM-2017,19th May, ISBN:978-93-85682-48-3 DSATM,Bangalore-82.
20. Akshatha P.S, Pooja Kana, Sankalp S.R, Shuvam Kalita, Dr. C.Nandini," Home automation and Mood analyser" Third National Conference on convergence of science, Technology and Management NCCSTM-2017,19th May, ISBN:978-93-85682-48-3 DSATM,Bangalore-82.
21. Suhas.T.C,RitikVadhera,ShivaniKoushik,NisargaShetty,Mr.Girish N, Dr. C Nandini,"Automatic detection of object-based forgery in advanced video", Third National Conference on convergence of science, Technology and Management NCCSTM-2017,19th May, ISBN:978-93-85682-48-3 DSATM,Bangalore-82.
22. C. Nandini, Jahnavi S ,Abdur Rahim, AkhilJalla, Anindita Das, AshutoshDubey, AnkitRatan Jain ,"Smart highway using arduino" National Conference on convergence of science, Technology and Management NCCSTM-2016,5th May, ISBN:978-93-84935-97-9, DSATM,Bangalore-82.
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26. C.Nandini, Gaurav P Kanade, Rahul D, Vindhya NS, "People Connect- A Medium To Deliver the public Voice to the authorities". *First National Conference on Green Computing Technologies NCGCT-2015*, 7th May,Page No-35, ISBN:978-93-84935-31-3, -40,DSATM College, Bangalore, May 2015.
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31. C. Nandini, C. N. Ravikumar, "A Feed Forward and a Novel Segmentation Approach for facial recognition", *National conference on Vision ,Graphics & Image Processing*, JNNCE, Shimoga, March 2-4, 2005.
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33. C. Nandini, C. N. Ravikumar, "Discrete Cosine transforms for facial recognition", *Second National conference on Mathematical and Computational Models*, PSG College of Technology, Coimbatore -641004, December 11-12, 2003.
34. C. Nandini, C. N. Ravikumar, "Moments based approach for Facial Recognition", *National Conference on advanced Computer Applications*, NCACA, NGM College, Pollachi, Tamilnadu, October 11-12, 2002.

Professional Services

1. Reviewer for National Conference on Recent Innovations in Engineering-2022
2. Reviewer for Journal of Medical Systems-Springer Nature 2025
3. Reviewer for Journal of Cloud Computing- Springer 2024
4. Cybercrime first Responder and a volunteer with ISAC Foundation from Cyber Crime Victims
5. MOE's Institutional Innovation Council (IIC) Regional Meet-2022 as session Chair for NISP , presented as a convener on 16-8-2022
6. Board of Studies Nominated from VTU in CSE (Artificial Intelligence & Machine Learning) of Vidyavardhaka College of Engineering, Mysuru from 5-4-2021 to 5-4-2023.
7. Recognized as the Reviewer for Institute for Exploring Advances in Engineering (IEAE) International Journals.
8. Member of Board of Examiner for Computer science & Engg..and Information Science & Engg.. for the year 2018-2019 in Visvesvaraya Technological University, Belgaum-590018
9. Member of Board of Examiner for Computer science & Engg.. and Information Science & Engg.. for the year 2013-2014 in Visvesvaraya Technological University, Belgaum-590018.
10. Organizing Chair for National Conference on Green Computing technologies (NCGCT-2015) on May 7th, 2015 organized by Dayananda Sagar Academy of Technology & Management.
11. Reviewer for International Journal of Artificial Intelligence and Expert systems (IJAE) , CSC Journals.org.

12. Organizing Co-ordinator for International Conference on Signals & Image Processing (ICSIP-2009) from August 12-14, 2009 organized by Vidya Vikas Institute of Engineering, Mysore.
13. Involved in setting up various laboratories.
14. Member of Board of Examination of Autonomous body SJCE, Mysore
15. Worked as Examiner, Moderator, Paper setter for UG board.
16. Evaluator for M.Tech and MCA thesis in Computer Science and Engineering Board.
17. Guided more than 60 B.E. Projects , 5 MCA and 5 M.Tech Projects.

Faculty Development Programs

- ◆ Attended Three day workshop on Introduction to Embedded Systems and Robotics conducted from ERTS Lab , Dept of Computer Science and Engineering, IIT Bombay EYANTRA ICT (NMEICT) from 7-9-23 to 9-9-23 held at Jyothy Institute of Technology, Bangalore.
- ◆ Attended Five Days FDP on Sustainable Solution for waste management & Fire Incidents conducted from Dept of Civil Engineering from 25-9-23 to 6-10-23 in association with SAAHAS Zero Waste ,Vyuuham and EMSAFE.
- ◆ Attended Two day workshop on Quantum Computation and Quantum Machine Learning from Dept of Physics, Mathematical and physical sciences, Ramaiah University of Applied Sciences from 28-1-21 to 29-1-21.
- ◆ Attended one Day Google Cloud Career Readiness Program meet-up on 17-2-2020 at Google India, 11th floor, Bagmane Constellation Business Park, Carina East Tower, Doddanekkundi, Bengaluru, 560037.
- ◆ Attended 3 Day FDP on Microcontroller & Embedded Systems as per VTU 18CSL48 in DSATM from 06-02-2020 to 08-02-2020.
- ◆ Attended 5 Day FDP on Machine Learning and Deep Learning with H2O.AI in DSATM from 28-01-2020 to 01-02-2020.
- ◆ Attended 5 Day FDP on Cyber Security AICTE-Training & Learning (ATAL) Academy sponsored Program from 2-12-19 to 6-12-19 at DSATM organized by NPTEL.
- ◆ Attended 5 Day FDP on “Zero –Defect coding using Altair MBD Tools for IOT & Embedded Solution” in DSATM from 28th June to 2nd July 2019
- ◆ Attended 3 day NAAC workshop from Jan 28 to Jan31, 2019 in DSATM
- ◆ Attended 5day FDP on Big Data Analytics using Hadoop in DSU from Jan 16 to 20th, 2019.
- ◆ Attended 5day FDP on Machine Learning using Python in DSATM from July 16 to 20th, 2018
- ◆ Attended 3 day workshop on “OBE Practices” in DSATM from 18th june to 20th june 2018
- ◆ Attended 5 day FDP on “Data Sciences Using PYTHON” at DSATM from LIVIKODEZ from Jan 8th -12th 2018.
- ◆ Attended “3 Day Workshop on NBA” at DSATM on Dec 11-13th 2017.
- ◆ Attended Conference on “Affordable IPR “from Jackfruit Software & Systems pvt Ltd held at KASSIA Auditorium, Bangalore on March 9th 2017.
- ◆ Faculty Development Programme on “New Paradigm in Software

Engineering” on 12 January 2017 from Accenture, India. ◆ One Day Workshop on “Building an Effective Personal Brand Matrix” on 6th March 2017 from Oracle in partnership with curriculo Sol ltd. ◆ National Workshop on “Accreditation Process for Technical Institutions” from 26th - 27th August 2016 at JSS Academy of Technical Education, Bengaluru. ◆ Faculty Development Programme on “Bridging the Gap between IT and Academia on 8-9 thMarch 2016, jointly organized by Computer Society of India – Bengaluru Chapter and VTU-Belagavi. ◆ Two Day Workshop on “Plagiarism” organized by VTU e- Learning centre , Mysuru on 16-17th October 2015. ◆ International Conference on Convergence of Science, Engineering & Management in Education and Research- A Global Perspective ICCSEM-2013, 26-27 September 2013.Deputy Secretary ◆ NEN AWadhvani Foundation Initiative- Advanced Course on Building Intellectual Property at Academi Institute from February 8-9, 2013. ◆ A Four Day Workshop on “Computer Graphics and Visualization from 28th - 31stjanuary 2009. ◆ Workshop on Advances in Image Processing on 18th May 2006 at NIE Mysore-8. ◆ One Day Workshop on LINUX Awareness held on 16th March 2003, at SJCE, Mysore-6. ◆ Short-term course on Document Image Analysis & Recognition from 15thjuly 2002 to 27thjuly 2002. ◆ Tutorial on Biometrics at Indian Institute of Science, Bangalore ,21st December 2001.	Administrative Activities as Founder Principal at BGSCET 2022-23
• 100% student Admission in the Very First Year 2022-23. • Signed MOU with IBM and Infosys Spring Board and Introduced Certification Programme both for Students and Faculties. • Set up of IOT Lab for Skill Enhancement and involving students in Projects.	Certification Courses completed from Infosys
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• Robotic Process Automation-2022	
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Key Role in the Engineering of DSATM Since the Inception 2011	
• Academic Affiliation process of AICTE • Academic Affiliation process of VTU • Uploading DSATM data on All India Survey for Higher Education -AISHE portal • Clean & Smart Campus Award to DSATM from AICTE • Principal Investigator for Unnath Bharath Abhiyan • Uploading DSATM data on EBSB portal Ranking of the DSATM Institution in • AICTE CII Ranking in Platinum 2020 • Atal Ranking of Institutions on Innovation Achievement- (ARIIA portal) • NIRF • 360 career • MDRA INDIA TODAY • BW Business world Education Setting up of Research Centres in DSATM • VTU Research Centre – 20 Research Scholars (External & Internal are working towards their Doctoral programme. • NCDRC Research Centre in Machine Learning with Cyber Security Under my Leadership Mentored • CSE Dept to get NBA highest marks with 685, with only 3 Doctorate Holders. • ORACLE WDP Programme • IOT lab • Red HAT LINUX certification • CSI Activities • NCDRC Lab • Electro Cloud Labs • Digital Image Processing lab • Edu Skills Lab	
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Google Citations- 232

Dr. C. Nandini's online citation index of the contribution to the Research work includes Publications/periodicals etc.

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Publications by Year



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Indian researchers recommend gait recognition software for security checks

Washington DC News.Net
Tuesday 10th June, 2008 (ANI)

Washington, June 10 : Indian researchers have a new idea to boost security surveillance, and recognition of terrorists and outlaws.

C. Nandini of the Vidya Vikas Institute of Engineering and Technology, and C.N. Ravi Kumar of the S.J. College of Engineering in Mysore say that computer software with the ability to recognise people's gait may facilitate these purposes.

The researchers say that human gait typifies the motion characteristics of an individual, as everybody has a unique style of walking.

As to how their concept will work, they say that a camera with a side view can record a set of key frames as a person heads for the security desk at an airport, military installation or bank, for instance.

Such key frames can later be converted into silhouette form, and eventually be classified through a statistical analysis using so-called Shannon entropy, height measurements, and periodicity of the gait.

A database of different gaits thus created may enable security officials to recognise the gait of individuals checking in at an airport, even before they entered the concourse.

The researchers say that a comparison of such data with CCTV footage may also be used to track suspect terrorists or criminals who may otherwise be disguising their features or be carrying forged documents.

They insist that gait recognition has a significant advantage over more well-known biometrics, including fingerprinting and iris scanning, in that it is entirely unobtrusive.

They say that it can be used to identify an individual potentially from a considerable distance.

"The ability to identify a possible threat from a distance gives personnel a longer time frame in which to react before a possible suspect becomes a real threat," the researchers say.

Explaining their concept in the inaugural issue of the Inderscience publication, the International Journal of Biometrics, the researchers also revealed that they had already conducted initial tests on 20 people.

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Gait recognition is new security tool

MYSORE, India, June 11 (UPI) — Scientists in India say they have developed biometric gait recognition software that could improve remote security surveillance.

Biometrics is commonly associated with retinal scans, iris recognition and DNA databases but the researchers said their software can identify suspects by their characteristic gait.

C. Nandini of the Vidya Vikas Institute of Engineering & Technology and C. N. Ravi Kumar of the S.J. College of Engineering in Mysore, India, said that viewed from the side, every person has a unique gait that makes them easily recognizable.

The researchers said gait recognition has a significant advantage over such well-known biometrics as fingerprinting and iris scanning in that it is entirely unobtrusive and can be used to identify an individual at a considerable distance from a restricted security area.

The research is reported in the inaugural issue of The International Journal of Biometrics.



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Video Forgery Detection using an Improved BAT with Stacked Auto Encoder Model

Journal of Advanced Research in Applied Sciences and Engineering Technology 42, Issue 2 (2024) 175-187

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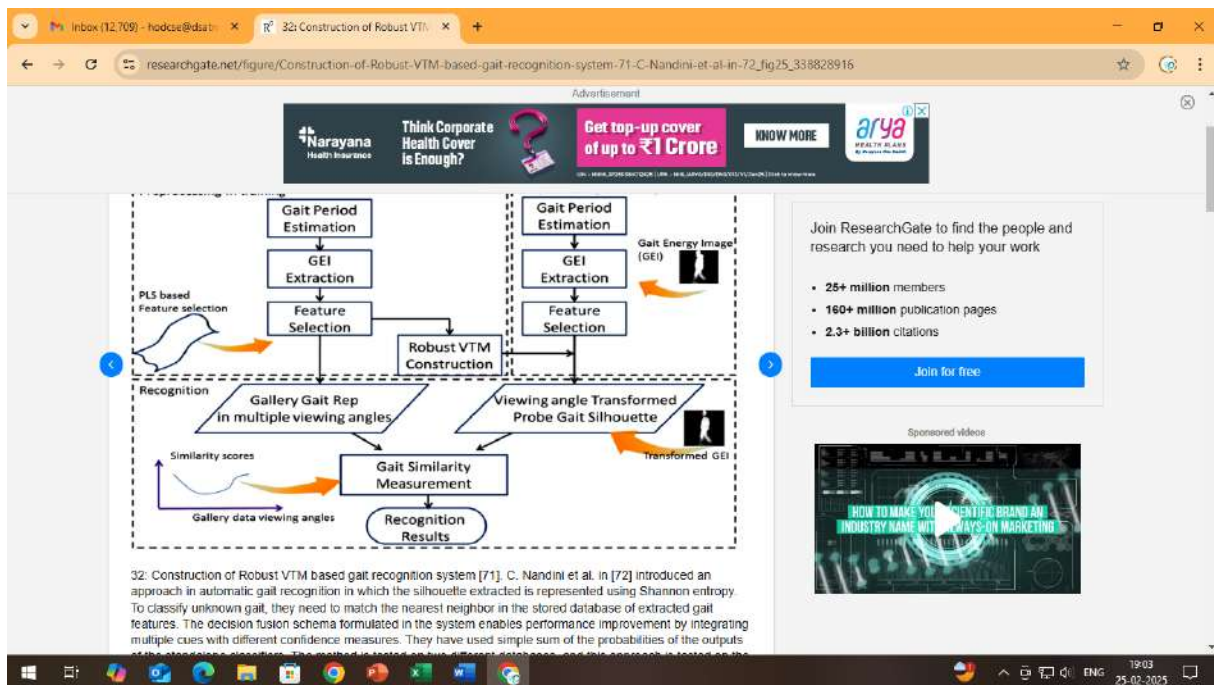


Video Forgery Detection using an Improved BAT with Stacked Auto Encoder Model

Girish Nagaraj^{1,*}, Nandini Channegowda²

¹ DSATM Research Center, VTU Campus, Visvesvaraya Technological University, Machhe, Belagavi, Karnataka 590018, India
² Department of Computer Science and Engineering (AI), Dayananda Sagar Academy of Technology and Management, Bengaluru, India

ARTICLE INFO	ABSTRACT
Article history: Received Received in revised form Accepted Available online Keywords:	There are various public and private places such as banks, roads, offices, and homes equipped with cameras for surveillance. The surveillance videos are consisting of a precious source of information related to critical application scopes. The main problem is to aid powerful and accessible software that changes the content present in the video for the forgery creation of a video. The forgery involves region duplication that has a common video tampering. The existing techniques are utilized to detect video tampering from the forged videos that showed complexity in the background. Thus, it is important to overcome the problem of forgery detection in the research. The Spatio-temporal averaging model is carried out for the collection of a video sequence for obtaining the background information. This can detect the moving objects effectively for forgery detection. Next, the ResNet 18 is used for extraction of the feature vectors, and the discriminative feature vectors were reduced and improved the training time and accuracy. The Single Auto Encoder (SAE) is not able to reduce the input features' dimensionality. Thus, the SAE has used 3 encoders stacked on the top for detecting the



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- [J5] S. Jahnabi, C. Nandini: Secure two fold transmission of features using multimodal mask steganography and naive based random visual cryptography system. Int. J. Syst. Assur. Eng. Manag. 15(1): 232-242 (2024)
- [J4] C. Nandini, Shiva Sumanth Reddy: Detection of communicable and non-communicable disease using Lenet-Bi-Lstm model in pathology images. Int. J. Syst. Assur. Eng. Manag. 15(1): 243-252 (2024)

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- [J3] Shiva Sumanth Reddy, C. Nandini: Detection of communicable and non-communicable diseases using hyperparameter optimization with Bi-LSTM model in pathology images. Int. J. Intell. Comput. Cybern. 16(4): 649-664 (2023)
- [J2] N. Girish, C. Nandini: Inter-frame video forgery detection using UFS-MSRC algorithm and LSTM network. Int. J. Model. Simul. Sci. Comput. 14(1): 2341013-1-2341013:19 (2023)

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A brief synopsis of the research work carried out :

Project Title: Artificial Intelligence Based Strategies For Early Detection And Appropriate Management Of Cervical And Breast Cancer Through A Multidisciplinary Approach: Reaching The Unreached

Early diagnosis of cancer, followed by timely and appropriate therapy is the cornerstones of the secondary prevention of cancer. By 2026 with the expected increase in life expectancy, cancer burden in India will increase to about 14 lac cases, especially among vulnerable groups (Studies by WHO). Breast cancer is ranked number one cancer among Indian females with age adjusted rate as high as 25.8 per 100,000 women and mortality 12.7 per 100,000 women. In India, cervical cancer accounted for 9.4% of all cancers and 18.3% (123,907) of new cases in 2020. Cancer screening to prevent deaths is much less likely to happen in LMICs than in high-income countries. India has one of the largest tribal populations in the world. Limited studies have been done on the screening of cancer among special groups like tribal population in south India.

Artificial Intelligence is an upcoming advance in the field of medicine. The Machine Learning algorithms allow for the prediction of the disease based on the past data. It can be used for an effective mechanism for early and accurate method for breast and cervical cancer prediction and is expected to take pivotal role in future developments in medicine.

Project Title: “Multifold Secured Bank Application Authentication Service Using Random Visual Cryptography and Multimodal Steganography with Blockchain Technology

Security is playing a major role in almost all government agencies and finding vast applications, in almost all walks of life. The continuing rise in the demand for business being conducted by e-commerce and the emerging climate/fear of global terrorist activity, there has been a heightened government interest in the deployment of biometric systems. This has resulted in increased research in this area.

The recent research focuses on the Application of Stego-Crypto biometric methods to provide secure access of cloud applications using Multimodal Approach and Blockchain.

The use of an individual's biometric characteristics to advance authentication and verification technology beyond the current dependence on passwords has been the subject of current extensive research trend. Research on building reliable Security Model with Steganography and Visual crypto Biometrics approaches, for securing Individual Biometric in authentication process and communication of sensitive information over the public network is carried out. Significant amounts of research in the integration of biometrics with steganography to add a layer to the defense-in-depth security model, and to augment both access control parameters and the secure transmission of sensitive biometric data is focused.

Project Title: A Framework with IOAHT for Heat Stress Detection and Haemoprotozoan Disease Classification Using Multimodal Approach Combining LSTM and CNN

The novelty of the work lies in making use of biometrics features and sharing it using a crypto-biometrics using a multimodal approach and latest technology blockchain increases the security level which can be deployed to access surveillance system.

- In the other socio Economic Research that I have carried out will help the dairy farmers to identify the cattle diseases in early stages. The cattle diseases are identified through
 1. Blood smear images from microscope
 2. Behavior of the cattle
 3. External factors like Temperature and humidity
 4. Cattle feeding patterns
 5. cow vitals like rectal temperature and pulse rate
- Since cattle diseases are identified in subclinical stages the farmer's economic status is improved.
- The mobile application developed will aid the farmers to prevent the cattle diseases and thus improve the quality and yield of the milk.
- The Novel Anaplasmosis disease identification algorithm developed will help the young veterinary doctors to increase the accuracy of disease identification.
- In the other work ,I have concentrated on in resolving real-world problems and creating solutions that can transform science and daily life of farmer by identifying leaf diseases without any knowledge regarding leaf diseases. We have achieved better accuracy for classification of leaf diseases like ring, rust, smut and brown spots in paddy leaves. The application will help farmers to detect leaf diseases without any prior knowledge, and information to improvise & take precautionary measures by overcoming the diseases in crop growing, intern improve the life style and economical stage of farmer by achieving better yield.

Project Title: Multimodal Biometric for Recognition by Combining Gait and Face

- Gait recognition is the process of identifying an individual by the manner in which they walk. Perceptual interfaces for intelligent environments, visual surveillance, military installation, bank, activity monitoring and covert security and access control can all benefit from recognition at a distance. Outdoor applications are important for surveillance applications in the context of establishing secure perimeters around.
- We have tested a varied approaches both local as well as global approaches for robust feature extraction. In the matching phase

multimodal approaches are used for better classification rate and we found that there is increased in the performance measures. The techniques have been tested on many standard data sets as well as on real time datasets.

- In the recent approach, depth based gait recognition which is appearance based spatio-temporal gait representation, called the Depth Gradient Histogram Energy image (DGHEI), which is depth information of 3D data for gait recognition is used. Compared to 3D depth data, 2D color data demonstrates that matching features learned from real gait templates achieve better recognition performance than direct matching between individual silhouette frame pairs algorithm. Moreover, entropy estimate gait cycle for DGHEI and selection of most discriminate features by PCA, has lead to increased accuracy of overall system. we have Compared proposed approach with our earlier work on 2D data & with other researchers approach wavelets & Hough on different datasets (CASIA ,TUM GAID and own generated Dataset) and 3D data, we have achieved 90% and 91.66% recognition rate respectively.
- The other area in which I am working on security is on Crypto Biometrics system which is recently emerging as an effective process to generate a cryptographic key. Conventional cryptographic key generation is using password which can be guessed or cracked. Further, the large size of strong key results in delay while encryption / decryption. Biometric field has however emerged in the recent days to reduce process delay and enhances the level of accuracy. The research work thus aims to analyze various biometric parameters that can be applied in realizing enhanced network security. The proposed approach further reduces the cost associated with lost key and provides increased security. The key is directly generated from the human biometric information such as retinal blood vessels which is not stored in the database. This mode of operations in network security creates more complexity for hackers to crack or to guess the cryptographic key or biometric key.

Project Title : Determining a Feasible Quantum Information Technology- An application for Image Analysis

This work aims at synthesizing the Quantum array, and then we plan to come up with the model that works for the following customized application

- Proving Authentication to Individuals
- Identification of Disease
- Finding out the possible cause of death of a person

In order to achieve the above mentioned objectives, initially we plan to generate the quantum array by fabricating the thin film unit. Followed by this step the developed model is applied to different application that uses quantum image processing. The methodology to be followed involves image acquisition from various sources like internet, hospitals, forensic

laboratories etc. Once the image is acquired, next step is to use the classical to quantum interface to represent the collected image in Qbits. If the images are represented in quantum bits, Quantum algorithm can be applied to carry out the image processing. First step in quantum image processing is to perform the pre-processing of the image. It has to go through the preprocessing stages like gray scale conversion, normalization, noise reduction. Binarization of image has to be done. It is the process of converting grayscale image to black and white. This can be done by using mathematical functions. Next to Binarization, segmentation of images is carried out. Segmentation is partitioning of a digital image into different segment. Segmented image is easier to understand and analyze. After segmentation classification/Analysis is performed to display the required results. The main outcome of the proposed research is to generate the quantum array. The proposed methodology also focuses on developing a framework which can be widely used in forensic and medical applications. It mainly focuses on building three modules. The first one being authentication module which perform face verification as well as face prediction according to the age. The developed module aims at testing on various datasets including datasets from forensic lab. This can be used by forensic experts to predict or match the face of missing persons, to find terrorists, pick-pocketers, and other such criminals. This work can also be used in various organizations to update the photos of their employees automatically. The second module aims at developing an automatic/semiautomatic disease diagnosis module which takes CT scan images as input and detects the presence of diseases like different types of cancer along with depth of tumor. The module can also be used to identify body packers who try to smuggle drugs inside the body. The developed module aims at testing on various available datasets. The third aim is to develop a module for predicting the possible cause of the death of a person with the available proof. This module takes scanned image of a part of the dead body and analyzes the possible cause of death. It helps the forensic experts to find out the cause of death or can be used as a tool to take a second opinion. The developed module aims at testing on the available data sets and on data sets from forensic laboratory. This work focuses on design of quantum register and Qbits by using materials that have nitrogen vacancy, Magnetic resonance. The developed interface is used process the classical image and to solve the realworld problems. The applications include authentication, medical and forensic field.

Project Title : “ Automatic Localization of Backward Collision of Vehicles Using a camera”.

In the proposed work feature extraction is by bounding box and Kalman filter. Time to collision is detected, where we have set a threshold value, based on that the alarm signal will be given to the driver when the vehicle is in the reverse gear. Usually these type of accidents go unnoticed by the driver.

Outcome: Paper is published in 5th IEEE International conference on Advanced Computing & Communication Technologies [ISBN 81-87885-03-3]

Students participated in project exhibition JED-i challenge in IISC Bangalore and won the prize.

Project Title : Women in Armor (An IOT Based Women Safety Device)

To ensure women safety we have come up with a device with added functionality such as a camera which has been incorporated to capture the evidence against the culprit. The moment the raspberry pi is turned on, her location is being tracked and a buzzer is provided for self-help which will alert the surroundings. Data is collected and vulnerable location is identified. When she enters a danger prone zone a notification is sent to her and an application is designed to display the most vulnerable places and the nearest police station that can be contacted.

***MacAfee scholar Program- won Cash Prize of Rs 50000/- for Project
Extent of AI Usability on Games :***

The automation engine we have built is an adaptive software that could be implemented on an MMORPG game. We suited this engine for a game called World of Warcraft developed by Blizzard. Using RobotJS, an RPA library we used our engine to control in game characters, tools, and actions and also used the image processing techniques and AI rules to run it efficiently.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM
KARNATAKA, INDIA



This is to certify that

C. Nandini

has been conferred the Degree of

Doctor of Philosophy

in

Faculty of Computer And Information Sciences

for the thesis entitled

**Determining Feasible Human Recognition System
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This is to certify that **Dr. C. Nandini** has been serving our Institution as
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Dr. C .Nandini
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