



Dr. C. Narendra Babu

Head – RUAS Innovation Centre,
Associate Professor, Dept. of CSE,
Faculty of Engineering and Technology,
Ramaiah University of Applied Sciences

470-P, 4th Phase, Peenya Industrial Area, Bangalore-560058

Summary of research and professional details:



Home



RUAS Innovation Centre



LinkedIn



Scopus Author



Google Scholar



ORCID



WoS ResearcherID



Mendeley



Vidwan Profile

Educational Qualifications:

- **B.Tech** (Computer Science and Engineering) from Adichunchanagiri Institute of Technology, Chikmagalur, Kuvempu University, 2000, First Class with Distinction.
- **M.Tech** (Computer Science and Engineering) from M.S Ramaiah Institute of technology, 2004, First Class with Distinction.
- **Ph.D** (Computer Science and Engineering) from University: JNT University Anantapur, 2015

Dissertation: Prediction of Time series data using variants of ARIMA, GARCH and ANN models.

Experience:

- June 2015 till date: Associate professor in CSE department, M.S. Ramaiah University of Applied Sciences, Bangalore
- Oct 2010 to June 2015: Associate professor in ISE department, REVA University, Bangalore
- Jan 2010 to July 2011: Associate professor in CSE department, KNS Institute of Technology, Bangalore
- Mar 2009 to Jan 2010: Senior Lecturer in CSE department, East Point College of Engineering, Bangalore

Awards and recognition:

- Listed in AD scientific index 2021- World Scientist and University Rankings 2021 <https://www.adscientificindex.com/scientist.php?id=299003>
- Received best paper award for Roopesh, Narendra Babu, "Robotic Process Automation for Resume Processing", accepted for "2021 6th IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT 2021)".
- Received best paper award for "Document Parsing Tool for Language Translation and Web Crawling Using Django REST Framework", in 1st International Conference on Engineering and Technology (ICoEngTech)- 2021, held at Universiti Malaysia Perlis.
- Received Annual Exemplary Award in the research category at MS Ramaiah University of Applied Sciences in 2020

- Received Best Author award at IEEE- International Conference On Advances In Engineering, Science And Management (ICAESM -2012) held at Nagapattinam, TN for the paper:
“Predictive Data Mining On Average Global Temperature Using Variants of ARIMA models”

Area of Interest and expertise:

- **Area of Interest:** Data analytics, Data Modelling and analysis, Big Data, Social media analytics, Machine Learning, Artificial Intelligence, web scraping, Statistical Approaches, Graph Signal Processing, Blockchain, Spatiotemporal data modelling; Application Domains: Smart Agriculture - Aquaponics using IoT, Healthcare, Sensor data modelling, Road traffic and Internet traffic data modelling, Innovations in education
- **Expertise:** Data Mining and analytics, Time series data modelling and analysis, Social media analytics, Machine learning, Sustainable aquaponics using IoT, Spatiotemporal Data modelling and analysis

Patents (Total 03)

- Sudhir Kumar Patnaik, **C. Narendra Babu**, “A Novel Adaptive Information Extraction System using Deep learning Technique and Neural Networks”, Indian Patent Application: 202041055908, Filing date: 22th Dec, 2020.
- **C. Narendra Babu**, Soumya Jyoti Raychaudhuri, Soumya Manjunath, Chithra Priya Srinivasan, N.Swathi, S. Sushma, K. N. Nitin Bhushan, “Smart Wearable Emotion Support System”, Indian Patent Application: 202041055905, Filing date: 22th Dec, 2020.
- Anuradha Yenikar and **C. Narendra Babu**, “A Rule-based expert system for Sentiment Analysis (R-SA)”, Indian Patent Application: 201921028076, 12th July 2019, published Date: 16/08/2019.

Publications: International Peer-reviewed Journals (Total 20)

1. S. K. Patnaik, C. Narendra Babu and M. Bhawe, "Intelligent and adaptive web data extraction system using convolutional and long short-term memory deep learning networks," IEEE - Big Data Mining and Analytics, vol. 4, no. 4, pp. 279-297, Dec. 2021, doi: 10.26599/BDMA.2021.9020012
2. Osman Yakubu, **C. Narendra Babu**, “Electricity consumption Forecasting using DFT decomposition based hybrid ARIMA–DLSTM model”, Indonesian Journal of Electrical Engineering and Computer Science, Vol-24, No 2, <http://ijeecs.iaescore.com/index.php/IJECS/article/view/25459>
3. Osman Yakubu, C.Narendra Babu, and Osei Adjei, C. “A Novel IoT Based Smart Energy Meter with Backup Battery”, International Journal of Computing, 20(3), 357-364, 2021, <https://doi.org/10.47839/ijc.20.3.2281>
4. Raychaudhuri, S.J., Manjunath, S., Srinivasan, C.P. N. Swathi, S. Sushma, K. N. Nitin Bhushan & **C. Narendra Babu**, “Prescriptive analytics for impulsive behaviour prevention using real-time biometrics”, **Springer – Progress in Artificial Intelligence**, 10, 99–112 (2021). <https://doi.org/10.1007/s13748-020-00229-9>

5. **Narendra Babu C**, Pallaviram Sure, and Chandra Mohan Bhuma "Sparse Bayesian Learning Assisted Approaches for Road Network Traffic State Estimation", **IEEE Transactions on Intelligent Transportation Systems**, [doi: 10.1109/TITS.2020.2971031](https://doi.org/10.1109/TITS.2020.2971031) (SCI, impact factor 7.42)
6. Osman Yakubu, **Narendra Babu** and Osei Adjei, "Electricity Theft: Analysis of the Underlying Contributory Factors in Ghana", **Elsevier- Energy Policy**, 123, pp. 611-618, 2018, DoI: <https://doi.org/10.1016/j.enpol.2018.09.019> (SCI, impact factor 5.3)
7. **Narendra Babu** and Pallaviram Sure, "Low-Dimensional Models for Traffic Data Processing Using Graph Fourier Transform", **IEEE Computing in Science & Engineering**, 20(2), pp.24-37, 2018. (SCIE, impact factor 1.9)
8. Pallaviram Sure, **Narendra Babu C** and Chandra Mohan Bhuma "Large random matrix-based channel estimation for massive MIMO-OFDM uplink", **IET Communications**, 12(9), pp.1035-1041, 2018. (SCI, impact factor 2.1)
9. **Narendra Babu C**, Pallaviram Sure, "Partitioning and interpolation based hybrid ARIMA-ANN model for time series forecasting", published online **Springer: Sadhana. Academy Proceedings in Engineering Sciences**, June 2016. (SCIE, impact factor 1.0)
10. Osman Yakubu, Osei Adjei and **Narendra Babu C.**, "A Review of Prospects and Challenges of Internet of Things", **International Journal of Computer Applications** 139(10):33-39, April 2016. Published by Foundation of Computer Science (FCS), NY, USA
11. **C. Narendra Babu**, B. Eswara Reddy, "A moving-average filter based hybrid ARIMA-ANN model for forecasting time series data", **Elsevier: Applied Soft Computing**, Vol. 23, October 2014, Pages 27-38. <http://dx.doi.org/10.1016/j.asoc.2014.05.028> (SCI, impact factor 6.03)
12. **C. Narendra Babu**, B. Eswara Reddy, "Prediction of selected Indian stock using a partitioning-interpolation based ARIMA-GARCH model", **Applied Computing and Informatics**, Volume 11, Issue 2, July 2015, Pages 130-143, ISSN 2210-8327, (SCIE, Impact Factor: 4.4)
13. C. Narendra Babu, B. Eswara Reddy, "Performance Comparison of Four New ARIMA-ANN Prediction Models on Internet Traffic Data", **Journal of Telecommunication and Information Technology**. Vol 1, 2015, Pages: 67-75
14. Osman Yakubu, **Narendra Babu C**, "A Review of Digital Forensic Challenges in the Internet of Things (IOT)", **International J. of Mechanical Engineering and Technology**, 9(1), pp. 915-923, 2018.
15. Osman Yakubu, **Narendra Babu, C**, "Type and Nature of Electricity Theft: A Case Study of Ghana", **International J. of Mechanical Engineering and Technology**, 8(10), pp. 170-179, 2017.
16. Anuradha Yenikar, Manish Bali, **Narendra Babu**, "EMP-SA: Ensemble Model based Market Prediction using Sentiment Analysis", **International Journal of Recent Technology and Engineering (IJRTE)** ISSN: 2277-3878, Volume-8 Issue-2, July 2019

17. Soumya Jyothi Raychaudhuri, **C. Narendra Babu**, "On the domain aided performance boosting technique for deep predictive networks: a Covid19 scenario", *Intelligent Decision Technologies: An International Journal*. **Accepted for publication**
18. Bikram Paul, Kavya B, Prachi Tripathi, Shubham Agnihotri, **C. Narendra Babu**, "Sustainable smart aquaponics farming using IOT and data analytics", *Journal of Information Technology Research (JITR)*, **accepted for publication**
19. Raychaudhuri, S.J., Manjunath, S., Srinivasan, C.P. N. Swathi, S. Sushma, K. N. Nitin Bhushan & **C. Narendra Babu**, Impulsive Behaviour Detection System using Machine Learning and IOT, *IETE Journal of Research*, **Accepted for publication**
20. Sudhir kumar patnaik and Narendra Babu C, "Trends in Web Data Extraction using Machine Learning", *IoS Press- Web Intelligence*, **Accepted for publication**

Publications: Proceedings of Conferences (Total 17)

21. S. K. Patnaik and C. Narendra Babu, "Information Retrieval from web with Faster R-CNN Deep Learning Networks: A New Perspective," *2021 6th International Conference on Computer Science and Engineering (UBMK)*, 2021, pp. 61-66, doi: 10.1109/UBMK52708.2021.9558956. published in IEEE explore.
22. Kruthika Alnavar; Uday Kumar R; Narendra Babu C, "Document Parsing Tool for Language Translation and Web Crawling Using Django REST Framework", *Journal of Physics: Conference Series*, Volume 1962, The 1st International Conference on Engineering and Technology (ICoEngTech) 2021 15-16 March 2021, Perlis, Malaysia;
Citation: Kruthika Alnavar et al 2021 J. Phys.: Conf. Ser. 1962 012018
23. Roopesh. N, Akarsh M. S and C. Narendra Babu, "An Optimal Data Entry Method, Using Web Scraping and Text Recognition," *2021 International Conference on Information Technology (ICIT)*, 2021, pp. 92-97, doi: 10.1109/ICIT52682.2021.9491643. Published in IEEE Explore
24. R. Puravankara and **C. Narendra Babu**, "Lead Forecasting using LSTM based Deep Learning Architecture for Sentiment Analysis," *2020 3rd International Conference on Information and Communications Technology (ICOIACT)*, Yogyakarta, Indonesia, 2020, pp. 159-164, doi: 10.1109/ICOIACT50329.2020.9332092, published in **IEEE Explore**.
25. A. Anand, S. De, A. Jaiswal, S. Agrawal and **C. Narendra Babu**, "Automation of Non-Classroom Courses using Machine Learning Techniques," *2020 6th International Conference on Education and Technology (ICET)*, Malang, 2020, pp. 90-96, doi: 10.1109/ICET51153.2020.9276619, published in **IEEE Explore**.
26. Rexford Nii Ayitey Sosu, **C. Narendra Babu**, S. A. Frimpong and J. Essuman, "The Relevance Of Blockchain With Dew Computing: A Review," *2020 43rd International Convention on Information, Communication and Electronic Technology (MIPRO)*, Opatija, Croatia, 2020, pp. 1934-1940, doi: 10.23919/MIPRO48935.2020.9245189, published in **IEEE Explore**.

27. Anuradha Yenikar, **Narendra Babu** and S. Sangve, "R-SA: A Rule-based Expert System for Sentiment Analysis," 2019 IEEE Pune Section International Conference (PuneCon), Pune, India, 2019, pp. 1-7, doi: 10.1109/PuneCon46936.2019.9105682, published in **IEEE Explore**.
28. Anuradha Yenikar, **Narendra Babu**, S. Sangve and M. Bali, "OACD-SA: Online Aspect Category Detection for Sentiment Analysis using Unsupervised Learning," 2019 IEEE Pune Section International Conference (PuneCon), Pune, India, 2019, pp. 1-7, Published in IEEE Explore, doi: 10.1109/PuneCon46936.2019.9105858, published in **IEEE Explore**.
29. Prema Monish, Santoshi Kumari, **Narendra Babu**, "Automated Topic Modeling and Sentiment Analysis of Tweets on SparkR", 2018 9th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Bangalore, 2018, pp. 1-7. doi: 10.1109/ICCCNT.2018.8493973, , published in **IEEE Explore**.
30. A. Haripriya, S. Kumari and C. N. Babu, "Location Based Real-time Sentiment Analysis of Top Trending Event Using Hybrid Approach," 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI), Bangalore, 2018, pp. 1052-1057, doi: 10.1109/ICACCI.2018.8554457, published in **IEEE Explore**.
31. Santoshi Kumari, **Narendra Babu**, "Real time analysis of social media data to understand people emotions towards national parties," "Real time analysis of social media data to understand people emotions towards national parties," 2017 8th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Delhi, 2017, pp. 1-6, doi: 10.1109/ICCCNT.2017.8204059, published in **IEEE Explore**.
32. Pallaviram Sure, **Narendra Babu C** and Chandra Mohan Bhuma, "Applicability of big data analytics to massive MIMO systems," 2016 IEEE Annual India Conference (**INDICON**), Bangalore, 2016, pp. 1-6. doi: 10.1109/INDICON.2016.783909, published in **IEEE Explore**.
33. Nivedita Pandith, **Narendra Babu**, "Development of pso based hybrid lssvm model for time series prediction," 2017 2nd International Conference for Convergence in Technology (I2CT), Mumbai, 2017, pp. 376-381, doi: 10.1109/I2CT.2017.8226155, published in **IEEE Explore**.
34. D. C. Aishwarya, **Narendra Babu**, "Prediction of Time Series Data Using GA-BPNN Based Hybrid ANN Model," 2017 IEEE 7th International Advance Computing Conference (IACC), Hyderabad, 2017, pp. 848-853. Published in IEEE Explore, doi: 10.1109/IACC.2017.0174, published in **IEEE Explore**.
35. **C. Narendra Babu**, B. Eswara Reddy, "Selected Indian stock predictions using a hybrid ARIMA-GARCH model," *2014 International Conference on Advances in Electronics Computers and Communications*, Bangalore, 2014, pp. 1-6, doi: 10.1109/ICAEC.2014.7002382, published in **IEEE Explore**.
36. **C. Narendra Babu**, B. Eswara Reddy, "Predictive Data Mining On Average Global Temperature Using Variants of ARIMA models", IEEE-International Conference on

Advances in Engineering, Science & Management (ICAESM -2012), Pages 256-260, Issue date: March 30-31, 2012. Published in **IEEE Explore** (WON BEST AUTHOR AWARD)

37. Roopesh N, C. Narendra Babu, "Robotic Process Automation for Resume Processing", 6th IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT 2021), India, Accepted for publication.

Publications: Book Chapters

38. Santoshi Kumari, **C. Narendra Babu**, 2018, "Transition from Relational Database to Big Data and Analytics", Book Data Analytics Concepts, Techniques, and Applications, Pages 33, Publisher-Taylor & Francis Group

Publications: Books authored

1. Book title: "New Age Realities: Beyond East and West", Publisher: Manasa Foundation, Bangalore, ISBN 9788188161447.

Research Guidance:

PhD Thesis Advising:

Completed:

1. Mr. Osman Yakubu: Development of a IoT Based Smart Energy System to Enhance the Validity of Forensic Evidence: **Completed in 2020**

On Going

1. Mrs: Santoshi Kumari: Design And Development of Hybrid –NLP Model for Real Time Sentiment Analysis of Big Social Media Data
2. Mrs. Anuradha Yenikar : To design and implement an efficient Expert System for real-time Sentiment Analysis using GPU based Algorithms
3. Mr. Sudhir Patnaik: An Intelligent System for Automatic Web Data Extraction with self-repairing and Proactive Failure prevention Capability using Machine Learning
4. Mrs. Shaktipriya: Blockchain with due computing architectures
5. Mr. Rajesh Purvankara, Robotic process automation

Recent M.Tech Thesis and projects Advised:

1. Kruthika Alnavar: Blockchain-based Smart Contract with Machine Learning for Insurance Claim Verification-2021
2. Uday Kumar R: Multisource Social Media Covid-19 Data Analysis Using Machine Learning Techniques-2021
3. Bidrohi Ananya Biswas: Breast Cancer detection using machine learning-2021
4. Roopesh N: Robotic process automation for resume processing -2021
5. Akarsh MS: Classification of Covid-19 patient using cough sound data based on machine learning techniques - 2021
6. Rajesh Purvankara: Lead Forecasting using LSTM based Deep Learning Architecture for Sentiment Analysis-2020
7. Soumya Jyoti Raychaudhuri: An Investigation on Deep Learning algorithms and Epidemiological models for the study of Covid19 pandemic - 2020

8. M.tech-Group Project : Design and Implementation of a Wearable Device to Detect And Alert Impulsive Behaviour at Real time -2019
9. Piparia Naitik: Drought prediction based on hybrid ARIMA-ANN model -2017
10. T.S Nivedita Pandit: Development of PSO based hybrid LSSVM Model for Time Series Prediction-2016
11. Aishwarya D.C: Automation of Structured and Unstructured data Extraction and its analytics -2016
12. Shalaka S Shinde: Prediction of Time series data using Hybrid ANN model-2016

Recent B.Tech projects guided:

1. Vehicle Protection System Based on Face Recognition and Drowsiness Detection-2021
2. Automation of non-classroom Courses using AI-ML Algorithms-2020
3. Sustainable Smart Aquaponics Farming using IoT and Data Analytics-2019
4. Travel Destination Recommender -2019
5. Sementiment analysis using pyspark on multisource social media data-2019

Project guided for RUAS Innovation Centre

- Web application to automate RUAS Innovation Centre Courses

Workshops/Seminars Conducted

1. Delivered a guest lectured on “Informatics in Healthcare” at Indian Association of Public Health Dentistry (IAPHD) Colloquium 2021 on 10 Jan 2021.
2. Delivered a distinguished lecture on "Graph Signal Processing for Dimensionality Reduction in Big Data Analytics" as a part of AI@Peenya series at RUAS on 4th July 2020
3. Delivered a seminar on "A Mathematical Primer on SVM Based Classification" at RUAS on 04th Aug 2020
4. Delivered a guest lecture on “Big Data Analytics” at CMTI, Bangalore on 01 July 2019 as a part of 3 day training on Smart Manufacturing & Industry 4.0 for CMTI engineers.
5. Two day workshop on "Data Mining using R" at Vivekananda Institute of Technology, Bangalore on 1st and 2nd March 2017
6. Two day FDP on “Time series analysis and prediction using R , is delivered In-house on 28th and 29th Dec. 2017
7. Delivered an invited talk on “Big Data and Analytics” at CAIR Bangalore, as part of DRDO’s Continuing Education Program for scientists on 7th Feb 2017.
8. Two day workshop on “Data Mining and Analytics using R” in-house on Date: 11th & 12th July 2016.
9. Delivered Invited talk on “Big data and data analytics” at CAIR Bangalore on 8th Mar 2016.
10. Delivered a talk on “Applications of Social Media Analytics” at CAIR Bangalore on 17th June 2017.

Other Professional Services and Participations

1. Organized Innovation Day 2021 at university level to provide a platform to present the innovations at RUAS on 11th Feb 2021 where more than 20 delegates including invited guests and in-house faculty members presented about their innovations.
2. Chaired a technical session in the International Conference On Electronics, Computers And Communication (ICAEECC) Dec- 2020, conference held at Reva University, Bangalore
3. I was instrumental in introducing and implementing non-classroom Innovation Courses in place of open electives for UG Programs across RUAS
4. I have represented RUAS and participated in "Reverse Mission-2020" program hosted by Creativity and Innovation Platform of Karnataka (CIPK) along with Karnataka State Higher Education Council on March 02-04, 2020 at IISc –Bangalore
5. Participated in the launch of
6. I have represented RUAS and participated in “K-Tech Innovation Ecosystems Partners Workshop” Conducted by K-Tech – Karnataka Innovation & Technology Society, Department of IT, BT and S&T, Government of Karnataka on 11th - 12th October 2018 at K-tech Innovation Hub at NASSCOM Warehouse, Bangalore.
1. Participated in the inaugural function of MHRD Institution Innovation Council (IIC) at AICTE HQ, New Delhi on 21st November 2018
2. Attended 6-Day FDP on Data Analytics for IoT Applications from 30th Jan 2017- 4th Feb 2017 at RV college of Engineering
7. I have represented RUAS and participated in “National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) -Consultative Meeting” on 22 & 23 Jun 2017, IISc, Bangalore.
8. I was a part of “Collaborative Vision Development Workshop for the creation of a Geospatial Consortium Partnership” organized by University of IOWA, USA and Meenaskhi Mission Hospital & Research Centre on June 30 - July 1, 2016 at Madurai.
9. Undergone Wipro-Mission10X workshop (basic and advanced) on effective teaching skills at KNSIT on 26-27 July 2010

Professional responsibilities:

- Associate Professor –dept. Computer Science and Engineering
- Head, RUAS Innovation Centre
- Convener- Institution Innovation Council
- Board of studies member RUAS computer science & engineering – for B.Tech, M.tech, PhD
- Member of PhD admission committee for Computer Science
- Mentor at Ramaiah Technology Business Incubation Centre

Professional Affiliations:

- IEEE Senior Member
- IEEE – Education Society member
- IAENG life member

Courses Taught:

Data mining and analytics, Data analytics, Data Structures and algorithms, Data Management and Analysis, Database Management Systems, System Software, Software Engineering Methods, Design and Analysis of Algorithms, Pattern Recognition and Machine Learning