Anubha Parashar

Research Scientist · Artificial Intelligence and Metaverse

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Proficient in advanced Deep Learning and Machine Learning algorithms with focus in Computer Vision and active involvement in state-of-the-art research.

Experience

Invincible Ocean
Gurugram, India

Research Scientist - Artificial Intelligence and Metaverse — *Apr. 2024 – Present*

- Implemented an intelligent vehicle data management system utilizing a chatbot interface, enabling natural language interaction for efficient querying and retrieval of comprehensive vehicle-related information.
- Plays a pivotal role in advancing and exploring innovative ways to harness AI technologies.
- To develop the state-of-the-art algorithms and computational models tailored to the unique complexities of computer vision in data science.
- Her work involves creating AI-driven tools for data analytics, enabling researchers to extract valuable insights from complex datasets with unprecedented accuracy and efficiency.

Manipal University Jaipur
Jaipur, India

Assistant Professor - Computer Science and Engineering — *Jul. 2016 – Apr. 2024*

- Conduct research projects, analyze data, and publish findings in academic journals.
- Contribute to the advancement of knowledge in their respective fields through their research and publications.
- Participate in conferences, seminars, and workshops to present their research, share ideas, and network with other scholars.
- Serve as reviewers for academic journals and conference papers, contributing to the peer-review process and ensuring the quality and integrity.
- Collaborate with industry partners and organizations to apply their research findings in real-world contexts, fostering innovation and addressing societal challenges.

Doctoral Research
Manipal University Jaipur

Researcher @ Biometrics Lab (under Prof. Weiping Ding, Nantong University, China & Prof. Rajveer Shekhawat) — *Jan. 2018 – Apr. 2023*

- Automated gait recognition using deep learning to identify persons based on their body shape and walking styles.
- Recognition accuracy is affected by clothing conditions, carrying objects, varying viewing angles, occlusion, and adversarial changes in datasets, making it a challenging problem. I designed a deep learning pipeline to handle various gait covariatesthat act as a universal deep learning pipeline that can handle most gait covariates, rather than using different deep learning pipelines.

Sconad Communication
Mumbai, India

Level 3 Research Associate — *Jul 2013 – Jul 2014*

- Determined, using Python clustering methods, where models were underperforming, and owned improvements to increase profit by 4%.
- Identified procedural areas of improvement through customer data to improve the profitability of a nationwide retention program by 8%.
- Developed and owned the reporting for a nationwide retention program using Python, SQL, and Excel, saving an average of 60 hours of labor each month.

ZMQ Technologies
Gurugram, India

Intern - Android, J2ME App Development — *Jan 2013 – Jul 2013*

- Designed and developed Mobile App using Android and J2ME platform and Oracle as Backend.
- Completed eight major projects, working closely with agile development team to develop, test and maintain.
- I received praise for reaching difficult areas and my innovative use of a crowbar to assist in my work.

Essilor India Private Limited
New Delhi, India

Intern - Web Development — *Jun 2012 – Jul 2012*

- Web Development, Video Editing, Content Developer.

Education

Manipal University Jaipur
Jaipur , India

Doctor of Philosophy — *Jan. 2018 – Apr. 2023*

- PhD in Computer Science and Engineering with major in Artificial Intelligence with thesis title “Robust Gait Recognition System Using Deep Learning to Handle Covariates”.

Maharshi Dayanand University
Rohtak, India

Master of Technology — *Aug. 2014 – Jul. 2016*

- Masters in Computer Science and Engineering with major in Artificial Intelligence with thesis title “Classification of GAIT data using various machine learning techniques to categorize human locomotion”.

Maharshi Dayanand University — *Rohtak, India*

Bachelor of Technology — *Aug. 2009 – Jul. 2013*

- Bachelors in Computer Science and Engineering with thesis title "M-Training Toolkit on Polio/Routine Immunization for CMCs in CGPP".

Model School — *Rohtak, India*

12th – CBSE — *Mar. 2008 – Jun. 2009*

St. Georges Grammar School — *Hyderabad, India*

10th – ICSE — *Mar. 2006 – Jun. 2007*

Skills

Languages	C, C++, JAVA (J2SE, J2EE, J2ME), PHP, Python, JAVA SCRIPT, HTML, XML, CSS.
Database	PostgreSQL, MS-Access, Oracle, MySQL, MongoDB.
Webserver	Tomcat, Web Logic, Apache, IIS, Google Web Server.
Cloud	ThingSpeak, Xively, IBM bluemix, Microsoft Azure Cloud, Amazon Web Service, Google Colab.
Software Tools	MATLAB, GitHub, Latex, Weka, OpenCV, DLIB, Anaconda, Tensorflow, Spyder, Jupyter Notebook, RemoteXY, Webots, OpenSim, Choregraphe, NetBeans, Eclipse, Android, Django, MongoDB, Firebase, RationalRose, StarUML, Creative fly mod, Microsoft Visio, Selenium, Node.js, Arduino Studio, Blender, Node.js, Flask, Photoshop, Flash.
Libraries	TensorFlow, PyTorch, Keras, scikit-learn, Caffe, MXNet, Theano, Torch, Caffe2, H2O, XGBoost, LightGBM, OpenCV, NLTK (Natural Language Toolkit), Gensim, SpaCy, Pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly, Statsmodels, Prophet, AutoML libraries like AutoKeras, H2O.ai, TPOT.
Hardware	Jetson Nano, Arduino, raspberry pi, Intel Edison, 8051, STM32F401 NUCLEO, AVR XMEGA, ATMEL SAM4L Xplained Pro, AVR Dragon, TIVA C SERIES TM 4C123G Launch Pad, FRDM – K64F NXP, Lolin NodeMCU, 8086.
Operating System	Windows 7, Windows 8.1, Windows 10, Linux (Red Hat, Ubuntu), UNIX, DOS, Raspbian.
Subjects	Theory of Computation, Data Structure, Algorithm, Computer Networks, Operating System, DBMS, Microprocessor, Software Engineering, Web Development.
Research Interest	Deep Learning, Computer Vision, Machine Learning, Artificial Intelligence, Neural Network, Internet of Things, Data Science, Robotics, Bipedal Locomotion, Biometrics Gait, Humanoid Robotics (locomotion & push recovery), Image processing, Natural Language Processing, Brain Computer Interface, Human Computer Interaction.

Patent

1. A Covariate-based Gait Recognition System and Method for Edge Analytics Using Optimized Deep Learning Pipeline — *Patent No: 202111034240*

Indian patent, Status: granted — *29 Jul. 2021*

2. A System and Method For Tracking of Drug Product and Expiry Date Alert of Pharmaceuticals using Deep Learning. — *Patent No: 202331058909*

Indian patent, Status: Patent-Pending — *2 Sep. 2023*

3. Content Based Video Ranking. — *Patent No: 202011053220*

Indian patent, Status: published — *8 Jan. 2021*

4. Inexpensive Nail-fold Capillaroscopy for Early Detection of Cardio-Metabolic Disease — *Patent No: 2021100922*

Australian patent, Status: granted — *18 Feb. 2021*

5. Content Based Video Ranking. — *Patent No: 2021105538*

Indian patent, Status: granted — *15 Aug. 2021*

6. Sign Language Translator — *Patent No: 202110309*

South African patent, Status: granted — *13 Dec. 2021*

Journals

1. **Anubha Parashar**, Rajveer Singh Shekhawat et al., Deep learning pipelines for recognition of gait biometrics with covariates: a comprehensive review, Artificial Intelligence Review (2023). https://doi.org/10.1007/s10462-022-10365-4 [SCI- Q1 IF 9.588].
2. **Anubha Parashar**, Apoorva Parashar, Mohammad Shabaz, Deepak Gupta, Aditya Kumar Sahu, Muhammad Attique Khan, Advancements in artificial intelligence for biometrics: A deep dive into model-based gait recognition techniques, Engineering Applications of Artificial Intelligence, Volume 130, 2024, 107712, ISSN 0952-1976, https://doi.org/10.1016/j.engappai.2023.107712. [SCI- Q1 IF 8.34].
3. **Anubha Parashar**, Rajveer Singh Shekhawat, Real-time Gait Biometrics for Surveillance Applications: A Review, Image and Vision Computing, https://doi.org/10.1016/j.imavis.2023.104784 [SCI- Q1 IF 4.7].
4. **Anubha Parashar**, Apoorva Parashar, Weiping Ding, Mohammad Shabaz, Imad Rida, Data preprocessing and feature selection techniques in gait recognition: A comparative study of machine learning and deep learning approaches, Pattern Recognition Letters, Volume 172, 2023, Pages 65-73, ISSN 0167-8655, https://doi.org/10.1016/j.patrec.2023.05.021. [SCI- Q1 IF 5.1].
5. **Anubha Parashar**, Rajveer Singh Shekhawat, Weiping Ding, Imad Rida, Intra-class variations with deep learning-based gait analysis: A comprehensive survey of covariates and methods, Neurocomputing, Volume 505, 2022, 315-338, https://doi.org/10.1016/j.neucom.2022.07.002 [SCI- Q1 IF 5.779].
6. **Anubha Parashar**, Apoorva Parashar, Imad Rida, Journey into gait biometrics: Integrating deep learning for enhanced pattern recognition, Digital Signal Processing, https://doi.org/10.1016/j.dsp.2024.104393, Volume 147, 2024, 104393, ISSN 1051-2004. [SCI Q2 IF 2.9].
7. Aurangzeb, K., Javeed, K., Alhussein, M., Rida, I., Haider, S. I., & **Parashar, A.** (2024). Deep Learning Approach for Hand Gesture Recognition: Applications in Deaf Communication and Healthcare. Computers, Materials & Continua, 78(1). [Q1 SCIE- IF 3.6].
8. Apoorva Parashar , Rahul Rishi , **Anubha Parashar**, Imad Rida, Medical imaging in rheumatoid arthritis: A review on deep learning approach, Open Life Sciences, Volume 18, Issue 1, 2023, https://doi.org/10.1515/biol-2022-0611 [SCI- Q2 IF 2.2].
9. Vidyadhar Jinnappa Aski, Vijaypal Singh Dhaka, **Anubha Parashar**, Sunil kumar, Imad Rida, Internet of Things in healthcare: A survey on protocol standards, enabling technologies, WBAN architectures and open issues, Physical Communication, 2023, 102103, ISSN 1874-4907, https://doi.org/10.1016/j.phycom.2023.102103 [SCI- Q2 IF 2.2].
10. **Anubha Parashar**, Rajveer Singh Shekhawat, Protection of gait dataset for preserving its privacy in deep learning pipeline, IET Biometrics 11(6), 557–569 (2022). https://doi.org/10.1049/bme2.12093 [SCI- Q1 IF 2.716].
11. **Anubha Parashar**, Rajveer Singh Shekhawat. A robust covariate-invariant gait recognition based on pose features, IET Biometrics 11.6 (2022): 601-613, https://doi.org/10.1049/bme2.12103 [SCI- Q1 IF 2.716].
12. **A Parashar**, A Parashar, Push Recovery for Humanoid Robot in Dynamic Environment and Classifying the Data Using K-Mean, International Journal of Interactive Multimedia and Artificial Intelligence, Vol. 4, (pp 29-34), ISSN 1989 – 1660, DOI: 10.9781/IJIMAI.2016.425 [SCIE- IF 3.6].
13. VS Bhaskar, AK Singh, **A Parasha**r, M Sharma, Business and Social Behaviour Intelligence Analysis Using PSO, in International Journal of Interactive Multimedia and Artificial Intelligence, Vol.2 (6), Page No. 69-74, ISSN 1989 - 1660, DOI: 10.9781/ijimai.2014.268 [SCIE- IF 3.6].
14. **Anubha Parashar**, Machine Learning Application to Improve COCOMO Model using Neural Networks, International Journal of Information Technology and Computer Science, Volume 10, Number 3, ISSN: 2074-9007, DOI: 10.5815/ijitcs.2018.03.05 [IF 0.716].
15. **Anubha Parashar**, Selecting the COTS Components Using Ad-hoc Approach, International Journal of Interactive Multimedia and Artificial Intelligence, Volume 7, Number 5. ISSN : 2076-1449, DOI: 10.5815/ijwmt.2017.05.03.
16. Pranav Gupta, Vaibhav Singh, **Anubha Parashar**, Smart Autonomous Vehicle Using End to End Learning, Journal of Innovation in Computer Science and Engineering, Guru Nanak Publications ISSN: 2278-0947, Volume 9, Issue 2.

Conferences

1. 5th International Conference on Bio-engineering for Smart Technologies

Paris, France

IEEE *7th-9th Jun. 2023*

Anubha Parashar, Apoorva Parashar, Imad Rida, Vidyadhar Aski, et al. "Deep Learning-based Framework for Accurate Clothing Attribute Recognition and Style Navigation for Gait Recognition." In International Conference on Bio-engineering for Smart Technologies, 2023.

2. 16th International Conference on Signal Image Technology & Internet-based Systems

Dijon, France

IEEE *19-21 Oct. 2022*

Parashar, Anubha, Imad Rida, Apoorva Parashar, and Vidyadhar Aski. "Protecting the Privacy of Face by De-Identification Pipeline Based on Deep Learning." In 2022 16th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), pp. 409-416. IEEE, 2022. Doi: 10.1109/SITIS57111.2022.00068.

3. Second International Conference on Innovations in Computational Intelligence and Computer Vision

Manipal University Jaipur, India

SPRINGER *05-06 Aug. 2021*

Parashar, Apoorva, **Anubha Parashar**, and Vidyadhar Aski. "Optimized Pose-Based Gait Analysis for Surveillance." In Innovations in Computational Intelligence and Computer Vision: Proceedings of ICICV 2021, pp. 615-622. Singapore: Springer Nature Singapore, 2022. https://doi.org/10.1007/978-981-19-0475-2_54

4. 5th International Conference on Intelligent Data Communication Technologies and Internet of Things

JCT College, India

Springer *27 - 28 Aug. 2021*

Aski, Vidyadhar Jinnappa, Vijaypal Singh Dhaka, Sunil Kumar, and **Anubha Parashar**. "IoT Enabled Elderly Monitoring System and the Role of Privacy Preservation Frameworks in e-health Applications." In Intelligent Data Communication Technologies and Internet of Things: Proceedings of ICICI 2021, pp. 991-1006. Singapore: Springer Nature Singapore, 2022. https://doi.org/10.1007/978-981-16-7610-9_72.

5. 8th International Conference on Innovations in Computer Science & Engineering

Guru Nanak Institute, India

Guru Nanak Publication *28 - 29 Aug. 2020*

Pranav Gupta, Vaibhav Singh, **Anubha Parashar**," Smart Autonomous Vehicle Using End to End Learning", 8th International Conference on Innovations in Computer Science & Engineering, 2020.

6. 4th International Conference On Opportunities & Challenges In Business Management

MAHE, Dubai

IEEE *25 - 26 Feb. 2020*

V. Aski, V. S. Dhaka, S. Kumar, **A. Parashar** and A. Ladagi, "A Multi-Factor Access Control and Ownership Transfer Framework for Future Generation Healthcare Systems," 2020 Sixth International Conference on Parallel, Distributed and Grid Computing (PDGC), Waknaghat, India, 2020, pp. 93-98, doi: 10.1109/PDGC50313.2020.9315840.

7. International Conference on Modelling, Simulation & Intelligent Computing.

BITS, Dubai

Springer *29 - 31 Jan. 2020*

Parashar, A., Parashar, A., Aski, V., & Shekhawat, R. S. (2021). Surveillance System to Provide Secured Gait Signatures in Multi-view Variations Using Deep Learning. In Advances in Machine Learning and Computational Intelligence: Proceedings of ICMLCI 2019 (pp. 247-254). Springer Singapore. https://doi.org/10.1007/978-981-15-5243-4_21

8. International Conference on Innovations in Computational Intelligence and Computer Vision

Manipal University Jaipur, India

Springer *18 - 19 Jan. 2018*

Aski, V., Dhaka, V.S., **Parashar, A.** (2021). An Attribute-Based Break-Glass Access Control Framework for Medical Emergencies. In Innovations in Computational Intelligence and Computer Vision. Advances in Intelligent Systems and Computing, vol 1189. Springer, Singapore. https://doi.org/10.1007/978-981-15-6067-5_66

9. Second International Conference on intelligent Communication and Computational Techniques

Manipal University Jaipur, India

IEEE *28 - 29 Sep. 2019*

A. Parashar, "IoT Based Automated Weather Report Generation and Prediction Using Machine Learning," 2019 2nd International Conference on Intelligent Communication and Computational Techniques (ICCT), Jaipur, India, 2019, pp. 339-344, doi: 10.1109/ICCT46177.2019.8968782.

10. 2nd International Conference on Smart IoT Systems: Innovations in Computing

Manipal University Jaipur, India

Springer, Scopus *18 - 19 Jan. 2019*

Parashar, A., Parashar, A. (2020). IoT-Based Cloud-Enabled Smart Electricity Management System. In Smart Systems and IoT: Innovations in Computing. Smart Innovation, Systems and Technologies, vol 141. Springer, Singapore. https://doi.org/10.1007/978-981-13-8406-6_71.

11. 2nd International Conference on Smart IoT Systems: Innovations in Computing

Manipal University Jaipur, India

Springer, Scopus *18 - 19 Jan. 2019*

Parashar, A, et.al, (2020). Cloud-Assisted IoT-Enabled Smoke Monitoring System (e-Nose) Using Machine Learning Techniques. In Smart Systems and IoT: Innovations in Computing. Smart Innovation, Systems and Technologies, vol 141. Springer, Singapore. https://doi.org/10.1007/978-981-13-8406-6_70

12. 8th International Conference on Innovative Technologies *Zagreb, Croatia*

Springer *5 - 7 Sep. 2018*

A Parashar, RS Shekhawat, A Parashar, "Tracing Gesture and Extracting Gait Features to Recognize Parkinson's Disease Using Multi-layered Back Propagation Algorithm", International Conference on Innovative Technologies (pp 133-136), http://intech.info/download/%20IN_TECH_2018_Proceedings. Received Best Paper Award

13. 10th International Conference on Security of Information and Networks *Jaipur India*

ACM, Tier 3 conference *13 -15 Oct. 2018*

Anubha Parashar, Apoorva Parashar, and Somya Goyal. 2017. Identification of gait data using machine learning technique to categories human locomotion. In Proceedings of the 10th International Conference on Security of Information and Networks (SIN '17). Association for Computing Machinery, New York, NY, USA, 229–234. https://doi.org/10.1145/3136825.3136903

14. International Conference on Smart Trends for Information Technology and Computer Communications *Jaipur India*

Springer *6 -7 Aug. 2016*

Parashar, A., Goyal, D. (2016). Clustering Gait Data Using Different Machine Learning Techniques and Finding the Best Technique. In Smart Trends in Information Technology and Computer Communications. SmartCom 2016. Communications in Computer and Information Science, vol 628. Springer, Singapore. https://doi.org/10.1007/978-981-10-3433-6_51

15. International Conference on ICT for Sustainable Development *Panaji, Goa, India*

Springer *1 -2 Jul. 2016*

Parashar, A., Parashar, A., & Goyal, S. (2018). Classifying gait data using different machine learning techniques and finding the optimum technique of classification. In Information and Communication Technology for Sustainable Development: Proceedings of ICT4SD 2016, Volume 2 (pp. 305-313). https://doi.org/10.1007/978-981-10-3920-1_31.

16. Second International Conference on Information and Communication Technology for Competitive Strategies *Udaipur, India*

ACM, Scopus, WoS *4 -5 Mar. 2016*

Parashar, A., Parashar, A., Goyal, S., & Sahjalan, B. (2016, March). Push recovery for humanoid robot in dynamic environment and classifying the data using K-mean. In Proceedings of the Second International Conference on Information and Communication Technology for Competitive Strategies (pp. 1-6). https://doi.org/10.1145/2905055.2905207.

Book Chapter

1. Book Title: Cognitive Computing for Human-Robot Interaction: Principles and Practices. Book series Title: Cognitive Data Science in Sustainable Computing. **Parashar, A.**, Parashar, A., & Goyal, L. M. (2021). Optimized navigation using deep learning technique for automatic guided vehicle. In Cognitive Computing for Human-Robot Interaction (pp. 147-161), Academic Press, https://doi.org/10.1016/B978-0-323-85769-7.00002-1 Scopus Indexed.
2. Book Title: Security and Trust Issues in Internet of Things: Blockchain to the rescue. Book series Title: Internet of Everything's (IoE) : Security and Privacy Paradig. **Anubha Parashar**, Apoorva parashar, Vidyadhar Aski, Rajveer S Shekhawat, "IoT enabled Surveillance System to Provide Secured Gait Signatures Using Deep Learning ", CRC Press, Taylor & Francis Group, USA (pp - 24 pages) 1st Edition , ISBN 9781003121664, https://doi.org/10.1201/9781003121664, December 2, 2020.
3. Book Title: Autonomous driving and driver assistance system. Book series Title: Autonomous vehicle application. **Parashar, A.**, Aski, V., & Parashar, A. (2021). Automated Guided Autonomous Car Using Deep Learning and Computer Vision. In Autonomous Driving and Advanced Driver-Assistance Systems (ADAS) (pp. 219-232), CRC Press, https://www.taylorfrancis.com/chapters/edit/10.1201/9781003048381-10/automated-guided-autonomous-car-using-deep-learning-computer-vision-anubha-parashar-vidyadhar-aski-apoorva-parashar, 15 December 2021.
4. Book Title: Autonomous driving and driver assistance system. Book series Title: Autonomous vehicle application. **Parashar, A.**, Parashar, A., & Aski, V. (2021). Open-Pit Mine Autonomous Bot. In Autonomous Driving and Advanced Driver-Assistance Systems (ADAS) (pp. 485-504). CRC Press, https://www.taylorfrancis.com/chapters/edit/10.1201/9781003048381-27/open-pit-mine-autonomous-bot-apoorva-parashar-anubha-parashar-vidyadhar-aski, 15 December 2021.
5. Book Title: Integration of WSNs into Internet of Things. Goyal, Somya, Sudhir Kumar Sharma, and **Anubha Parashar**. "Smart Agriculture Using Wireless Sensor Networks." Integration of WSNs into Internet of Things: A Security Perspective (2021): 121-134. CRC Press, 2021/6/4.
6. Book Title: Data Intensive Computing Applications for Big Data. Book series Title: Advances in Parallel Computing. **Anubha Parashar**, Apoorva Parashar. "Big Data Analysis Using Machine Learning Approach to Com-

pute Data", Advances in Parallel Computing. IOS PRESS (pp 133 - 150) http://ebooks.iospress.nl/publication/48530, Feb 2018, Scopus Indexed.

7. Book Title: Data Intensive Computing Applications for Big Data. Book series Title: Advances in Parallel Computing. **Anubha Parashar**, Anita Shrotriya "Application of Big Data Analytics in Cloud Computing via Machine Learning", Advances in Parallel Computing. IOS PRESS (pp 236 - 366), http://ebooks.iospress.nl/volumearticle/48534, Feb 2018, Scopus Indexed.

Articles

1. **Parashar, A.**, Kumar, S., Bhaskar, V. S., & Chinia, R. (2014). Noisy Distance Measurements Using 3-D Localization with Rb-Rf Methods. arXiv preprint arXiv:1407.2125., https://doi.org/10.48550/arXiv.1407.2125.
2. Rani, M., **Parashar, A.**, Chaturvedi, J., & Malviya, A. (2014). Search Space Engine Optimize Search Using FCC_STF Algorithm in Fuzzy Co-Clustering. arXiv preprint arXiv:1407.6952., https://doi.org/10.48550/arXiv.1407.6952.
3. Chaturvedi, J., **Parashar, A.**, Manjrekar, A. A., & Bhaskar, V. S. (2014). Social and business intelligence analysis using PSO. arXiv preprint arXiv:1407.6090., https://doi.org/10.48550/arXiv.1407.6090.
4. Vaish, K., Rajesh, S. M., Pasupatheeswaran, K., **Parashar, A.**, & Chaturvedi, J. (2014). Design and Autonomous Control of the Active Adaptive Suspension System Rudra Mars Rover. arXiv preprint arXiv:1407.5197., 2022 (Q2) ESCI, IF – 2.716., https://doi.org/10.48550/arXiv.1407.5197.
5. **Parashar, A.** (2016). A proposed solution to knapsack problem using branch & bound technique. International Journal for Innovative Research in Multidisciplinary Field, 2(7), 240-246.
6. **Parashar, A.**, & Bijalwan, V. A Text to Speech Conversion Engine.

Presentation

1. Indian Society for Technical Education (ISTE) Annual Students' Convention (ASC - 2010), Presented a paper entitled, "Electronic Commerce", in ISTE's ASC-2010 organized by BVICAM, New Delhi,25 September, 2010.
2. 1st Online International Conference on Advances in Computing, Communication and Control" (ICA3C-2020), Presented a paper entitled, "Deep Learning based Surveillance System using Gait Signatures", in ICA3C-2020 organized by School of Computer Science and Applications, IIMT University, Meerut, 16th-17th June, 2020.

Grants

23-3-2018	**DST Rajasthan** , Technology Demonstration & Training Centre, Principal Investigator	*1,64,500 INR*
20-4-2017	**Manipal University Jaipur**, Grant for IoT and AI Laboratory, Principal Investigator	*20,00,000 INR*
20-4-2018	**Manipal University Jaipur**, Energy consumption, optimization for Smart Classroom using IoT, Co-PI	*45,000 INR*
4-7-2019	**Manipal University Jaipur**, Energy consumption, optimization for Smart Class using Computer Vision, PI	*45,000 INR*

Projects

1. Intelligent Vehicle Data Management System: A Chatbot Approach *Invincible Ocean, India*

15 Apr. 2024 – Present

- Developed and implemented a comprehensive database schema for vehicle data, encompassing registration details, sales records, insurance information, ownership history, and permits data.
- Designed and trained a natural language understanding module to parse user queries and extract relevant information using techniques such as tokenization and named entity recognition.
- Built an intent classification system to categorize user queries into distinct categories based on their intent, facilitating efficient query processing.
- Engineered a query execution module to translate user queries into SQL queries and retrieve relevant data from the database, ensuring accurate and timely responses.
- Deployed and maintained a chatbot-like system to interactively handle user queries related to vehicle data, providing valuable insights and information in real-time.

2. Surveillance System for Security to Track Individuals Using Human Gait *Manipal University Jaipur, India*

WITH PROF. WEIPING DING, CHINA, PHD PROJECT *1 Jan. 2018 – 12 Apr. 2023*

- Surveillance system for security refers to a comprehensive setup designed to monitor and ensure safety in a given environment.
- Tracking individuals using human gait involves utilizing the unique walking patterns and movements of individuals to identify and track them within the surveillance system in presence of covariate conditions.

3. Face De-Identification Pipeline Based on Physiological & Machine Recognition Experiments Using Deep Learning

Zagreb, Croatia

WITH PROF. DR. SCIENTIST. SLOBODAN RIBARIĆ, PHD VISIT — *5 Sep. 2018 – 30 Dec. 2019*

- The face de-identification pipeline aims to protect privacy by anonymizing facial information while maintaining naturalness of face.
- Physiological and machine recognition experiments using deep learning explore patterns in facial data to understand and analyze attributes enabling effective face de-identification techniques.

4. Classification of GAIT data using various machine learning techniques to categorise human locomotion

VCE, Rohtak, India

M.TECH PROJECT — *5 Sep. 2014 – 30 Jun. 2016*

- It enables accurate identification and classification of abnormal walking patterns of individual by analyzing and categorizing their gait data.

5. Low-cost IoT enabled Board Marker using Image Processing

Manipal University Jaipur

COSTING 2500 INR, WHERE PROJECTOR NOT AVAILABLE AND USER IS PHYSICALLY CHALLENGED. — *Jan. 2019 – Dec. 2020*

6. IoT Enabled Mechanical Chess based on Artificial Intelligence

Manipal University Jaipur

CHESS PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY. — *Jan. 2018 – Dec. 2019*

7. Computer Vision based Smart Car

Manipal University Jaipur

DESIGNED AND DEVELOPED A CAR TO FOLLOW TRAFFIC RULES USING ARTIFICIAL NEURAL NETWORK — *Jun. 2018 – Dec. 2019*

8. IoT based Smart Assistance Spoon for Parkinson Patients

Manipal University Jaipur

DESIGNED MECHANICAL SPOON-FEEDING ARM. — *Jan. 2017 – Dec. 2018*

9. Unmanned Aerial Vehicle for Surveillance

Manipal University Jaipur

DESIGNED QUADCOPTER FOR SURVEILLANCE PURPOSES. — *Jan. 2020 – Present*

10. Smartphone-based Sleep Staging using 1-Channel EEG

Manipal University Jaipur

EMPLOYED THE USE OF A MACHINE LEARNING MODEL TO ANALYSE THE EEG INPUT. — *Jan. 2021 – Present*

11. IoT based Cloud Enabled Automated Weather Reporting and Prediction System

Manipal University Jaipur

DESIGNED A SYSTEM THAT CAN SENSE AND FORMULATES TO FORECAST THE WEATHER. — *Jan. 2018 – Dec. 2019*

12. IoT Based Cloud-Enabled Smart Electricity Management System

Manipal University Jaipur

USER CAN VIEW CONSUMPTION OF ELECTRICITY REMOTELY TO KNOW THE AMOUNT, USER IS BEING CHARGED FAIRLY OR NOT. — *Oct. 2016 – Dec. 2017*

13. Human Assistant Robot

Manipal University Jaipur

MAKING SELF-NAVIGATION ROBOT TO NAVIGATE AUTONOMOUSLY IN ANY ENVIRONMENT. — *Jun. – Dec. 2018*

14. Drone Based Flying Solution for Medical Emergencies intended in Disaster Management

Manipal University Jaipur

HEALTH CARE KIT INSTALLED IN DRONE FOR EMERGENCIES AND NATURAL CALAMITIES. — *Jul. – Dec. 2016*

15. IoT Enabled Mechanical Chess based on Artificial Intelligence

Manipal University Jaipur

CHESS PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY. — *Jan. 2018 – Dec. 2019*

16. IoT Enabled Mechanical Chess based on Artificial Intelligence

Manipal University Jaipur

CHESS PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY. — *Jan. 2018 – Dec. 2019*

17. IoT Enabled Mechanical Chess based on Artificial Intelligence

Manipal University Jaipur

CHESS PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY. — *Jan. 2018 – Dec. 2019*

18. M-Training Toolkit on Polio/Routine Immunization for CMCs in CGPP

ZMQ SOFTWARE SYSTEMS, Gurgaon

B.TECH 8TH SEMESTER 6 MONTHS TRAINING — *Jan. – Jul. 2013*

- Designed and developed Mobile App using J2ME and Oracle10g as backend.

19. Automatic Wireless Health Monitoring System *Essilor India Private Limited, Delhi*

B.Tech 7th Semester Practical Training-II *19.06.2012 to 31.07.2012*

- Monitoring the condition of patient. Wireless communication system is designed and developed for remote patient monitoring. Software Requirements: Keil compiler, Language: Embedded C. Hardware Requirements: 8051 series Microcontrollers, Encoder IC, Decoder IC, LCD, Transformer, Voltage Regulator, RF Module etc.

Invited Talk

INVITED TALK DELIVERED

8-2-2018	**Bhimrao Aambedkar University,** Speaker for an Expert Talk on IoT & Its Applications	*Agra, India*
27-5-2019	**Bhimrao Aambedkar University,** Speaker for an Expert Talk on Machine Intelligence	*Agra, India*
20-4-2020	**Speaker for an Expert Talk,** on Introduction to Artificial Intelligence and IoT	*Manipal University Jaipur, India*
2-3-2023	**IoT and AI Workshop,** MUJ ACM SIGAI Student Chapter, Aimed to promote Embedded systems, AI and IoT	*Manipal University Jaipur, India*

EVENT JUDGE

15-1-2019	**Invited as Judge in Hackathon organised by ACM,** Manipal University Jaipur	*Jaipur, India*
13-1-2018	**Judge for the ACM organised Hackathon,** Manipal University Jaipur	*Jaipur, India*

Reviewer

1.	**IEEE Transactions on Neural Networks and Learning Systems,** Q1, SCI	*14 November, 2022*
2.	**Neurocomputing,** Q1, SCI	*17 December, 2022*
3.	**Information Sciences,** Q1, SCI	*14 November, 2022*
4.	**IEEE Transactions on Emerging Topics in Computational Intelligence,** Q1, SCI	*30 January, 2023*
5.	**Journal of Information Security and Applications ,** Q1, SCI	*3 July, 2023*
6.	**Engineering Applications of Artificial Intelligence,** Q1, SCI	*4 July, 2023*
7.	**Pattern Recognition Letters,** Q1, SCI	*18 May, 2023*
8.	**International Journal of Interactive Multimedia and Artificial Intelligence,** Q2, SCI	*11 March, 2017*

Awards and Achievements

1.	**World Association for Innovative Technology Award for Science & Technology Transfers,** In International Conference on Innovative Technologies, Zagreb, Croatia	*Sep. 6, 2018*
2.	**Young Researcher Award – Research,** Manipal University Jaipur	*Oct. 2022*
3.	**Top Achiever Award – Research,** Manipal University Jaipur	*Sep. 2022*
4.	**Best Poster Award for Gait Biometrics,** International Conference - ICCT, Manipal University Jaipur	*Dec, 2019*
5.	**Best Project Award for AI-Based Chess,** International Conference - ICCT, Manipal University Jaipur	*Dec, 2019*
6.	**Second Best Project Award for Smart Marker,** International Conference - ICCT, Manipal University Jaipur	*Dec, 2019*
7.	**Top Achiever Award – Research,** Manipal University Jaipur	*Jan. 2023*
8.	**Top Achiever Award – Research,** Manipal University Jaipur	*July. 2023*

Professional Memberships

1.	**Member of IEEE,** Institute of Electrical and Electronics Engineers	*ID. 93426265*
2.	**Member of ACM,** Association for Computing Machinery	*ID. 9763989*
3.	**Member of CSI,** Computer Society of India	*ID. 2010000571*
4.	**Member of theIRED,** Institution of Research Engineers and Doctors - Universal Association of Computer and Electronics Engineers	*ID. AM10100057578*
5.	**Member of CSTA,** Computer Science Teachers Association	*ID. 300000629*
6.	**Member of Internet Society,** Internet Society	*ID. 138776*
7.	**Member of IAENG,** International Association of Engineers	*ID. 173727*
8.	**Member of SCIEI,** Science and Engineering Institute	*ID. 201610190002*
9.	**Member of IEDRC,** International Economics Development Research Center	*ID. 90080958*

Professional Development

Industrial Certification and Courses

1. **May. 2021**, Getting started with Deepstream for Video Analytics on Jetson. *Nvidia*
2. **Mar. 2021**, Getting Started with AI on Jetson Nano. *Nvidia*
3. **Jul. 2020**, Fundamentals of Digital Marketing. *Google*
4. **Apr. 2022**, Data Science Fundamentals with Python and SQL Specialization. *IBM*
5. **Apr. 2022**, Deep Learning Specialization @ deeplearning.ai. *Stanford University*

Short Term Courses and Workshop

1. **Ethical Hacking and Cyber Forensics**, PDMCE, Bhadurgarh *Nov. 5, 2010*
2. **Network Simulation and Related Technologies using NetSIM Software**, Manipal University Jaipur *Sep. 21 - 23, 2016*
3. **Power System Design and Analysis using DigSILENT PowerFactory Software**, Manipal University Jaipur *Oct. 3 - 5, 2016*
4. **Intel HPC Code Modernization (Parallelization and Optimization)**, Manipal University Jaipur *Oct. 12 - 14, 2016*
5. **Workshop on Pedagogic and Personal Effectiveness**, Manipal University Jaipur *Nov. 10 - 12, 2016*
6. **Biometric-based Authentication & De-identification for Privacy Protection**, Manipal University Jaipur *Dec. 19 - 25, 2016*
7. **Multimodal and Advanced Biometric-based Authentication**, MNIT, Jaipur *Jan. 2 - 11, 2017*
8. **Acquiring 21st Century Competencies through Design Based Learning in Engineering Education**, Manipal University Jaipur *Jan. 11 - 12, 2017*
9. **Computational Intelligence (Machine Based Learning)**, Manipal University Jaipur *Jan. 18 - 22, 2017*
10. **Microsoft Training Programme on Microsoft in the Classroom**, Manipal University Jaipur *Mar. 8, 2017*
11. **A Workshop on MOOCs and Digital Scholarships**, Manipal University Jaipur *Jun. 16, 2017*
12. **3rd SERB School on Robotics**, IIT Delhi *Jun. 23 - 28, 2017*
13. **Design and Building IoT Solution with Azure**, Manipal University Jaipur *Jun. 27 - 29, 2017*
14. **IoT Solution with Oracle**, Manipal University Jaipur *February 14, 2018*
15. **Emerging Applications in Image Processing**, MNIT Jaipur & Manipal University Jaipur *Feb. 21 - 25, 2018*
16. **Advanced Pattern Recognition Techniques**, MNIT Jaipur *Mar. 26 - 30, 2018*
17. **Awareness of Research Database and Online Research Network Platforms**, Manipal University Jaipur *Jan. 25, 2019*
18. **Telemedicine Challenges and its awareness**, Manipal University Jaipur *Mar. 26, 2019*
19. **Blumix Enablement Session**, Manipal University Jaipur *May 19, 2019*
20. **Deep Learning using Python Programming**, Manipal University Jaipur *Jul. 8 - 12, 2019*
21. **Learn How to Write and Publish a Research Paper**, Manipal University Jaipur *January 11, 2020*
22. **Applied Research in Multidisciplinary Studies**, Sona College of Technology, Salem *May 18-19, 2020*
23. **Colloquium on Research Methodology**, Indira Gandhi University Meerpur, Rewari *May 18-23, 2020*
24. **Emerging Effective Digital Tools for Teaching Pedagogy**, Gnanamani College of Technology, Tamil Nadu *May 25-29, 2020*
25. **ICT Tools for E-Content Development**, Women's Christian College, Chennai *May 26-29, 2020*
26. **Real Time Cognitive Services on Azure Cloud**, arvathy's Arts & Science College *Jun. 10-12, 2020*
27. **Yoga For Human Excellence**, Bharat Ratna Puratchi Thalaivar College *Jun. 21, 2020*
28. **Emerging Trends in Information Technology**, Karpagam College of Engineering, Coimbatore *Jun. 23 - 27, 2020*
29. **Essentials for Blended Learning**, Dr.MGR Education and Research Institute, Chennai *Jul. 13 - 20, 2020*
30. **NPTEL E-Awareness**, Manipal University Jaipur *Jul. 21, 2020*
31. **Data Analysis with SPSS**, Manipal University Jaipur *Jul. 23-24, 2020*
32. **Python for Data Science**, Dr.MGR Education and Research Institute, Chennai *Jul. 23 - 25, 2020*
33. **Next Generation Smart Machines (NGSM v1.0)**, Karunya Institute of Technology and Sciences *Jul. 27 - 29, 2020*
34. **Microsoft Teams Tool Training**, Manipal University Jaipur *Jul. 27 - 29, 2020*
35. **Environmental Impacts of COVID-19 Pandemic: Challenges and Remedies through Science & Engineering**, PIET Jaipur in association with RTU Kota *Jul. 27 - 31, 2020*
36. **Fundamentals of RADAR System**, N.B.K.R Institute of Science and Technology, Andhra Pradesh *Aug. 11 - 15, 2020*
37. **Artificial Intelligence and Machine Learning Application in Healthcare**, NIT Meghalaya in TEQIP-III *Sep. 03 - 07, 2020*
38. **Artificial Intelligence using Python**, CMR Engineering College, Hyderabad *Sept. 14 - 19, 2020*
39. **Machine Learning for Natural Language Processing (MNLP-2020)**, NIT Hamirpur *Oct. 12 - 17, 2020.*
40. **Research Trends in Artificial Intelligence & Machine Learning for Engineering Challenges**, MNIT, Jaipur *Dec. 6th -10th, 2022*

Seminar Attended

1. **1. Expert Talk on Recent advances in signal processing communication & Machine Learning**, Manipal University Jaipur — *October 6, 2017*
2. **2. One day Session on DevOps by Microsoft**, Manipal University Jaipur — *February 14, 2017*
3. **3. Data Science/Engineering-Analytic Fuels Growth of a Nation-Innovative use cases**, Manipal University Jaipur — *November 25, 2016*

Events Organised

Conferences Organized

1. **Organising Committee member of 3rd ICCT**, Manipal University Jaipur — *19 – 20 Sep. 2023*
2. **Organising Committee member of 3rd ICICV**, Manipal University Jaipur — *24 – 25 Nov. 2022*
3. **Organising Committee member of SpaceSec**, Manipal University Jaipur — *9 – 10 Dec. 2021*
4. **Organising Committee member of 2nd ICICV**, Manipal University Jaipur — *5 – 6 Aug. 2021*
5. **Organising Committee member of 2nd ICCT**, Manipal University Jaipur — *28 – 29 Sep. 2019*
6. **Organising Committee member of SIN 2019**, Sochi Russia — *12 – 15 Sep. 2019*
7. **Organising Committee member of ICICV**, Manipal University Jaipur — *18 – 19 Jan. 2018*
8. **Convener of Conference on MUN 5.0**, Manipal University Jaipur — *14 – 15 Apr. 2018*
9. **Convener of Conference on MUN 4.0**, Manipal University Jaipur — *15 – 16 Apr. 2017*
10. **Program Committee of Accommodation Committee in SSIC – 2017**, Manipal University Jaipur — *15-16 Apr. 2017*
11. **Program Committee of Accommodation Committee in SIN – 2018**, Manipal University Jaipur — *13-15 Oct. 2017*
12. **Program Committee of ACM Proceedings in SIN – 2018**, Manipal University Jaipur — *13-15 Oct. 2017*
13. **Program Committee of Local Promotion & Publicity Committee in SIN – 2018**, Manipal University Jaipur — *13-15 Oct. 2017*
14. **Program Committee of Publication & Printing Committee in SIN – 2018**, Manipal University Jaipur, India — *13-15 Oct. 2017*
15. **Program Committee of Local Organising Committee in SIN – 2018**, Manipal University Jaipur, India — *13-15 Oct. 2017*
16. **Program Chair of Accommodation Committee in ICCT 2017**, Manipal University Jaipur, India — *22-23 Dec. 2017*
17. **Program Committee member of Review Committee of SIN 2019**, Sochi Russia — *12 – 15 Sep. 2019*
18. **Program Committee member of Review Committee of SSIC-2019**, Manipal University Jaipur, India — *18-20 Jan. 2019*
19. **Program Committee member of Accommodation Committee SSIC - 2019** , Manipal University Jaipur — *18-20 Jan. 2019*
20. **Program Committee member of Review Committee of SIN 2018**, Cardiff University, United Kingdom — *10-12 Sep. 2018*
21. **PC member of Review Committee of RICE-2018**, Manipal University Jaipur, India — *22-24 Aug. 2018*
22. **Program Committee member of Review Committee of NGCT-2017**, Manipal University Jaipur, India — *30-31 Oct. 2017*
23. **Program Committee member of Review Committee of TENCON 2017**, Penang, Malaysia — *05-08 Nov. 2017*
24. **Program Committee member of Review Committee of ICCT 2017**, Manipal University Jaipur, India — *22-23 Dec. 2017*
25. **Program Committee member of Review Committee of SSIC 2017**, Manipal University Jaipur, India — *15-16 Apr. 2017*
26. **Program Committee member of Review Committee of RICE-2017**, IT Gopeshwar, Uttrakhand, India — *24-26 Mar. 2017*
27. **PC member of Review Committee of ICISSP 2015**, Manipal University Jaipur, India — *9-11 Feb. 2015*

Workshop Organized

1. **Convener of workshop on IoT Solution with Oracle**, Manipal University Jaipur, India — *Feb. 14, 2018*
2. **Convener of workshop on Design and Building IoT Solution with Azure**, Manipal University Jaipur, India — *Jun. 27 - 29, 2017*
3. **One Week FDP on Computational Intelligence**, Manipal University Jaipur, India — *Jan. 18 - 22, 2017*

Seminar Organized

1. **Industrial Internships & forming community on upcoming technologies by Novelence Core**, Manipal University Jaipur, India — *13th Oct. 2018*
2. **Inertial System and Global Positioning System Technology Trends**, PDMCE, Bahadurgarh, Haryana, India — *2 Nov. 2010*

Events Organized

1. **Blood Donation Camp**, Manipal University Jaipur, India — *November 15, 2019*
2. **Blood Donation Camp**, Manipal University Jaipur, India — *November 16, 2017*
3. **Blood Donation Camp**, Manipal University Jaipur, India — *November 18, 2016*

Extracurricular Activity

1. Part of Social Organizations

Manipal University Jaipur

Coordinator of NSS — *January 09, 2018*

- Conducting different Project/Workshop related activities and campaign programs.

2. Working for social cause

Manipal University Jaipur

Coordinator of Rotaract Club

November 12, 2017

- Collaborating with international organizations and organizing club activities.

3. Sports

Actively participated in various sports in School, Inter school, State level, University level, National Level

- Javelin Throw (National Player).
- Badminton (first position in inter college Championship).
- Basketball (State Level player, Trophy in inter college Championship).
- 1st position in 100m, relay race, hurdle 100m, short put, discus throw, basketball, throw ball, baseball - State level.

4. IEEE Student Branch Secretary and Student Microsoft Ambassadors

PDMCE, India

Conducted various technical events and participated in various technical activities

2011-2012

5. Student Body

Hyderabad, India

Member of Student Body as School Vice-Captain

2006-2007

6. Student Body

Hyderabad, India

Member of Student Body as Senior Perfect

2005-2006

7. Leasure Interest and Activities

Research, working on Projects, Programming & Learning new Technology.

- Also, I like to travel, I love being near water, sea & lakes. I enjoy adventures & doing outdoor things, especially the forest & mountain trekking; natural places such as waterfalls, hills, valley, pass etc.
- Swimming, Soccer, Oil Painting