

Anubha Parashar

RESEARCH SCIENTIST · BIOMETRICS | COMPUTER VISION | GENAI | LLM | NLP | DL | ML | ARTIFICIAL INTELLIGENCE

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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

- **Virtual Try-On (VITON) System:** Created a Virtual Try-On platform using deep learning to overlay clothing on user photos, achieving a 95% user satisfaction rate.
- **Vehicle RC Data Chatbot:** Fine-tuned a Large Language Model to handle vehicle RC data queries. Developed a user-friendly chatbot, reducing manual search time by 70% and providing instant access to vehicle information.
- **Text Recognition and OCR System:** Designed and trained neural networks with Tesseract, PaddleOCR, and Paddle NLP, attaining 98% accuracy. Developed a Label Studio backend for auto-annotation, APIs for OCR on base64 images, Dockerized various components, and created a Gemini assistant for information extraction.

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

Robust Gait Recognition System Using Deep Learning to Handle Covariates

- 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 covariates that act as a universal deep learning pipeline that can handle most gait covariates, rather than using different deep learning pipelines.

De-Identification Using Deep Learning @ FER, University of Zagreb, Zagreb, Croatia (Sep 2018 – Dec 2019)

- Designed a pipeline to modify face geometry and texture, preserving dataset privacy without compromising naturalness.

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

MASTER OF TECHNOLOGY

Rohtak, India

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

BACHELOR OF TECHNOLOGY

Rohtak, India

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

12TH – CBSE

Rohtak, India

Mar. 2008 – Jun. 2009

St. Georges Grammar School

10TH – ICSE

Hyderabad, India

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, IoT, Software Engineering.
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

INDIAN PATENT, STATUS: GRANTED

Patent No: 202111034240

29 Jul. 2021

2. A System and Method For Tracking of Drug Product and Expiry Date Alert of Pharmaceuticals using Deep Learning.

INDIAN PATENT, STATUS: PATENT-PENDING

Patent No: 202331058909

2 Sep. 2023

3. Content Based Video Ranking.

INDIAN PATENT, STATUS: PUBLISHED

Patent No: 202011053220

8 Jan. 2021

4. Inexpensive Nail-fold Capillaroscopy for Early Detection of Cardio-Metabolic Disease

AUSTRALIAN PATENT, STATUS: GRANTED

Patent No: 2021100922

18 Feb. 2021

5. Content Based Video Ranking.

INDIAN PATENT, STATUS: GRANTED

Patent No: 2021105538

15 Aug. 2021

6. Sign Language Translator

SOUTH AFRICAN PATENT, STATUS: GRANTED

Patent No: 202110309

13 Dec. 2021

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 Parashar**, 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,

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), Wanknaghat, 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://int-tech.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., & Sahjlan, 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 Compute 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

CHESSE 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

CHESSE PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY.

Jan. 2018 – Dec. 2019

16. IoT Enabled Mechanical Chess based on Artificial Intelligence

Manipal University Jaipur

CHESSE PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY.

Jan. 2018 – Dec. 2019

17. IoT Enabled Mechanical Chess based on Artificial Intelligence

CHESS PLAYED BETWEEN HUMAN VS COMPUTER PHYSICALLY.

Manipal University Jaipur

Jan. 2018 – Dec. 2019

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

B.TECH 8TH SEMESTER 6 MONTHS TRAINING

ZMQ SOFTWARE SYSTEMS, Gurgaon

Jan. – Jul. 2013

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

19. Automatic Wireless Health Monitoring System

B.TECH 7TH SEMESTER PRACTICAL TRAINING-II

Essilor India Private Limited, Delhi

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

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

Awards and Achievements

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

Professional Development

INDUSTRIAL CERTIFICATION AND COURSES

- May. 2021**, Getting started with Deepstream for Video Analytics on Jetson. Nvidia
- Mar. 2021**, Getting Started with AI on Jetson Nano. Nvidia
- Jul. 2020**, Fundamentals of Digital Marketing. Google
- Apr. 2022**, Data Science Fundamentals with Python and SQL Specialization. IBM
- 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 (MNL-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

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 |

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, Uttarakhand, 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
2. **Blood Donation Camp**, Manipal University Jaipur, India
3. **Blood Donation Camp**, Manipal University Jaipur, India

November 15, 2019
November 16, 2017
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. Leisure 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