

Anubha Parashar

Research Scientist

Computer Vision | Deep Learning | Artificial Intelligence |
Biometrics | NLP | Machine Learning | IoT

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WORK EXPERIENCE

CURRENT, FROM APR 2024

1. Invincible Ocean, Gurugram, India Research Scientist - AI and Metaverse

Pioneers AI technologies, crafting cutting-edge algorithms and models for data science. Her expertise drives the development of AI-driven tools, revolutionizing data analytics for unprecedented insights. Through her leadership, researchers harness the power of computer vision, extracting valuable insights with precision and efficiency.

JUL 2016 – APR 2024

2. Manipal University Jaipur, India Sr. Assistance Professor - CSE Department

An academician with research and professional interests in Deep Learning, Machine Learning, Bipedal Locomotion, Humanoid Robotics (locomotion & push recovery), Biometrics Gait, Neural Networks, Internet of Things, Artificial Intelligence, Image processing, Computer Vision and Natural Language Processing.

JAN 2018 – APR 2023

3. Manipal University Jaipur, India Doctoral Research

“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.

JUL 2013 – JUL 2014

4. Sconad Communication, Mumbai, India Level 3 Research Associate

- 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.

JAN 2013 – JUL 2013

5. ZMQ Technologies, Gurugram, India Intern - Android, J2ME App Development

- 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.

EDUCATION

- 2018 – 2023 **Doctor of Philosophy**
Computer Science and Engineering (AI)
Manipal University, India
- 2014 – 2016 **Master of Technology**
FIRST CLASS HONORS
Computer Science and Engineering (AI)
Maharshi Dayanand University, Rohtak, India
- 2009 – 2013 **Bachelor of Technology**
FIRST CLASS HONORS
Computer Science and Engineering
Maharshi Dayanand University, Rohtak, India

SKILLS

LANGUAGE	PYTHON (Numpy, Pandas, CUDA), JAVA, C.
SOFTWARE	Anaconda, Matlab, Colab, Tensorflow,
PLATFORM	Arduino Studio, GitHub, Latex, Blender.
LIBRARIES	OpenCV, Keras, Dlib, GPT-3.
HARDWARE	Jetson Nano, Raspberry Pi, Arduino, Banana pi,
PLATFORM	ArduCopter, KK2.I, 8051, NodeMCU.
CLOUD	Thingspeak, AWS, Azure, GCP, WATSON.
DATABASE	PostgreSQL, Firebase, MySQL, MongoDB.
OPERATING SYSTEM	Windows, Linux, Raspbian, Android.

COURSES

IBM	Data Science Fundamentals with Python and SQL Specialization.
COURSERA – APRIL 2022	
STANFORD UNIVERSITY	Deep Learning Specialization @ deeplearning.ai
COURSERA – APRIL 2022	
WASHINGTON UNIVERSITY	Machine Learning Specialization.
COURSERA – MAR 2022	
NVIDIA	Getting started with Deepstream for Video Analytics on Jetson.
MAY 2021	
NVIDIA	Getting Started with AI on Jetson Nano.
MARCH 2021	
GOOGLE	Fundamentals of Digital Marketing.
JULY 2020	

PATENTS - (6)

1. Anubha Parashar (2022). A Covariate-based Gait Recognition System and Method for Edge Analytics Using Optimized Deep Learning Pipeline. *Indian Patent, Status: Granted (202111034240).*

PROJECTS

- 1. FACE DE-IDENTIFICATION USING DEEP LEARNING**
FER, University of Zagreb, Zagreb, Croatia (Sep 2018 – Dec 2019)
Technology: Computer Vision, Deep Learning, Image Processing.
I designed a pipeline that modifies face geometry and texture without losing the naturalness of dataset, thus preserving the privacy of dataset.
- 2. RECOGNITION THROUGH GAIT FOR SURVEILLANCE**
Manipal University, Jaipur, India (Jan 2018 – Sep 2022)
Technology: Computer Vision, Deep Learning, Biometrics, GANs.
I designed a deep learning pipeline to identify persons based on their body shape and walking styles.
- 3. IOT ENABLED WHITE BOARD MARKER**
Manipal University, Jaipur, India (Jan 2018 – Sep 2022)
Technology: IoT, Image Processing, Microcontroller - Arduino Mega.
I designed a Cost-effective automated marker system for drawing on a whiteboard.
- 4. SMART ASSISTANCE SPOON FOR PARKINSON PATIENTS**
Manipal University, Jaipur, India (Jan 2017 – Dec 2018)
Technology: IoT, Microcontroller - Arduino UNO, 3D printing - Blender
– Used blender to design robotic arm and 3D printed it to feed patients.
– Designed Android App to handle the robotic arm.
- 5. MECHANICAL CHESS USING ARTIFICIAL INTELLIGENCE**
Manipal University, Jaipur, India (Jan 2018 – Dec 2019)
Technology: IoT, Raspberry pi, 3D printing - Blender
– Chess played between Human VS computer (like in Harry Potter).
- 6. UNMANNED AERIAL VEHICLE FOR SURVEILLANCE**
Manipal University, Jaipur, India (Jan 2020 – Dec 2021)
Technology: Drone, Raspberrypi, Arducopter, Computer Vision
– Designed Quadcopter for surveillance purposes.
- 7. SMARTPHONE-BASED SLEEP STAGING USING EEG**
Manipal University, Jaipur, India (Jan 2021 – Present)
Technology: Machine Learning, EEG headset, Android App
– Used Machine Learning model to analyse the EEG input.

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AWARDS

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|------------------|---|
| OCT 2022 | Young Researcher Award – Research
<i>Manipal University</i> |
| SEP 2022 | Top Achiever Award – Research
<i>Manipal University</i> |
| DEC 2019
ICCT | Best Poster Award for Gait Biometrics
<i>International Conference, Jaipur, India</i> |
| DEC 2019
ICCT | Best Project Award for AI-Based Chess
<i>International Conference, Jaipur, India</i> |
| DEC 2019
ICCT | Second Best Project Award for Smart Marker
<i>International Conference, Jaipur, India</i> |
| 2018 | World Association for Innovative Technology |

2. Anubha Parashar (2021). Inexpensive Nail-fold Capillaroscopy for Early Detection of Cardio-Metabolic Disease. *Australian patent, Status: granted* (2021100922).

3. Anubha Parashar (2021). Content Based Video Ranking. *Australian patent, Status: Granted* (2021105538).

4. Anubha Parashar (2021). Sign Language Translator. *Australian patent, Status: granted* (202110309).

MORE

JOURNALS - (16)

1. Anubha Parashar, Apoorva Parashar, et.al., Advancements in artificial intelligence for biometrics: A deep dive into model-based gait recognition techniques, *Engineering Applications of Artificial Intelligence*, Volume 130, 107712, 2024 (Q1) SCI, IF – 8.34.

2. Anubha Parashar, Apoorva Parashar, Shekhawat RS, Ding W, Rida I. Deep Learning Pipelines for Recognition of Gait Biometrics with Covariates - A Comprehensive Review. *Artificial Intelligence Review.*, 2023 (Q1) SCI, IF – 9.588.

3. Anubha Parashar, et. al. (2016). Data preprocessing and feature selection techniques in gait recognition: A comparative study of machine learning and deep learning approaches *Pattern Recognition Letters.*, 2023 Vol. 172, (pp 65-73) (Q1) ESCI, IF – 5.1.

4. Anubha Parashar, Shekhawat RS, Ding W, Rida I. (2022). Intra-class Variations with Deep Learning-based Gait Analysis: A Comprehensive Survey of Covariates and Methods. *Neurocomputing.*, 2022 (Q1) SCI, IF – 5.667.

5. Anubha Parashar, Shekhawat RS, (2022). Protection of gait data set for preserving its privacy in deep learning pipeline *IET Biometrics.*, 2022 (Q1) ESCI, IF – 2.716.

6. Anubha Parashar, Shekhawat RS, (2022). A Robust Covariate-invariant Gait Recognition based on Pose Features *IET Biometrics.*, 2022 (Q1) ESCI, IF – 2.716.

MORE

INTERNATIONAL CONFERENCES - (16)

1. Anubha Parashar, Apoorva Parashar, Imad Rida, Vidyadhar Aski. (2022). Protecting the Privacy of Face by De-Identification Pipeline Based on Deep Learning. *16th International Conference on Signal Image Technology & Internet Based Systems.*, 2022 (IEEE), IF – 0.70.

2. Anubha Parashar, Apoorva Parashar, RS Shekhawat, Vidyadhar Aski. Surveillance System To Provide Secured Gait Signatures In Multi View Variations Using Deep Learning. *International Conference on Modelling, Simulation & Intelligent Computing.*, (Scopus) 2020.

3. Anubha Parashar, A Parashar. Identification of gait data using machine learning technique to categories human locomotion *10th International Conference on*

IN-TECH **Award For Science & Technology, Zagreb, Croatia**
Best paper award in International Conference
2014 **Gate Scholarship**, Postgraduation Scholarship

Security of Information and Networks (pp 229-234),
(Scopus) 2017 Tier 3 conference.

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ACTIVITIES

1. Talks in International Workshops and Conferences

Guest speaker to deliver lectures including labs sessions on IoT, AI, Computer Vision, Biometrics in MNIT Jaipur, Agra University.

2. Reviewer of Top Journals and International Conferences

Reviewer of IEEE Transactions on Neural Networks and Learning Systems, Information Sciences, IJIMAI journal, More than 30 International Conferences and hackathons conducted by ACM.

3. Events

- Committee member of more than 30 International Conferenced and Workshops.
- Organized workshop on IoT, Azure, AI, ML, NLP.
- Organized blood donation camp and part of Rotaract Club for 5 consecutive years (2016 – 2019, 2021).

4. Professional Membership

IEEE - 93426265. ACM - 9763989. CSI - 2010000571. TheIRED - AM10100057578. CSTA - 300000629. Internet Society - 138776. IAENG - 173727. SCIEI - 201610190002. IEDRC - 90080958.

5. Hobbies

Writing Technical Books and Research Articles, Problem Solving, Learning New Technology, Travelling, Soccer.

MORE

BOOK CHAPTERS - (7)

1. Book Title: Autonomous driving and driver assistance system

Anubha Parashar, Apoorva Parashar, Vidyadhar Aski. Vision based Smart Autonomous Vehicle using Deep Learning. *CRC Press, Taylor & Francis Group, USA, 2021* (Scopus).

2. Book Title: Cognitive Computing for Human-Robot Interaction: Principles and Practices.

Anubha Parashar, Apoorva parashar. Optimized Navigation using Deep Learning Technique for Automatic Guided Vehicle. *Elsevier, USA (pp - 147-161)*, 2021.

3. Book Title: Security and Trust Issues in Internet of Things: Blockchain to the rescue.

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, 2020*.

4. Book Title: Data Intensive Computing Applications for Big Data.

Anubha Parashar, Apoorva parashar. Big Data Analysis Using Machine Learning Approach to Compute Data. *Advances in Parallel Computing. IOS PRESS., 2018*.

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