

Anshul Pundhir

Ph.D. Research Scholar,
Machine Intelligence Lab,
Computer Science and Engineering Department,
IIT Roorkee, Uttarakhand, India, 247667.

☎: +91-9068562884
✉: anshul_p@cs.iitr.ac.in
🌐: www.anshulpundhir.github.io

OBJECTIVE

I am a Ph.D. student at Machine Intelligence Lab, IIT Roorkee, India, supervised by Prof. Balasubramanian Raman. I am interested in tech ideas, learning soft skills, and discussing solutions. My primary research interest revolves around Medical Image Analysis using Deep learning-based techniques. I am seeking a collaboration with a medical research lab engaged in developing innovative solutions for real-life medical challenges that would offer professional growth and excel my skills and experience.

EDUCATION

Ph.D. , Computer Science (pursuing), CGPA: 9.25/10 Indian Institute of Technology, Roorkee, Uttarakhand, India. Thesis Area: <i>Medical Image Analysis</i> Supervisor: Prof. Balasubramanian Raman	Dec 2019 onwards
Integrated M.Tech. , Computer Science, CGPA: 8.51/10 Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.	2019
Integrated M.Sc. , Computer Science, CGPA: 8.30/10 Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.	2018
B.Sc. , Computer Science, CGPA: 8.46/10 Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.	2017

ACADEMIC EXPERIENCE

Teaching Assistant <i>Indian Institute of Technology, Roorkee, India.</i> Assisted Prof. Balasubramanian Raman in the tutorial and quiz sessions for Advance Algorithms (CSN-501), Data Structures and Algorithms (AID-525), Fundamentals of Object Oriented Programming (CSN-103), and Discrete Structures (CSN-106) courses, Data Structures (CSC-102), Programming with C and C++ (CSC-101), etc.	Dec 2019 - Present
Teaching Assistant <i>Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.</i> Assisted Dr. R.S. Pavithr in lab and quiz sessions for Soft-Computing and Programming courses.	Jul 2016 - Jul 2018

RESEARCH INTERESTS

- Medical Image Analysis
- Deep Learning
- Machine Learning
- Soft Computing
- Evolutionary Algorithms

PUBLICATIONS

Journals

- [J-1] Kishore Babu Nampalle, **Anshul Pundhir**, Pushpamanjari Ramesh Jupudi and Balasubramanian Raman, Towards Improved U-Net for Efficient Skin Lesion Segmentation, published in the Journal of Multimedia Tools and Applications, Springer, April 2023.
- [J-2] **Anshul Pundhir**, Shivam Sagar, Pradeep Singh, and Balasubramanian Raman, “Echoes of Images: Multi-loss Network for Image Retrieval in Vision Transformers”, published in the Journal of Medical & Biological Engineering & Computing.

Conferences

- [C-1] **Anshul Pundhir**, Saurabh Dadhich, Ananya Agarwal, and Balasubramanian Raman, “Meta-data guided Visual Attention Fusion for Improved Skin Lesion Classification using Deep Learning”, Published in 12th workshop on Multimodal Learning and Fusion Across Scales for Clinical Decision Support (ML-CDS) in conjunction with MICCAI, September 18, 2022, Singapore (**Published**).
- [C-2] **Anshul Pundhir**, Saurabh Dadhich, Ananya Agarwal, and Balasubramanian Raman, “Towards Improved Skin Lesion Classification using Metadata Supervision”, Published in 26th International Conference on Pattern Recognition (ICPR 2022), August 21-25, 2022, Montréal Québec, Canada (**Published**).
- [C-3] **Anshul Pundhir**, Deepak Verma, Puneet Kumar, and Balasubramanian Raman. “Region extraction based approach for cigarette usage classification using deep learning”. Published in 6th IAPR International Conference on Computer Vision and Image Processing (CVIP 2021), 3-5th Dec, 2021 IIT Ropar, Punjab-140001, India (**Published**).
- [C-4] **Anshul Pundhir**, Srishti Yadav, Balasubramanian Raman, Sanjeev Kumar, “Synapse Driven Robust Spiking Convolution Network Against Data Poisoning Attacks”, **Accepted for publication** in International Joint Conference on Neural Networks (IJCNN), 30 June - 5 July 2024, Yokohama, Japan.
- [C-5] **Anshul Pundhir**, Sanchit Verma, Balasubramanian Raman, “Classify Skin Conditions Fairly through Bias Mitigation”, **Accepted for publication** in International Joint Conference on Neural Networks (IJCNN), 30 June - 5 July 2024, Yokohama, Japan.

AWARDS & SCHOLARSHIPS

1. **Registration support** from the **Dean of Resources and Alumni Affairs (DORA)**, IIT Roorkee to present a research paper in 26th International Conference on Pattern Recognition (ICPR 2022), August 21-25, 2022, Montreal Quebec, Canada
2. **Registration support** from the **Microsoft Research Grant** from the Department of Computer Science and Engineering IIT Roorkee to present a research paper in 12th workshop on Multimodal Learning and Fusion Across Scales for Clinical Decision Support (ML-CDS) in conjunction with MICCAI, September 18, 2022, Singapore
3. **Registration support** from the **UGC-JRF Contingency fund** to present a research paper in the 6th IAPR International Conference on Computer Vision and Image Processing (CVIP 2021), **IIT Ropar, India**
4. Received **UGC-JRF Scholarship** during Ph.D. (Dec, 2019 onwards)
5. Gave a topper talk on chamomile tea with toppers for JRF (available on YouTube)
6. Qualified **NTA NET-JRF June with 99.88%ile** Computer Science in 2019
7. Received **MHRD Scholarships** during M.Tech in 2019
8. Qualified **NTA NET June, Dec** Computer Science in 2018
9. Qualified **GATE** Computer Science in 2018
10. Awarded third in National Science Exhibition
11. Third rank in city, National Science Olympiad (NSO)

TECHNICAL SKILLS

Programming Languages	: C/C++ (proficient), Python (proficient), Core Java (acquainted).
Development Tools	: MATLAB, PyTorch, Keras, Tensorflow, Anaconda, PyCharm, Spyder, Eclipse, Visual Studio Code, Git and GitHub, LaTeX, Docker.
Operating System	: Ubuntu (proficient), Windows (proficient).

OTHER PROJECTS

- *Video Analytics*
Application of computer vision algorithms for academic purpose systems.
- *Intrusion Detection System*
Use feature elimination technique to get relevant features for system.
- *Credit Card Fraud Detection System*
Detect fraudulent transactions using ML techniques.
- *Twitter Sentiment Analysis*
Analyze tweets to perform sentiment analysis.
- *Automated Essay Grader*
Use NLP to evaluate the effectiveness of the given essay.
- *Time-Table Utility Software*
Extract information from given time table schedule.

WORKSHOP/TRAINING/CONFERENCES ATTENDED

1. Selected for Six-months Deloitte work-studentship program from IIT Roorkee (November 2023 - April 2024), 2023.
2. Research Internship at Samsung R&D Institute Bangalore (SRI-B) India (16 August 2022 - 17 February 2023), 2022.
3. Attended 12th workshop on Multimodal Learning and Fusion Across Scales for Clinical Decision Support (ML-CDS) in conjunction with MICCAI, September 18, 2022, Singapore. 2022.
4. Attended 26th International Conference on Pattern Recognition (ICPR 2022), August 21-25, 2022, Montreal Quebec, Canada, (Virtual) 2022.
5. Attended 6th International Conference on Computer Vision and Image Processing (CVIP), IIT Ropar, India (Virtual) 2021
6. Summer internship under supervision of Prof. Venkatesh Babu from IISc Bangalore (April-July, Virtual). 2021.
7. Attended 6th International Conference on Computer Vision and Image Processing (CVIP), IIT Ropar, India (Virtual) 2021.
8. Attended 28th International Conference on Image Processing (ICIP), Anchorage, Abu Dhabi, UAE (Virtual) 2021.
9. Attended The Workshop on Computer Vision and Image Processing (WCVIP), IIT Roorkee, India (Virtual) 2020.

TALKS/WORKSHOPS DELIVERED

1. Conducted a training session on 'AI Applications in Healthcare', in Executive Certificate Program in AI Strategy for Leaders, iHUB DivyaSampark, TIH, IIT Roorkee with The Economic Times, India (Virtual), July 2022.
2. Conducted a training session on 'Supervised and Unsupervised Machine Learning Algorithms', in Executive Certificate Program in AI Strategy for Leaders, iHUB DivyaSampark, TIH, IIT Roorkee with The Economic Times, India (Virtual), June 2022.
3. Assisted a Faculty Development Program (FDP) on 'Machine Learning for Computer Vision (ML4CV)' at E&ICT Academy, IIT Roorkee, March 2022.
4. Conducted a 'Practical Session on Clustering Algorithms' in an online Certificate Course on Applied Data Science and Machine Learning with Python, E&ICT Academy course, IIT Roorkee, India (Virtual), Nov 2021.
5. Conducted a training session on 'Clustering Algorithms and their use cases' in an online Certificate Course on Applied Data Science and Machine Learning with Python, E&ICT Academy course, IIT Roorkee (Virtual), Nov 2021.
6. Assisted in a training session on 'Human Action Recognition and Generation' during 'The Workshop On Computer Vision And Image Processing (WCVIP) at IIT Roorkee, Dec 2020.
7. Organized a training session on 'Dimensionality Reduction Algorithms' during the workshop on Digital Image Processing & Applications (DIPA) at NIT Arunachal Pradesh, Aug 2020.

ACTIVITIES

Research Paper Reviewer: Reviewed research papers in various reputed conferences, including International Conference on Pattern Recognition (**ICPR**), International Conference on Computer Vision & Image Processing (**CVIP**), International Conference on Neural Information Processing (**ICONIP**), and International Conference On Electrical Electronics Communication and Computers **ELEXCOM**.

Co-curricular Activities: Volunteer for data collection in a collaborative project between **Michigan State University, (MSU) USA** and Dayalbagh Educational Institute, India, Volunteered in National Service Scheme (NSS), Regular participant in dramatic events in college like Street-plays, skits, Mime, Nukkad Natak, etc.

Hobbies: Watching movies, Hypothetical story-telling, Music, Meditation, and Volunteering.

PERSONAL DETAILS

Father's Name	: Pushpendra Veer Singh Pundhir	Mother's Name	: Sadhana Pundhir
Date of Birth	: Aug 13, 1996	Martial Status	: Unmarried
Nationality	: Indian		
Permanent Address: 605, Verma Nagar Agra Road Etah, Uttar Pradesh, India - 207001.			

DECLARATION

I hereby state that all the information mentioned above is true to the best of my knowledge and I shall be held responsible for any discrepancy found later.

Date: March 16, 2024

Place: Roorkee, Uttrakhand.

Anshul Pundhir

REFERENCES

Prof. R. Balasubramanian

Professor, CSE Department, Indian Institute of Technology, Roorkee, India.

E-mail: bala@cs.iitr.ac.in

Prof. Gur Saran Adhar

Professor, Computer Science Department, University of North Carolina (UNCW),
Wilmington.

E-mail: adharg@uncwil.edu

Prof. Sandeep Paul

Professor, Physics and Computer Science Department,
Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.

E-mail: spaul@dei.ac.in

Prof. Lotika Singh

Associate Professor, Physics and Computer Science Department,
Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.

E-mail: lotikasingh@dei.ac.in