Subhag Sharma

Roll No.: 2025PCS0042
Computer Science Engineering
Indian Institute Of Technology, Jammu

+91-9469710107
2025pcs0042@iitjammu.ac.in
Github | Website
linkedin.com/in/subhag-sharma/

Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year of Passing
M.tech (CSE)	Indian Institute Of Technology, Jammu	N.A (Current)	2027(Exp)
B.tech (CSE)	Shri Mata Vaishno Devi University, Jammu	8.91	2024
12th Standard	Delhi Public School, Jammu	93%	2020
10th Standard	Delhi Public School, Jammu	93.4%	2018

Experience

NIMS University June 2024 – August 2024
Research Associate *Jaipur*

- Assisted and carried out research work under the MARIK School of Artificial Intelligence and Machine Learning which is an initiative by the Czech Government and NIMS, focusing on Medical Images.
- Assisted with training on the latest technologies for the larger benefit of the students.

Indian Institutes of Technology, Ropar April 2024 – June 2024
Intern *Ropar, Punjab*

- Engaging in cutting-edge medical image processing and segmentation research at IIT Ropar an institution of national importance, contributing to innovative advancements in healthcare technology.
- Committed to pushing boundaries and delivering impactful solutions in an evolving learning environment.

Jammu & Kashmir e-Governance Agency (JaKeGA) Oct 2023 – March 2024
Intern *Jammu, J&K*

- Created an RBSK (Rashtriya Bal Swasthya Karyakram) database & application as a Team Lead for 2.7M students in 29K schools, revolutionizing healthcare with centralized records.
- Engineered a proprietary OCR software to streamline the transformation of scanned official documents into text, enhancing accessibility for the disabled community and increasing document digitization by 50%.

Papers

Analysis of EEG Signals for Deceit Identification Using Various Supervised Learning Methods
DOI: 10.1007/978-981-97-0641-9_12

- Published in Scopus Indexed Lecture Notes in Networks and Systems (LNNS) by Springer.
- The paper discusses the role of Machine Learning in analyzing Electroencephalography to use brain signals for lie detection with results that are at par with established physical formats of interrogation.

Early Detection of Alzheimer's Disease Using Advanced Machine Learning Techniques – A Comprehensive Review.
DOI: 10.1007/978-981-99-5180-2_37

- Published in Scopus Indexed Smart Innovation, Systems and Technologies (SIST).
- The review aims to establish prognostic measures for Alzheimer's Disease affecting 73% population of age 75 or older using multiple modalities as inputs for sophisticated state-of-the-art Machine Learning models.

Intelligent Diagnosis of Autism Spectrum Disorder: Harnessing Machine Learning for Enhanced Early Detection
DOI: 10.1007/978-981-97-2550-2_27

- Published in Scopus Indexed Lecture Notes in Networks and Systems (LNNS) by Springer as Proceedings of Fifth International Conference on Computing, Communications, and Cyber-Security.
- Development of a standardized questionnaire that could be accessed via a mobile application with algorithms in background trained on vast dataset.

Revolutionizing Breast Cancer Detection: A Shallow Neural Network Approach for Accurate Classification of Calcifications and Masses in Mammographic Scans
DOI: 10.1201/9781003467281

- Published in Scopus Indexed Handbook of Deep Learning Models for Healthcare Data Processing: Disease Prediction, Analysis, and Applications.
- Paper highlights the role of lightweight CNNs in comparison with heavy models and beats standardized benchmark results.

Advances in Computer-Aided Detection and Diagnosis of Retinal Diseases: A Comprehensive Survey of Fundal Image Analysis

- Published in Scopus Indexed Lecture Notes in Networks and Systems (LNNS) by Springer.
- Paper highlights role of various recent research publications and proposes a single CNN network that outperforms heavy-weight models classifying multiple diseases at once.

Plant Leaf Disease Classification Using Knowledge Distillation Methodologies

- Presented at CVIP 2024 ,proceedings be published in Scopus Indexed Communications in Computer and Information Science (CCIS) published by Springer.
- Worked as a co-author/guide, in developing lightweight CNNs for deployment in remote, resource-constrained areas of agrarian-dependent countries like India to enable early detection and treatment of plant diseases.

Projects

Multiple sclerosis lesion segmentation in brain MRI using SOTA U-Net architectures with deep feature extraction backbone
TensorFlow, *Keras*, *OpenCV*, *PyDicom*, *PIL*

- This novel work aids in early diagnosis and treatment of this rare neurological disease, potentially enhancing the quality of life for affected individuals.
- Performed a comprehensive evaluation of various U-Net and deep feature extraction backbone combinations (ResNet, DenseNet) for multiple sclerosis lesion segmentation in brain MRI, identifying optimal configurations to enhance diagnostic precision and clinical outcomes.

Classification of CESM breast images for probable cancerous (Malignant) cases using subtracted images.
TensorFlow, *Keras*, *OpenCV*

- The project requires collaboration with a radio oncologist to validate results derived using Transfer Learning, Saliency Heatmapping and GradCam. The results until now are better than a standard radiologist till now in terms of performance metrics.
- After completion the project aims to help women with probable cancerous lumps to catch the same quickly without stat biopsies required.

Technical Skills

Languages: C, C++, Python, Java, SQL
Technologies: TensorFlow, PyTorch, Keras, Pandas, Sci-Kit Learn, AWS, Google Cloud Platform, Latex
Concepts: Compiler, Operating System, Virtual Memory, Cache Memory, Encryption, Decryption, Artificial Intelligence, Machine Learning, Neural Networks, Database, Cloud Computing

Certifications

- **Cloud -** Google Cloud Infrastructure: Core Services, Google Cloud Fundamentals: Core Infrastructure, Essential Google Cloud Infrastructure: Foundation
- **Machine Learning -** Supervised Machine Learning: Regression and Classification, Advanced Learning Algorithms, Unsupervised Learning, Recommender Systems, Reinforcement Learning, AI for Medicine

Achievements

- All India Rank 911 in Graduate Aptitude Test in Engineering (GATE) CS/IT out of 170,825 candidates.
- Awarded Certificate of Distinction for being the best student in Academics, Co-Curricular, Extra Circular activities for the batch of 2024.
- Stood First in Cybersecurity Hackathon HackDefy organized by the government of J&K.
- Finished Second in AgriThon an Agriculture Innovation Hackathon organized by SKUAST.

Social Engagements

Co-Lead: ML Co-Lead for Google Developer Student Council (GDSC).
Organising Committee: of an international conference, showcasing top-notch organizational prowess.
Volunteer: at National Social Service (NSS).
Organized: Two Faculty Development Programs with speakers from prestigious institutes in India and abroad on various recent trends in the domain of Image Processing and Machine Learning.