Aanchal Vij

Assistant Professor | Artificial Intelligence & Medical Imaging Researcher

Department of Computer Science and Engineering, IILM University

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Research Profile

Assistant Professor in Computer Science and Engineering with over ten years of teaching and academic experience. Researcher specializing in Artificial Intelligence, Machine Learning, Deep Learning, Medical Image Processing, Computer Vision, and Healthcare AI, with a primary research focus on lung cancer detection and classification using CT images. Research experience includes hybrid deep-learning architectures, attention mechanisms, Transformer-based models, image preprocessing, texture analysis, optimization, and data-driven healthcare applications.

Research direction: Explainable and trustworthy AI for medical imaging, with emphasis on clinically meaningful, robust, and generalizable lung cancer detection systems.

Research Interests

- Artificial Intelligence and Machine Learning
- Deep Learning and Computer Vision
- Medical Image Processing and CT Image Analysis
- Lung Cancer Detection and Classification
- Healthcare Artificial Intelligence
- Explainable and Trustworthy AI
- Attention Mechanisms and Transformer Architectures
- Image Enhancement, Feature Extraction, and Optimization

Academic Employment

Assistant Professor, Department of Computer Science and Engineering — IILM University
Greater Noida, India — *January 2026 – Present*

- Teaching undergraduate Computer Science and Engineering courses.
- Teaching and academic responsibilities across Data Mining and Warehousing, Theory of Computation and related computing subjects.
- Course coordination, lecture planning, practical/laboratory development, question-bank preparation, and student mentoring.
- Research supervision and mentoring in Artificial Intelligence, Machine Learning, and medical image analysis.

Previous Academic Experience

Assistant Professor — Sharda University
Greater Noida, India — *September 2024 – January 2026*

Assistant Professor — G.L. Bajaj Institute of Technology and Management
Greater Noida, India — *October 2023 – September 2024*

Assistant Professor — Galgotias University
Greater Noida, India — *August 2019 – October 2023*

Assistant Professor — Harlal Institute of Management and Technology
Greater Noida, India — *August 2016 – February 2017*

Assistant Professor — S.S.D. Women Institute of Technology
Bathinda, Punjab — *August 2015 – May 2016*

Education

Ph.D., Computer Science and Engineering — Galgotias University
Thesis submitted in September 2026; degree award pending.
Thesis: A Novel Methodology of Early Lung Cancer Prediction Using Soft Computing

- Research focused on lung cancer prediction/detection using medical imaging, soft computing, machine learning, and deep learning.
- Research included CT-image preprocessing, texture analysis, optimization, hybrid machine-learning models, and deep-learning architectures.

M.Tech., Computer Science and Engineering — RC-GNDU, Jalandhar

2015 CGPA: 8.50

B.Tech., Computer Science and Engineering Doaba Group of Institutions, Kharar

2013 Percentage: 77%

Diploma, Computer Science S.R.S. Government Polytechnic for Women, Ludhiana

2010 Percentage: 69.8%

Research Contributions

- Development and evaluation of hybrid AI architectures for lung cancer classification from CT images.
- Investigation of EfficientNetV2-S, CBAM attention, and Transformer encoders for local feature extraction, attention-driven refinement, and global dependency modelling.
- Application of CLAHE, wavelet denoising, normalization, augmentation, SMOTE, and focal-loss strategies for medical-image learning.
- Investigation of GLCM texture features and optimization-assisted feature selection within soft-computing and hybrid machine-learning frameworks.
- Evaluation using accuracy, precision, recall, F1-score, AUC, and statistical comparison methods.

Selected Research Projects

Hybrid Deep Learning Framework for Lung Cancer Detection
EfficientNetV2-S + CBAM + Transformer-based architecture for multi-class classification of CT images using the IQ-OTHNCCD dataset.

Soft Computing Framework for Lung Cancer Classification
GLCM-based texture representation combined with optimization and hybrid stacked machine-learning models for multi-class lung cancer classification.

Explainable and Trustworthy Healthcare AI – Future Research Direction
Development of interpretable, robust, and generalizable AI methods for medical image analysis, with emphasis on lung cancer screening and decision support.

Publications

No.	Year	Title	Venue / Publication Type	Authors	DOI / Identifier
1	2026	Hybrid CNN-Based Transformer Pipeline With Radiomic Fusion for Multi-Class Lung Cancer Detection	Journal of Computer Science, 22(6), 1785–1796	Aanchal Vij, Kuldeep Singh Kaswan, Anand Nayyar	10.3844/jcssp.2026.1785.1796
2	2026	Machine Learning Advancements for Lung Cancer Detection: An In-Depth Review and Future Prospects	Journal of Computer Science, 22(1), 260–272	Aanchal Vij, Kuldeep Singh Kaswan, Anand Nayyar	10.3844/jcssp.2026.260.272
3	2026	From Detection to Decision Support: A Hybrid CNN-Transformer Model for Early Lung Cancer Screening	IEEE IC2PCT 2026, conference paper	Aanchal Vij, Kuldeep Singh Kaswan, Anand Nayyar	10.1109/IC2PCT68894.2026.11584483
4	2026	AI-Powered Resume and Job Description Matcher: A Semantic Similarity Approach Using SBERT and Contrastive Fine-Tuning	IEEE ICSFT 2026, conference paper	Jitendra Singh, Mekhala, Kamini Tanwar, Ashish Kumar, Aanchal Vij, Ashish Jain	10.1109/ICSFT66733.2026.11507545
5	2026	Bridging Fiber Optic and Free-Space Optical Communication: A Comparative Study and Hybrid Framework using Artificial Intelligence	IEEE I3CTCON 2026, conference paper	Aanchal Vij, Priyanka Gaba, Sourav Vij	10.1109/I3CTCON68242.2026.11507287
6	2026	Insect and Pest Recognition: A Lightweight Adaptive Feature-Level Ensemble Learning Approach	IEEE conference paper	Aanchal Vij and collaborators	10.1109/GTSS68743.2026.11679638
7	2026	An Interpretable CNN Ensemble Framework for Multi-Class Lung Cancer Classification	IEEE conference paper	Aanchal Vij and collaborators	10.1109/GTSS68743.2026.11679541

8	2026	Benchmarking Pretrained Language Models as Pseudo-Label Annotators for Financial Sentiment Analysis	IEEE conference paper	Aanchal Vij and collaborators	10.1109/GTSS68743.2026.11679744
9	2026	DSMNet-V3: Lightweight Dual-Stream ROI-Focused MobileNetV3 Network for Driver Drowsiness Detection	IEEE conference paper	Aanchal Vij and collaborators	10.1109/GTSS68743.2026.11679671
10	2025	An Enhanced CT-Based Lung Cancer Classification Framework Using a Hybrid EfficientNetV2, CBAM, and Transformer Architecture	IEEE ACET 2025, conference paper	Aanchal Vij, Kuldeep Singh Kaswan, Anand Nayyar	10.1109/ACET67282.2025.11430402
11	2025	Multilevel Optimization with Hybrid Stack Model for Lung Cancer Classification	Journal of Information Systems Engineering and Management, 10(28s), 993–1019	Aanchal Vij, Kuldeep Singh Kaswan, Anand Nayyar	10.52783/jisem.v10i28s.4762
12	2025	Machine Learning-Based Image Analysis for Cotton Crop Health: A Comparative Study	IEEE MRIE 2025, conference paper	Ankit Yadav, Vinay Sharma, Aanchal Vij, Jitendra Singh, Amit Chaudhary	10.1109/MRIE66930.2025.11156686
13	2025	Multi-Modal Plagiarism Detection in the Era of AI: A Comprehensive Review and Novel Framework Proposal	IEEE ACET 2025, conference paper	Anshu Kumar, Purushottam Choudhary, Anirban Dutta, Aanchal Vij	10.1109/ACET67282.2025.11430248
14	2024	Comparative Analysis of Web APIs: RESTful and GraphQL	Lecture Notes in Electrical Engineering, 1232, 159–169	Aparna Seth, Vinay Kumar, Vaibhav Kulshrestha, Aanchal Vij	10.1007/978-981-97-5231-7_14
15	2023	Prediction of Lung Cancer using Convolution Neural Networks	IEEE AISC 2023, pp. 737–741	Aanchal Vij, Kuldeep Singh Kaswan	10.1109/AISC56616.2023.10085058
16	2023	Artificial Intelligence and Regulatory Framework for Sustainable Plastic Management: An Analytical Study towards Achieving SDGs	IEEE ICCSAI 2023	Isha Pandey, Sandhya Kumari, Aanchal Vij	10.1109/ICCSAI59793.2023.10421531
17	2022	Lung cancer detection using scan images	IEEE ICAC3N 2022	Kartik Kumar, Shivank Srivastava, Aanchal Vij	10.1109/ICAC3N56670.2022.10074331
18	2022	Comparative analysis of Workflow Management System using Agents and Multi-agents in Colored Petri Nets	IEEE ICDCECE 2022	Aanchal Vij, Kuldeep Singh Kaswan, Chinar Bawa	10.1109/ICDCECE53908.2022.9792729
19	2022	Case Study on Online Fraud Detection using Machine Learning	IEEE ICACITE 2022	Ayushi Pandey, Harsh Jaiswal, Aanchal Vij, Tushar Mehrotra	10.1109/ICACITE53722.2022.9823538
20	2022	An Instructional Approach to Power System Operations Utilizing Load Flow Simulations	IEEE INCOFT 2022	Upasana Rani, Aanchal Vij	10.1109/INCOFT55651.2022.10094416
21	2021	Research Problems in Recommender Systems	Journal of Physics: Conference Series, 1717, 012002	Nitin Mishra, Saumya Chaturvedi, Aanchal Vij, Sunita Tripathi	10.1088/1742-6596/1717/1/012002
22	2014	A Review of Handoff and Location Management in Ad-Hoc Networks	ICCCS 2014 conference publication	Aanchal Vij and Jyooteesh Malhotra	
23	2015	A Review on Agent Oriented Software Engineering	International Journal of Advanced Research in Computer and Communication Engineering	Aanchal Vij and collaborators	10.17148/IJARCCE.2015.4495

24	2015	Metrics for Project Estimation in Software Engineering: A Review	International Multi Track Conference (IMTC)	Aanchal Vij and collaborators	pp. 187–190.
25	2015	A Review on Genetic Algorithm to Deal with Optimization of Parameters of Constructive Cost Model	International Journal of Advanced Research in Computer and Communication Engineering	Aanchal Vij and collaborators	10.17148/IJARCCE.2015.4491
26	2015	A Study on Tools Used to Implement Agent Oriented Software Engineering	International Journal of Innovative Research in Computer and Communication Engineering	Aanchal Vij and collaborators	pp. 150-155

Patents

- **Systems and Methods for IoT Enabled Detection of Leakage in Gas Distribution Pipe Network.**
- **Automated IoT Based Smart Agriculture Monitoring and Protection System with Drone.**
- **A System Method for Physiotherapy Treatment for Osteoarthritis based on IoT, AI, ML.**

Book Chapters

- **Machine Learning and Deep Learning Algorithms for IoD.** In *The Internet of Drones*, CRC Press.
- **Assessing Awareness and Accessibility of Government Welfare Schemes Among Citizens: A Policy Implementation Perspective.** In *Computing, Communication, and Sustainable Energy Technologies*, Chapter 47, CRC Press. DOI: 10.1201/9781042018222-47.
- **An Integrative Review of Deep Learning-Based Approaches for Indian Sign Language to Speech Translation.** N. Singh, S. Singh, and A. Vij. In *Computing, Communication, and Sustainable Energy Technologies*, pp. 269–274, CRC Press.

Academic Service and Reviewing

- Reviewer for academic journals and conferences in Computer Science, Artificial Intelligence, Machine Learning, and related areas.
- Academic and conference review activities.
- Member of institutional committees including NAAC Criteria 5 Committee and Placement Committee in previous academic roles.

Professional Memberships

- **IEEE** – Member
- **IEEE Women in Engineering (WIE)** – Member
- **Association for Computing Machinery (ACM)** – Member
- **Computer Society Teachers Association (CSTA)** – Member
- **International Association of Engineers (IAENG)** – Member
- **IFERP** – Member
- **The Institute of Engineers** – Member

Selected Faculty Development and Research Training

- FDP on High-Performance Computing and AI Workshop, June 2021.
- E&ICT FDP on Machine Learning and Deep Learning with Python (MLDLP), June 2021.
- FDP on R, February 2021.
- Faculty Development Programme on Moodle Learning Management System, December 2020.
- Indo-Muscat One Week Virtual Workshop on Research Writing Skills, May 2020.
- 40-hour online FDP, Data Science for All, Electronics and ICT Department, July–August 2020.
- Online course: Python for Machine Learning, Great Learning, June 2020.
- Two-week Online Short-Term Training Programme on Research Methodology, Gautam Buddha University, July 2020.

Teaching and Academic Coordination

Core Computer Science and Engineering Subjects

- Programming Fundamentals and Programming in Python
- Operating Systems
- Computer Architecture and Organization
- Theory of Computation
- Data Mining and Data Warehousing
- Core Computer Science and Engineering concepts

Specialized and Advanced Subjects

- Artificial Intelligence
- Machine Learning and Deep Learning
- Natural Language Processing (NLP)
- Image Processing and Medical Image Analysis
- Computer Vision
- Healthcare Artificial Intelligence

Academic Coordination and Pedagogy

- Course coordination, curriculum and lecture planning, practical/laboratory development, lecture notes, question-bank preparation, student mentoring, and outcome-orientated teaching.

Recent Certifications and Professional Development

- 40-hour Agentic AI Faculty Development Programme jointly associated with IIITDM Jabalpur, IIT Kanpur, MNIT Jaipur and supported by MeitY, 2026.
- Deep Learning and Computer Vision Faculty Development Programme, May 2026.
- Qualcomm AI Upskilling Certificate, 2026.
- Databricks knowledge badges in Building Single-Agent Applications, Generative AI Application Deployment and Monitoring, and Generative AI Fundamentals, 2026.
- Google Cloud Baseline Infrastructure certification.
- Faculty Development Programme on Intellectual Property Rights for Sustainable Development, Galgotias University, February 2024.
- Faculty Development Programme on Machine Learning using Python – Hands-on Approach, June 2022.
- Faculty Development Programme on Machine Learning and Data Science using Python – Hands-on Approach, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, June 2022.

Academic Leadership and Institutional Contributions

- Faculty Coordinator for Smart India Hackathon (SIH) 2026 Internal Finale; mentored student teams and supported institutional coordination.
- Course Coordinator for Data Mining and Warehousing and academic coordination responsibilities in current teaching role.
- Faculty responsibilities involving curriculum planning, lecture planning, practical/laboratory development, question-bank preparation, mentoring, and student activities.
- Previous NAAC Criteria 5 Coordinator and SCSE Event Coordinator at Galgotias University.
- Technical Program Committee / reviewer contributions for academic conferences, including ICCSAI and IC2PCT.

Technical Skills

Programming and Data: Python, SQL
Artificial Intelligence: Machine Learning, Deep Learning, Computer Vision, Medical Image Processing
Deep Learning: CNNs, EfficientNetV2, CBAM, Transformer Architectures
Medical Imaging: CT Image Analysis, CLAHE, Wavelet Denoising, GLCM
Research Tools: TensorFlow, LaTeX, Overleaf, BibLaTeX/Biber

Research Metrics

- 25 Scopus-indexed documents
- 70 Scopus citations
- h-index: 3
- 2 patents
- 3 book chapters

Awards and Achievements

- Ms. Farewell Award during postgraduate study.
- Best Actress Award at zonal level, 2006.
- Best Actress Award at state level, 2007.
- Awards in declamation and debate competitions at school and college level.
- Certificate of Appreciation as Reviewer for IC2PCT 2024.
- Technical Program Committee Award, ICCSAI 2023, Galgotias University.
- Felicitation by Lions Club Meerut/Bhawani in recognition of contribution as an educator.
- Poems published in the international poetry books *The Elegance of Rhyming Poetry* and *For the Love of Poetry*.

- Best Actress Award at zonal level (2006) and state level (2007).
- Awards in declamation and debate competitions at school and college level.

Academic, Creative and Outreach Contributions

- Poems published in two international poetry books: *The Elegance of Rhyming Poetry* and *For the Love of Poetry*.
- Faculty/event coordination and organization of academic and cultural events.
- Participation in social-service activities through Parijat Youth Organization.

Academic Profiles

- ORCID: 0000-0002-7940-0650
- Google Scholar: Aanchal Vij
- LinkedIn: Aanchal Vij
- ResearchID: Aanchal Vij

Personal Information and Declaration

Name	Aanchal Vij
Languages	English, Hindi
Current Location	Greater Noida, Uttar Pradesh, India
Email id	aanchal.vij@iilm.edu/aanchal.vij04@gmail.com
ORCID	0000-0002-7940-0650

Declaration: I hereby declare that the information provided in this curriculum vitae is true and correct to the best of my knowledge. I understand that the academic and publication details should be supported by appropriate institutional, publisher, indexing, or certification records wherever required.

Signature: _____ **Last Updated:** November 2, 2026

Aanchal Vij

References

Available upon request.