AJEET KUMAR VERMA

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EDUCATION

Indian Institute of Technology (IIT) Jammu   **Dec. 2020 – Till Date**
Doctor of Philosophy (Ph.D.) in Computer Science and Engineering   *CGPA - 8.25/10*
Thesis Title: Adaptive Super-Resolution and Quality Assessment via Test-Time Adaptation (**SUBMITTED on 21-Jan-2026**)

Babasaheb Bhimrao Ambedkar University, Lucknow (A Central University)   **Jul. 2015 – June 2017**
Master of Technology (M. Tech. in Computer Science and Engineering)   *CGPA - 8.23/10*

Dr. A.P.J. Abdul Kalam Technical University (formerly UPTU), Lucknow   **Jul. 2007 – June 2011**
Batchelor of Technology (B. Tech. in Information Technology)   *67.74 %*

TECHNICAL SKILLS

Mathematics: Linear Algebra, Linear Differential Equations, Probability and Statistics, Algorithms
Programming: Python, C/C++, Data Structures
Technology: Big Data, Machine Learning, Deep Learning, Image Processing, TensorFlow, PyTorch, Tensorboard, Wandb
Software: Git, GitHub, VS Code, MS Office

EXPERIENCE

Jaypee University of Information Technology (JUIT), Solan   **Jan 2026 – Present**
Assistant Professor   *CSE/IT*

- Ongoing teaching load includes **Software Development Fundamentals** and **Software Development Fundamentals Lab**, with emphasis on programming foundations and practical implementation.
- Currently teaching **Competitive Programming**, focusing on algorithm design, data structures, and performance optimization.
- Handling **Data Analytics using R and Python Lab**, covering data analysis, visualization, and statistical techniques.
- Teaching **Software Engineering**, introducing SDLC models, software design principles, and industry best practices.

Indian Institute of Technology (IIT) Jammu   **Jan 2021 – Jan 2023**
Junior Research Fellow   *CS Lab, IIT Jammu*

- Created a novel architecture for forecasting of rainfall in India and its 34 homogeneous rainfall regions.
- Extracted features using newly developed NBEATS based Auto-Encoder(NBAE) from Sea Level Pressure, Sea Surface Temperature and Zonal winds data.
- Obtained Correlation 0.9 & 0.85 for prediction of rainfall in India and its homogeneous rainfall region surpassing SOTA. (A DST-SERB Sponsored project)

Indian Institute of Technology (IIT) Goa   **Jan 2020 – Jan2021**
Senior Research Fellow (SRF)   *(CS Lab IIT Goa)*

- Designing of intelligent hardware for cyber physical systems (Machine Leaning / Computer Vision).
- Project was in collaboration with DST, Govt. of India and INRIA, France.

National Institute of Technology (NIT) Goa   **Nov 2017 – Dec 2019**
Junior Research Fellow (JRF)   *(CS Lab NIT Goa)*

- Prediction of Incidence of malaria cases in India, using Spiking Neuron Model (Machine Learning/Artificial Intelligence).
- Project under Science and Engineering Research Board (DST- SERB), Govt. of India.

Tata Consultancy Services (formerly CMC Limited)   **Mar 2012 – Aug 2013**
FMS Engineer   *(Indian Institue of Management (IIM) Lucknow)*

- Network Support and problem troubleshooting
- Cisco Layer2 Network, L3 Switches & Telephonic Support

COMPUTER VISION PROJECTS

Doctoral works   Jan 2021 - Present
- Working on the Test Time Adaptation of super resolution models for the quantized Screen Content Images.
- Work on Test Time Adaptation (TTA) for Real World Video Super Resolution Quality Assessment (RW-VSR-QA), and adaptive quality loss in RW-VSR, accepted in IEEE Transactions on Artificial Intelligence (TAI) 2025.
- Proposed a novel loss function for image restoration tasks, inspired by perceptual loss
- Developed loss is being tested on Image Super Resolution Model (HAT, DAT, RBVSR, and BSRGAN)
- Screen Content Image (SCI) Super Resolution Models. Work accepted in the Grand Challenge Track ICME-2025.
- Video Quality Enhancement for Video Conferencing; work accepted in NTIRE Challenge, CVPR 2025.
- Identifying/detecting drones in challenging environments. Work accepted in the WOSDETC workshop, ICASSP-2023

CVPR-NTIRE 2025 Challenge on Video Quality Enhancement for Video Conferencing   Jan 2025 - Mar 2025
- Employed perceptual quality metrics for model training.
- Implemented a CLIP-IQA-based loss term.
- Ranked among the top solutions in the competition; solution published in NTIRE Challenge, CVPR Workshops.

ICME 2025 Grand Challenge on Video Super-Resolution for Video Conferencing   Jan 2025 - Apr 2025
- Utilized perceptual quality and character error rate metrics to enhance visual quality and text readability during model training.
- Implemented a CLIP-IQA, CER, and VGG based loss term.
- Achieved Rank 2 in the Grand Challenge of ICME-2025.

Drone Vs Bird (Challenge, ICASSP 2023)   Jan 2023 - Feb 2023
- Utilized CSRT Tracker to track the drones detected using Finetuned Yolo-v7.
- Implemented a post-processing algorithm aimed at minimizing false positives.
- Achieved Rank 2 in the competition with 0.89 validation mAP submitted to 2023-ICASSP-challenge a B ranked conference.

ACHIEVEMENTS

- Qualified UGC-NET-JRF (Junior Research Fellow) in CSE, June 2023.
- Qualified UGC-NET-AP (Assistant Professor) in CSE, June2023.
- Secured Rank 2 globally in esteemed "**Drone-vs-Bird** challenge organised by IEEE-**ICASSP-2023**".
- Secured ranking in top solutions of "**NTIRE 2025 Challenge on Video Quality Enhancement for Video Conferencing.** organised by IEEE/CVF-**CVPR-2025**".
- Secured Rank-2 in top solutions of "**Grand Challenge on Video Super-Resolution for Video Conferencing.** organised by IEEE-**ICME-2025**".

PUBLICATIONS

- **Verma, Ajeet Kumar**, Ambuj Mishra, Vinit Jakhetiya, Badri N. Subudhi, and Sunil Jaiswal. "Real-World Video Quality Assessment via Test-Time Adaptation and its application in Real-World Video Super-Resolution." Accepted (Early Access available) in **IEEE Transactions on Artificial Intelligence** (IEEE-TAI), 2025. [**Q1**, SCIE]
- **Verma Ajeet Kumar**, Shweta Tripathi, Vinit Jakhetiya, Badri N. Subudhi, and Sunil Jaiswal. "ScrVSR: Screen Sharing Video Super-Resolution." In 2025 **IEEE International Conference on Multimedia and Expo (ICME (Core- A))** Workshops, IEEE, 2025.

- **Verma Ajeet Kumar**, Shweta Tripathi, Vinit Jakhetiya, Badri N. Subudhi, and Sunil Jaiswal. "Q-CIDNet: Perceptual quality aware color and intensity decoupling network for video quality enhancement." In Proceedings of the **Computer Vision and Pattern Recognition (CVPR (Core- A*))** Workshop, pp. 1247-1253. 2025.

- **Verma Ajeet Kumar**, Ravi Prasad KJ, and Venkatanareshbabu Kuppili. "Malaria Incidence Prediction Using Leaky Integrate and Fire Neuron." In 2023 **IEEE World Conference on Applied Intelligence and Computing (AIC),** pp. 168-173. IEEE, 2023.

- Mistry Sahaj K., Shreyas Chatterjee, **Ajeet K. Verma**, Vinit Jakhetiya, Badri N. Subudhi, and Sunil Jaiswal. "Drone-vs-Bird: Drone Detection Using YOLOv7 with CSRT Tracker." Challenge paper in ICASSP 2023-2023 **IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP (Core- B))**, pp. 1-2. IEEE, 2023.

- Kashikar Prachi, Sharad Sinha, and **Ajeet Kumar Verma**. "Exploiting Weight Statistics for Compressed Neural Network Implementation on Hardware." In 2021 IEEE 3rd **International Conference on Artificial Intelligence Circuits and Systems (AICAS)**, pp. 1-4. IEEE, 2021.

- **Verma Ajeet Kumar**, Venkatanareshbabu Kuppili, Saurabh K. Srivastava, and Jasjit S. Suri. "An AI-based approach in determining the effect of meteorological factors on incidence of malaria." **Frontiers in Bioscience-Landmark** 25, no. 7 (2020): 1202-1229. [**Q2**, SCIE]

- **Verma Ajeet Kumar**, Venkatanareshbabu Kuppili, Saurabh K. Srivastava, and Jasjit S. Suri. "A new backpropagation neural network classification model for prediction of incidence of malaria." **Frontiers in Bioscience-Landmark** 25, no. 2 (2020): 299-334. [**Q2**, SCIE]

- Chatra Kaveri, Venkatanareshbabu Kuppili, Damodar Reddy Edla, and **Ajeet Kumar Verma**. "Cancer data classification using binary bat optimization and extreme learning machine with a novel fitness function." **Medical & Biological Engineering & Computing 57** (2019): 2673-2682. [**Q2**, SCIE]

- **Verma, Ajeet Kumar**, and Venkatanareshbabu Kuppili. "Data-oriented neural time series with long short-term memories (LSTM) for malaria incidence prediction in Goa, India." In 2019 10th **International Conference on Computing, Communication and Networking Technologies (ICCCNT)**, pp. 1-6. IEEE, 2019.

PARTICIPATION / VOLUNTEERING

- Volunteered 8th *International Conference on Computer Vision and Image Processing (CVIP-2023)*, Held at IIT Jammu from Nov 3 to 5, 2023, organized by Department of CSE, IIT Jammu.

- Volunteer in 3rd *National workshop on Enhancing Information Technology Education (EITE-2017)* held on Dec-11 to 16, 2017 in the Dept. of Computer Science, National Institute of Technology Goa.

- Appointed as System Engineer for network and connectivity while Former Indian President **Dr. A.P.J. Abdul Kalam** was at **IIM-Lucknow** for an interaction with PGP students.

- Appointed as a Systems and Network Administrator for the "Marketing Research cum Fest INDEX – 2012, **IIM-Lucknow**".