Ajay Kumar Reddy Poreddy

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Kollabylu, Madanapalli,
Annamaiah, 517325,
Andhra Pradesh, India.

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CURRENTLY Assistant Professor, Department of Computer Science and Engineering, Sri Sivasubramaniya Nadar College of Engineering, Chennai, India.

EDUCATION **Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Kancheepuram**
Ph.D. in Electronics and Communication Engineering, 08/2020 – 12/2024

Jawaharlal Nehru Technological University Kakinada
M.Tech in Systems and Signal Processing, 08/2018 – 08/2020

Shanmugha Arts, Science, Technology & Research Academy (SASTRA University)
B.Tech in Electronics and Communication Engineering, 06/2014 – 05/2018

EXPERIENCE ◇ **Assistant Professor**
Sri Sivasubramaniya Nadar College of Engineering, 12/2024-Till date

Teaching Assistant
IIITDM Kancheepuram, 08/2020 – 12/2024
Jawaharlal Nehru Technological University Kakinada, 08/2018 – 02/2020

RESEARCH Multimedia Quality Assessment, Machine Learning
Research Groups: MEPCAG Lab, IIT Indore, ASIP Lab, IIITDM Kancheepuram

CITATIONS 76, h-index 5, i10-index 3, Google Scholar Profile

JOURNAL ARTICLES
◇ **Ajay Kumar Reddy Poreddy**, Peter A. Kara, Roopak R. Tamboli, Aniko Simon, and Balasubramanyam Appina. "CoDIQE3D: A completely blind, no-reference stereoscopic image quality estimator using joint color and depth statistics." The Visual Computer, Vol. 39 (12), (2023): 6743-6753. DOI: 10.1007/s00371-022-02760-3.

◇ **Ajay Kumar Reddy Poreddy**, Raja Bharath Chandra Ganeswaram, Balasubramanyam Appina, Priyanka Kokil, and Ram Bilas Pachori. "No-reference virtual reality image quality evaluator using global and local natural scene statistics." IEEE Transactions on Instrumentation and Measurement, Vol. 72 (1), (2023): 1-16. DOI: 10.1109/TIM.2023.3322995.

◇ **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, and Priyanka Kokil. "FFVRIQE: A feature fused omnidirectional virtual reality image quality estimator." IEEE Transactions on Instrumentation and Measurement, Vol. 73, (2024): 1–11. DOI: 10.1109/TIM.2024.3400304.

◇ **Ajay Kumar Reddy Poreddy**, Bhargav Varma Atmakuru, Thunakala Bala Krishna, Priyanka Kokil, and Balasubramanyam Appina. "Enhancing laparoscopic video quality assessment: A model addressing sensor and channel distortions." IEEE Sensors Letters, Vol. 8 (3), (2024): 1-4. DOI: 10.1109/LSENS.2024.3366564.

◇ **Ajay Kumar Reddy Poreddy**, Sunkanaboina Chandra Lingamaiah, Thunakala Bala Krishna, and Priyanka Kokil. "Focal liver lesion classification based on statistical variations of discrete Haar wavelet transform and singular value decomposition." IEEE Sensors Letters, Vol. 8 (8), (2024): 1–4. DOI: 10.1109/LSENS.2024.3419145.

- ◇ **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, and Priyanka Kokil. "Enhancing surgical laparoscopic video quality assessment with integrated feature fusion accounting for sensor and transmission distortions," IEEE Sensors Letters (Accepted for publication)(2025). DOI: 10.1109/LSENS.2025.3553292.
- ◇ Pankaj Kumar Raghuwanshi, **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, and Priyanka Kokil. "An 'opinion unaware' 3D image quality evaluator using correlation features of scene components," IEEE Transactions on Instrumentation and Measurement, vol. 74, pp. 1-11, (2025). DOI: 10.1109/TIM.2025.3542137.
- ◇ Pankaj Kumar Raghuwanshi, **Ajay Kumar Reddy Poreddy**, Sakali Raghavendra Kand Balasubramanyam Appina. "An unsupervised stereoscopic image quality prediction model using perceptual and statistical features of scene attributes," IEEE Transactions on Instrumentation and Measurement, September 2025 (Accepted for Publication).
- ◇ Pankaj Kumar Raghuwanshi, **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, and Ram Bilas Pachori. "3D-CLuDe: A 3D image quality evaluator using correlative dependencies between luminance and depth attributes," IEEE Sensors Letters (Minor revision-submitted).
- ◇ **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, and Priyanka Kokil. "Multispectral scene analysis to improve laparoscopic surgical precision," IEEE Transactions on Human Machine Systems (Major revision submitted).
- ◇ **Ajay Kumar Reddy Poreddy**, Tejendra Dixit, Rushendra Bm, and Priyanka Kokil, "Analyzing analog, digital, asymmetric, and butterfly-like hysteresis characteristics using generalized memristor Model," Semiconductor Science and Technology (Major revision-In Preparation).
- ◇ **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina, Priyanka Kokil, and Alan C. Bovik, "Blind S-3D VR picture quality prediction using trivariate brightness, color, and disparity statistics," Signal Processing: Image Communication (Under Review).
- ◇ Thunakala Bala Krishna, **Ajay Kumar Reddy Poreddy**, Ayush Ranjan, , and Priyanka Kokil. "Two-stage trained deep learning model to identify pulmonary diseases from Chest X-ray images for smart healthcare," Engineering Applications of Artificial Intelligence (Under review).
- ◇ Ramya Saisree Mogasati, Sunny Ganavdiya, **Ajay Kumar Reddy Poreddy**, Balasubramanyam Appina and Rambilas Pachori. "A no-reference framework for animated video quality prediction in consumer multimedia applications," IEEE Transactions on Consumer Electronics (Under review).
- ◇ Peruvazhuthi S, **Ajay Kumar Reddy Poreddy**, and Priyanka Kokil. "FieldPlantNet: Efficient and interpretable deep learning for real-time plant disease detection in agricultural settings," IEEE Transactions on AgriFood Electronics (Under review).
- ◇ Sunkanaboina Chandra Lingamaiah, Thunakala Bala Krishna, **Ajay Kumar Reddy**, and Priyanka Kokil. "Attention-Based Deep Learning Model for Clinical Assessment of Focal Liver Lesions Using Ultrasound Imaging," Biomedical Signal Processing and Control (Under review).

CONFERENCE PUBLICATIONS

- ◇ **Ajay Kumar Reddy Poreddy**, and Balasubramanyam Appina. "BVRIQE: A completely blind no reference virtual reality image quality evaluator," IEEE International Conference on Signal Processing and Communications (SPCOM), 2022, pp. 1-5. DOI: 10.1109/SPCOM55316.2022.9840855.
- ◇ **Ajay Kumar Reddy Poreddy**, Peter A. Kara, Balasubramanyam Appina, and Aniko Simon. "A no-reference 3D virtual reality image quality assessment algorithm based on saliency statistics," Proc. SPIE 11841, Optics and Photonics for Information Processing XV, 118410R (1 August 2021). DOI: 10.1117/12.2597327.

- ◇ Bhusham Chandrasekhar, **Ajay Kumar Reddy Poreddy**, Thunakala Bala Krishna, and Priyanka Kokil. "Automated Anemia classification and Hemoglobin level prediction using deep CNN and GLCM features of palpebral conjunctiva images." In Conference on Information and Communication Technology (CICT), pp. 1-6. IEEE, 2023. DOI: 10.1109/CICT59886.2023.10455477.
- ◇ Varun. C, **Ajay Kumar Reddy Poreddy**, Thunakala Balakrishna, and Priyanka Kokil. "A computer-aided detection system for Breast Cancer using lightweight CNN Models for smart healthcare." In International Conference on Bio Signals, Images, and Instrumentation (ICBSII), 1–6. IEEE, 2024. DOI: 10.1109/ICBSII61384.2024.10564079.
- ◇ Krithika S, **Ajay Kumar Reddy Poreddy**, Thunakala Balakrishna, and Priyanka Kokil. "A multi-input deep neural network framework for non-invasive detection of anemia using fingernail images." In International Conference on Bio Signals, Images, and Instrumentation (ICBSII), 1–6. IEEE, 2024. DOI: 10.1109/ICBSII61384.2024.10564094.
- ◇ Naga Sree Charan Teja, Thunakala Bala Krishna, **Ajay Kumar Reddy Poreddy**, and Priyanka Kokil. "Lightweight deep learning model for melanoma classification in dermoscopy images for smart healthcare." In International Conference on Wireless Communications Signal Processing and Networking (WiSPNET), 1–6. IEEE, 2024. DOI: 10.1109/WiSPNET61464.2024.10532923.
- ◇ Sunkanaboina Chandra Lingamaiah, Thunakala Bala Krishna, **Ajay Kumar Reddy**, and Priyanka Kokil. "Enhanced Focal Liver Lesion Classification using Channel Attention Technique." In International Conference on Information and Communication Technology (CICT), 1–6. IEEE, 2024. DOI: 10.1109/CICT64037.2024.10899626.

Book Chapters

- ◇ Thunakala Bala Krishna, **Ajay Kumar Reddy Poreddy**, Gnapika Sindhu Kolla, and Priyanka Kokil. "Automated maternal fetal ultrasound image identification using a hybrid vision transformer model," International Conference on Pattern Recognition (ICPR), Lecture Notes in Computer Science, vol 15311 (03 December 2024). DOI: 10.1007/978-3-031-78195-7_17
- ◇ **Ajay Kumar Reddy Poreddy**, Bachu Ganesh, Thunakala Bala Krishna, and Priyanka Kokil. "Enhanced eye disease diagnosis using integrated ResNet-101 and vision transformer," In 9th International Conference on Computer Vision & Image Processing (CVIP), vol 2477. Springer, 2024. DOI: 10.1007/978-3-031-93709-5_31.
- ◇ Siddarth. C, **Ajay Kumar Reddy Poreddy**, and Priyanka Kokil. "A comprehensive study on pre-trained models for skin lesion diagnosis in a federated setting." In International Conference on Computer Vision and Image Processing (CVIP), 483–93. Springer, 2023. DOI: 10.1007/978-3-031-58535-740.
- ◇ Thunakala Bala Krishna, Tekumudi Vivek Sai Surya Chaitanya, **Ajay Kumar Reddy Poreddy**, and Priyanka Kokil. "Leveraging CNN features and vision transformers for enhanced focal liver lesion classification," In International Conference on Computer Vision and Image Processing (CVIP), 483–93. Springer, 2023. DOI: 10.1007/978-3-031-93709-5_32.

Project Proposals

Submitted a project proposal titled "A Multimodal Framework for Psychological Behavioural Analysis in Learning Environments Based on Cognitive and Mathematical Assessments," to the ANRF Advanced Research Grant (ARG) scheme in collaboration with Indian Institute of Technology Indore (Accepted for Technical evaluation).

Submitted a project proposal titled "A Mathematical Framework for Joint Estimation of Quality, Realism, and Semantic Alignment in Artificial Intelligence Generated Videos," ANRF MATRICS scheme. The total proposed budget for the project is 15 lakhs (Accepted for Technical evaluation).

Reviewer

IEEE Transactions on Image Processing, IEEE Transactions on Instrumentation and Mea-

surements, IEEE Transactions on Multimedia, IEEE Sensors Letters, Computers and Electrical Engineering, Circuits Systems and Signal Processing, International Conference on Pattern Recognition (ICPR).

Courses Image Processing, Machine Learning, Introduction to Statistical learning, Deep learning

Computer Skills

Algorithm development environments: MATLAB, Basic Python

Operating Systems: Windows and Linux

Awards and Recognition

- Fellowship award from Ministry of Human Resource Development (MHRD) India from August 2020-2024.
- Fellowship award from Andhra Pradesh state government for pursuing M. Tech from August 2018-2020.
- Awarded as the Academic Topper in M.Tech for the academic year 2018-2019.
- Received Dean Merits scholarship (top 4 % category) in B.Tech for the academic year 2017-2018.

Activities

- Delivered a research talk titled "No-Reference Virtual Reality Image Quality Assessment using Natural Scene Statistics" at the Karyshala Workshop on "Multimedia Processing and Analysis: Theory to Practice," held at the Indian Institute of Technology Indore.
- Delivered a research talk titled "Deep Learning Toolbox for Medical Image Analysis in MATLAB" at the IEEE SPS Seasonal School on "Deep Learning and Its Applications to Biomedical Signal and Image Processing," held at the IIITDM, Kancheepuram.
- Delivered a research talk titled "Multimedia Quality Assessment and its Importance in Optimizing the Performance of Image Processing Algorithms" at the Workshop on "Multimedia Quality Assessment and LaTeXtool ," held at the Jawaharlal Nehru Technological University, Kakinada Narasaraopet Campus (JNTUK Narasaraopet).
- Organizing Committee Member: High-end one week workshop (Karyashala) on "Creative methods and tools for effective research dissemination" at IIITDM, Kancheepuram.
- Organizing Committee Member: IEEE SPS Seasonal School on "Deep Learning and Its Applications to Biomedical Signal and Image Processing" at IIITDM, Kancheepuram.

References

- Dr. Appina Balasubramanyam,
  Assistant Professor,
  Department of Electrical Engineering,
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