Nikhil Akalwadi

Center of Excellence in Visual Intelligence
KLE Technological University

Portfolio: https://nikhilakalwadi.github.io
Email: nikhil.akalwadi@kletech.ac.in

Education

KLE Technological University
MS (Engg) by Research — 2023-present
B.E. in Electronics and Communication — 2018-2022

ICS Mahesh PU College
Pre-University — 2016-2018

Academic Positions

KLE Technological University
Undergraduate Researcher — 2021-2022
(Advised by Uma Mudenagudi, Ramesh Ashok Tabib)
Undergraduate Researcher — 2020-2021
(Advised by Ramesh Ashok Tabib, Ujwala Patil)

Industry Experience

Research Assistant, **CEVI-KLETech.** — 2022-present
Computer Vision Researcher (Internship), **CEVI-KLETech.** — Jan-May 2022
Hardware Design Engineer (Internship), **Eartkey Pvt. Ltd.,** — Aug 2020-Mar 2021

Professional Activity

Reviewing
AI for Visual Arts Workshop and Challenges *@ ECCV* — 2024
Out-of-Distribution Generalisation in Computer Vision Foundation Models *@ ECCV* — 2024
Geometry-grounded Representation Learning and Generative Modelling *@ ICML* — 2024
IEEE Transactions on Image Processing — 2024
Women in Computer Vision *@ IEEE/CVF CVPR* — 2024
Women in Computer Vision *@ IEEE/CVF ICCV* — 2023

Program Volunteer
3D Vision Summer School — 2024

Program Participant
3D Vision Summer School — 2022,2023

Teaching and Mentorship

Teaching Assistant
AICTE ATAL Faculty Development Program, KLETech. — 2023
(Python, HandsOn Computer Vision and Machine Learning)
Summer School on Visual Intelligence, CEVI-KLETech. — 2022,2023

Mentorship
Summer School on Visual Intelligence, CEVI-KLETech. — 2021,2022,2023

Publications

Conferences

1. Ghodesawar, Allabakash, Vinod Patil, Ankit Raichur, Swaroop Adrashyappanamath, Sampada Malagi, Nikhil Akalwadi, Chaitra Desai, Ramesh Ashok Tabib, Ujwala Patil, and Uma Mudenagudi. "DeFlare-Net: Flare Detection and Removal Network." In ***International Conference on Pattern Recognition and Machine Intelligence***, pp. 465-472. Cham: Springer Nature Switzerland, 2023.

Workshop Publications

1. Joshi, Amogh, Nikhil Akalwadi, Chinmayee Mandi, Chaitra Desai, Ramesh Ashok Tabib, Ujwala Patil, and Uma Mudenagudi. "HNN: Hierarchical Noise-Deinterlace Net Towards Image Denoising." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition***, pp. 3007-3016. 2024.

2. Desai, Chaitra, Nikhil Akalwadi, Amogh Joshi, Sampada Malagi, Chinmayee Mandi, Ramesh Ashok Tabib, Ujwala Patil, and Uma Mudenagudi. "LightNet: Generative Model for Enhancement of Low-Light Images." In *Proceedings of the* ***IEEE/CVF International Conference on Computer Vision,*** pp. 2231-2240. 2023.

Posters/Extended Abstracts

1. Malagi, Sampada, Nikhil Akalwadi, Amogh Joshi, Chaitra Desai, Ramesh Ashok Tabib, Ujwala Patil, and Uma Mudenagudi. "ViD: Vision in Dark" In *the* ***IEEE/CVF Computer Vision and Pattern Recognition***. *Accepted as Poster*

2. Desai, Chaitra, Nikhil Akalwadi, Amogh Joshi, Sampada Malagi, Chinmayee Mandi, Ramesh Ashok Tabib, Ujwala Patil, and Uma Mudenagudi. "LightNet: Generative Model for Enhancement of Low-Light Images." In *the* ***IEEE/CVF Computer Vision and Pattern Recognition***. *Accepted as Poster*

Challenge/Technical Reports

1. Chen, Zheng, Zongwei Wu, Eduard Zamfir, Kai Zhang, Yulun Zhang, Radu Timofte, Xiaokang Yang et al. "Ntire 2024 challenge on image super-resolution (x4): Methods and results." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition***, pp. 6108-6132. 2024. *Top 10 Teams (ranked #9)*
2. Vasluianu, Florin-Alexandru, Tim Seizinger, Zhuyun Zhou, Zongwei Wu, Cailian Chen, Radu Timofte, Wei Dong et al. "NTIRE 2024 image shadow removal challenge report." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition***, pp. 6547-6570. 2024. *Top 15 Teams (ranked #11)*
3. Ancuti, Codruta O., Cosmin Ancuti, Florin-Alexandru Vasluianu, Radu Timofte, Yidi Liu, Xingbo Wang, Yurui Zhu et al. "NTIRE 2024 dense and non-homogeneous dehazing challenge report." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition***, pp. 6453-6468. 2024. *Top 15 Teams (ranked #13 and #15)*
4. Ren, Bin, Yawei Li, Nancy Mehta, Radu Timofte, Hongyuan Yu, Cheng Wan, Yuxin Hong et al. "The ninth NTIRE 2024 efficient super-resolution challenge report." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition***, pp. 6595-6631. 2024.
5. Dai, Yuekun, Chongyi Li, Shangchen Zhou, Ruicheng Feng, Qingpeng Zhu, Qianhui Sun, Wenxiu Sun et al. "MIPI 2023 Challenge on Nighttime Flare Removal: Methods and Results." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition,*** pp. 2852-2862. 2023. *Top 10 Teams (ranked #8)*
6. Ershov, Egor, Alex Savchik, Denis Shepelev, Nikola Banić, Michael S. Brown, Radu Timofte, Karlo Koščević et al. "NTIRE 2022 challenge on night photography rendering." In *Proceedings of the* ***IEEE/CVF Conference on Computer Vision and Pattern Recognition,*** pp. 1287-1300. 2022. *Top 15 Teams (ranked #12)*

Technical Skills

Programming Languages: Python, C, C++, Java, MATLAB, C#, JavaScript
Frameworks: HTML, CSS3
Libraries: PyTorch, Tensorflow, Pandas, Lumpy, Matplotlib, Sklearn, Scipy
Dev Tools: VSCode, Spyder, Jupyter, Git, GitHub, GIMP, Blender, Android Studio, Docker
OS: Linux, MacOS, Windows
Embedded Systems: Raspberry Pi, Arduino, 8051, ARM Cortex

Projects and Research

1. **Multispectral Image Analysis Towards Precision Agriculture**

   During my undergraduate program, I worked with Prof. Uma Mudenagudi on multispectral image analysis pipeline for precision agriculture. My work focused on processing spectral images to assess crop and soil health. I developed libraries for integrating spectral cameras and preprocessing captured data.

2. **Low-Light Image Enhancement**

   In my academic pursuits, I focused on low-light image enhancement under the guidance of **Prof. Uma Mudenagudi.** I published ***"LightNet: Generative Model for Enhancement of Low-Light Images."*** to improve image quality in challenging low-light conditions and also achieved 13th rank in the ***NTIRE 2022 Challenge at CVPR***, sharing valuable insights with the research community.

3. **Image Annotation QC Tool**

   In collaboration with the **CEVI-SEED (Student Ecosystem for Engineered Data) Lab**, this tool has been meticulously **developed to assess the quality of annotated images**. Leveraging the expertise of the lab, the tool serves as a valuable resource for evaluating the precision and accuracy of image annotations in diverse applications.