

MRITUNJOY HALDER

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 mritunjoyh.github.io

 Mritunjoy Halder

EXPERIENCE

Researcher

TCS Research Labs

 July 2023 – Present

 Kolkata

- Bridging generative modeling and 3D vision to create simulators for AR/VR-driven robot training.
- Developed an algorithm to address the lack of 3D datasets in current SOTA methods.
- Enabled businesses to generate 3D environments and objects from text/audio prompts.

Research Intern

TCS Research Labs

 March 2022 – May 2022

 Remote

- Proposed a spatio-temporal CNN, inspired by brain cells, for anomaly detection in surveillance robots.
- Achieved 91% accuracy on a benchmark dataset and validated on a Double Robot in real-world scenarios.
- Granted patent; accepted for oral presentation at IEEE IJCNN.

Research Intern

NIT Agartala

 June 2021 – May 2022

 Remote

- Designed a hybrid classical and learning-based model for real-time image defogging.
- Developed a fog dilution and removal model, achieving 92% SSIM with 0.1s processing time.

Research Intern

NIT Hamirpur

 June 2021 – May 2022

 Remote

- Developed a transformer based system for sex, accent, and emotion recognition from speech.
- Achieved 94.62% (sex), 97.37% (accent), and 99.84% (emotion) recognition accuracy.

PUBLICATIONS

Published Journal **A Transmission Model based Deep Neural Network for Image Dehazing** at *Multimedia Tools and Application, Springer*

Published Journal **A Transmission Model based Deep Neural Network for Image Dehazing** at *Multimedia Tools and Application, Springer*

Published Conference Paper **Anomalous Activity Detection from Ego View Camera of Surveillance Robots** at *IEEE International Joint Conference on Neural Networks (IJCNN)*

Published Conference Paper **A Framework for Sex Identification, Accent and Emotion Recognition from Speech Samples** at *International Conference on Computing Communication and Networking Technologies (ICCCNT)*

Published Journal **Multi-feature based hazy image classification for vision enhancement** at *Procedia Computer Science, Elsevier*

Published Journal **A deep learning model to detect foggy images for vision enhancement** at *The Imaging Science Journal, Taylor and Francis*

Published Book Chapter **Dehazing and vision enhancement: challenges and future scope** at *IET Intelligent Multimedia Processing and Computer Vision*

PATENTS

Part of granted US Patent **Anomalous activity detection for mobile surveillance robots**

Part of published Indian Patent **System and Method For Dehaizng Real Time Dynamic Degraded Scenes Using Deep Residual Neural Networks**


WORK UNDER REVIEW

Paper titled **VOIR-Net: Vision-Optimized Image Refinement Network** is under peer review at *IEEE Transactions on Image Processing*

PROJECTS

Improved Diagnosis on Low Resolution Medical Images

B.Tech Thesis

 Dr. Santi Prasad Maity

- Proposed a dual GAN framework for enhancing low-resolution medical images, ensuring better diagnosis.
- Introduced a novel loss function to improve the region of interest (ROI) reconstruction.
- Achieved 91% accuracy, outperforming state-of-the-art methods.

Cartoon Emotion Recognition

PAN India Hackathon Revelation'23

 IEST Shibpur

- Developed a transformer based model for sentiment classification using a custom cartoon dataset.
- Leveraged synthetic images to train and fine-tune the model for emotion recognition.
- Achieved 95% accuracy, surpassing existing sentiment classification methods.

EDUCATION

B.Tech in Information Technology

Indian Institute of Engineering Science and Technology, Shibpur

 2019 – 2023

 CGPA: 9.1

Higher Secondary in Science

Jadavpur Vidyapith

 2017 – 2019

 90.2 %

Secondary from West Bengal Board

Jadavpur Vidyapith

 2011 – 2017

 88.28 %

QUANTITATIVE RESEARCH

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| GenAI (VLM/LLM/3D) | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Computer Vision | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Computer Graphics | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Image Processing | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Deep Learning | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Machine Learning | <div><div></div><div></div><div></div><div></div><div></div></div> |

SKILLS

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| Python | <div><div></div><div></div><div></div><div></div><div></div></div> |
| C/C++ | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Blender(BPY) | <div><div></div><div></div><div></div><div></div><div></div></div> |
| MATLAB | <div><div></div><div></div><div></div><div></div><div></div></div> |
| LaTeX | <div><div></div><div></div><div></div><div></div><div></div></div> |

LANGUAGE

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| English | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Bengali | <div><div></div><div></div><div></div><div></div><div></div></div> |
| Hindi | <div><div></div><div></div><div></div><div></div><div></div></div> |