# **MRITUNJOY HALDER**

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in 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 lowresolution 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

- 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

**1** 2019 - 2023

CGPA: 9.1

Higher Secondary in Science

## Jadavpur Vidyapith

**1** 2017 - 2019

90.2 %

Secondary from West Bengal Board Jadavpur Vidyapith

**2011** – 2017

88.28 %

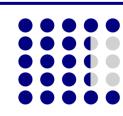
# **QUANTITATIVE RESEARCH**

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



# **SKILLS**

Python C/C++ Blender(BPY) MATLAB LATEX



# LANGUAGE

English Bengali Hindi

