National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Deep Learning Based Super Resolution Techniques on Infrared Images .
Speaker	: Aradhana Rauta.
Supervisor	: Prof Ajit Kumar Sahoo
Venue	: DSP Lab, ECE Department.
Date and Time	: 27 Mar 2025 (05.00PM)

Abstract : This paper provides deep learning techniques for Super Resolution (SR) of a single infrared image. Recent advancements in deep learning have significantly enhanced SR techniques. Infrared (IR) image super-resolution holds great potential for improving applications like object detection and classification by recovering finer image details. In this work, we propose a Generative Adversarial Network (GAN)-based model tailored for IR image SR utilizing residual blocks, subpixel convolutions and batch normalization layers for efficient feature extraction and upscaling. The loss function incorporates perceptual loss to encourage realistic outputs and total variation (TV) loss to reduce noise and ensure smoothness while preserving edges. The proposed method is compared against state-of-the-art methods demonstrating superior performance in recovering high-quality IR images.