National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Deep Learning-based LOS/NLOS Classification for Reliable Communication in Industrial IoT
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Venue	: Seminar Room (EE-205)
Date and Time	: 09 Apr 2024 (11:00 AM)
Abstract	: The optimal channel selection for data transmission is essential for reliable communication in an indoor environment like industrial IoT (IIoT). The presence of complex objects in the indoor factory environment leads to reliability loss and degradation of transmitted signal quality while increasing signal outage. Again, the optimal channel selection for efficient scheduling of the heterogeneous data packets generated by delay-sensitive ultra-reliable low latency (URLLC) service and delay-tolerant broadband service in IIoT demand for accurate identification of wireless link status. Therefore, the identification of wireless channel status like Line-of-Sight (LOS), None-Line-of-Sight (NLOS), and Multi-Path (MP) between the transmitter and the receiver becomes essential to reduce packet error probability in IIoT. In this regard, we propose a deep learning-based classifier model using Convolutional Neural Network (CNN) and Long Short Term Memory (LSTM) to identify the LOS/NLOS or MP signals and enhance the reliability of the signal by improving system throughput and accurate positioning. Additionally, the Bit Error Rate (BER) improved significantly with the optimal channel selection using the proposed CNN-LSTM model.