ABSTRAK

This research aims to improve the efficiency and quality of wireless communications through the integration of Large Intelligent Surfaces (LIS) and Intelligent Reflecting Surfaces (IRS) using the Long Short-Term Memory (LSTM) method for signal reflection optimization and Compressive Sensing (CS) for collection efficiency and data processing. Signal reflection adjustments were carried out using the LSTM method, and evaluation of the achievable rate results was carried out after applying this method. Simulations and experiments using MATLAB and the DeepMIMO dataset were carried out to test and validate the achievable rate achievement. Experimental steps include data collection using DeepMIMO, data processing via CS, simulation of signal reflection adjustment with LSTM in MATLAB software, as well as measurement and evaluation of LIS energy efficiency. The authors hope that this research can show that the integration of LSTM and CS methods is able to improve energy efficiency and the quality of communication services in LIS, thereby contributing to the development of more efficient and intelligent wireless communication technology.