

ABSTRACT

In this study, the authors propose the use of Intelligent Reflecting Surface (IRS) to enhance the achievable signal rate in blind spot conditions, such as inside an elevator. IRS is a smart reflective surface that can change the direction of reflected electromagnetic signals. In this case, the authors utilize Convolutional Neural Network (CNN) to optimize the reflection direction of the IRS. CNN can identify patterns and features in data, which in this context pertains to the signals and the environment around the IRS. By using CNN, the authors develop a model that enables the IRS to automatically adjust the signal reflection direction, helping to optimize the achievable rate. The goal of this research is to determine the optimal reflection direction for the IRS and to assess the achievable rate after implementing CS and CNN. This study was carried out using Matlab-based simulations with datasets for training and testing the system. The implementation of CS and CNN on IRS is expected to enhance the achievable signal rate.

Key Word: *Intelligent Reflecting Surface, Large Intelligent Surface, Compressive Sensing, Convolutional Neural Network, achievable rate, Matlab.*