

BER Analysis of NOMA-CRS with ML-Aided PS-PA Power Optimization Over Nakagami-m Channels

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Abstract

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Abstract:

This paper investigates the error performance of a cooperative relaying system based on Non-Orthogonal Multiple Access (NOMA-CRS) under Nakagami- m fading channels. Unlike prior studies focusing on capacity and outage probability, we implement a closed-form expression for the average bit error probability (ABEP), considering realistic imperfections in successive interference cancellation (SIC). Additionally, we propose a lightweight feedforward neural network (FNN) based machine learning model to jointly optimize the power allocation (PA) and power sharing (PS) coefficients under a minimum bit error rate (MBER) criteria.

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