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### Enhancements to the Deep Learning Signal Detection Model in Non-Orthogonal Multiple Access Receivers and Noisy Channels

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## Abstract

This paper presents an enhanced deep learning-based Non-Orthogonal Multiple Access (NOMA) receiver that can mainly be used in low signal-to-noise channels. We show how a better dataset generation strategy for training Deep Learning (DL) could result in better generalization capabilities. Then, we apply hyperparameter tuning using exhaustive search to optimize the DL network. A Long-Short-Term-Memory (LSTM) DL architecture is used. The results show superior Symbol Error Rate vs Signal-to-Noise Ratio performance compared to the state-of-the-art methods such as Maximum Likelihood, Minimum Mean Square Error, and Successive Interface Cancellation, even though the network is only half as complex as previously proposed DL networks in the literature.

Please refer to PDF download for the full paper.

## Article PDF:

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