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(57) Abstract :
Disclosed herein is an enhanced transceiver optimization method (100) comprising of identifying objectives (102), starting by defining the specific goals and targets for the transceiver optimization method, such as improving spectral efficiency and reducing interference, data collection (104), gathering essential data related to signal strength, channel conditions, interference levels, and network performance through advanced sensors and monitoring devices, data pre-processing (106), cleaning and refining the collected data by eliminating noise, outliers, and irrelevant information before inputting it into machine learning models (108), machine learning models (108), selecting and engineering relevant features to enhance the accuracy and efficiency of machine learning models (108), training and validation (112), conducting the training process using labeled data and validating machine learning models (108) to ensure accuracy and generalization, real-time adaptation (114), enabling the system to dynamically adjust to changing network conditions in real-time using artificial intelligence (AI) algorithms, including reinforcement learning, signal processing (116).

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