Joint Optimization of Modulation and Guardband Assignment with DNN-Based Channel Estimation in Digital RoF Broadcasting System

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*Abstract*—In this paper, we propose a nonlinear-impairments aware channel estimation model based on deep neural network (DNN). Furthermore, a corresponding optimal dynamic modulation and guard band assignment algorithm is proposed for digital RoF broadcasting system.

Keywords—channel estimation, RMSA, deep neural network, RoF.

# Introduction

The next-generation multimedia transmission places higher requirements on the transmission distance and access capability of the transmission network in order to carry emerging heterogeneous and bandwidth-intensive services, such as autonomous driving and telemedicine. Currently, the most widely used form of transmission network is Radio-over Fiber (RoF), b

ithm, which reduces the computation delay and blocking rate.

# Mathematical Formulation

In this section, we prove that the optimization problem of throughput in 5G IoT FiWi access network can be mathematically formulated as a convex problem in a global view. Therefore, it can be inferred that with a fixed caching file selection strategy, the solving of global optimal throughput-oriented solution can be converted to the local optimal solution in the wireless access domain.

The architecture of the 5G IoT FiWi access network considered in this paper is shown in Figure 1.

##### Acknowledgment *(Heading 5)*

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##### References

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