

Deep Learning-Based Channel Estimation for Reconfigurable Intelligent Surface-Assisted Unmanned Aerial Vehicle-Enabled Wireless Communication System

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Abstract : Wireless communication via unmanned aerial vehicles (UAVs) has drawn a great deal of attention due to its flexibility in establishing line-of-sight (LoS) communications. However, in complex urban and dynamic environments, the movement of UAVs can be blocked by trees and high-rise buildings that obstruct directional paths. With reconfigurable intelligent surfaces (RIS), this problem can be effectively addressed. To achieve this goal, accurate channel estimation in RIS-assisted UAV-enabled wireless communications is crucial. This paper proposes an accurate channel estimation model using long short-term memory (LSTM) for a multi-user RIS-assisted UAV-enabled wireless communication system. According to simulation results, LSTM can improve the channel estimation performance of RIS-assisted UAV-enabled wireless communication.

Keywords : channel estimation, reconfigurable intelligent surfaces, long short-term memory, unmanned aerial vehicles

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