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Title: «Online Learning for Delay-Constrained Wireless Metaverse Systems»

Short Abstract:

The metaverse refers to immersive environments where users interact through avatars and real-time sensory feedback. In particular, closed-loop haptic interactions demand millisecond-level latency, while the corresponding visual information must be delivered in a synchronized manner [1]. This creates a tradeoff between immersion quality-requiring higher visual payload-communication delay, and radio resource consumption. In this work, we develop a two-time-scale online learning framework that jointly adapts downlink bandwidth and visual payload size to ensure reliable and immersive wireless metaverse interaction.