

Future Adaptive and Reliable Vehicular Networks toward 6G Using Machine Learning Strategies

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ABSTRACT

The vehicle network has been designed as a strong instrument for improving human interaction and transportation throughout worldwide for decades to come. However, as the number of cars increases, the vehicular network becomes more diverse, dynamic, and large-scaled, making it impossible to fulfil the demanding requirements of the future generation (6G) network, like ultralow latency, high reliability, robust security, and huge connections. Recently, machine learning (ML) has developed as a potent artificial intelligence (AI) technology for increasing the efficiency and adaptability of both vehicles and wireless communication. Naturally, applying machine learning to vehicle communication and networks has become a hot issue that is being extensively researched in both academia and industry, opening the way for future intelligentization in 6G vehicular networks. In this study, we investigate various ML techniques applied to communication, networking, and security components in vehicular networks and envision ways to enable AI in a future 6G vehicular network, such as the evolution of intelligent radio (IR), network intelligentization, and self-learning with proactive exploration.

Keywords: 6G, Vehicular Network, Machine Learning

