

2024 年度年次報告書
社会変革に向けた ICT 基盤強化
2022 年度採択研究代表者

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通信センシング統合による知的なネットワーク管理

研究成果の概要

In this year, the NS3 simulation for LOS and NLOS condition have been conducted to evaluate the characteristics and performance of mmWave communication. Furthermore, a method was proposed to incorporate sensing results into adaptive data transmission management to improve communication efficiency in the mmWave vehicle-to-vehicle (V2V) condition. In the proposed method, the moving information of vehicles including speed and position are utilized. By analyzing and predicting the channel condition, the data transmission is adaptively adjusted. When the shadowing is predicted, the transmission is intentionally suspended in the application layer during the shadowing period and the data is transmitted with higher rate during the non-shadowing period. The performance was evaluated by using network simulator NS3. Several new modules were developed to simulate the NLOS channel condition and added to conduct the experiment. The simulation of transmitting a fix-sized data block was conducted. It was found that by using the proposed method, the packet loss can be reduced dramatically, demonstrating the efficacy of the proposal for improving efficiency. Besides, a channel sounding system for integrated communication and sensing in mmWave band was developed.

The results have been published in IEICE domestic conference and will be published in international conference.