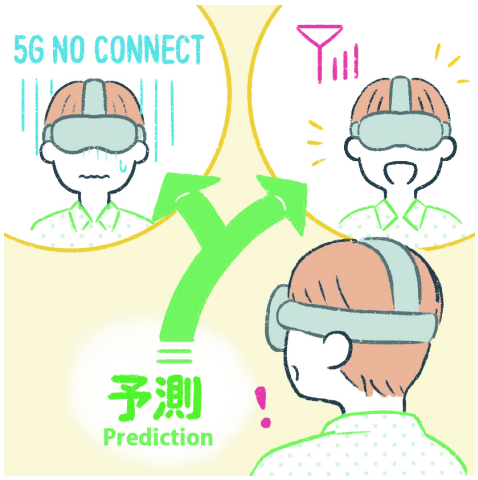
5G throughput prediction using space information



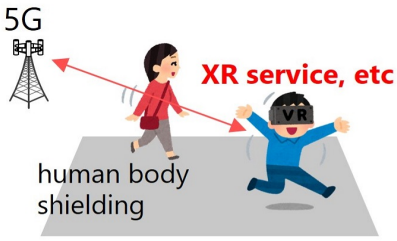
Background

The use of high frequency bands such as millimeter waves is essential for high-capacity wireless communications, but these bands are influenced by surroundings. If the quality can be predicted and buffers etc. can be controlled, high-capacity communication services such as XR can be stably provided.

Summary

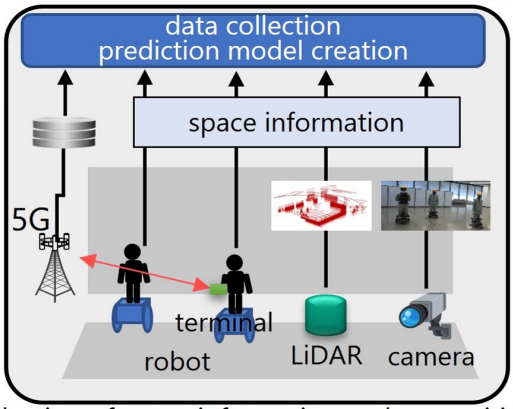
For application to high-capacity wireless communications using the millimeter wave expected for 6G, we built a 5G verification environment and evaluated 28GHz 5G throughput prediction using space information such as the position and speed of terminals and surrounding objects.

scenario example



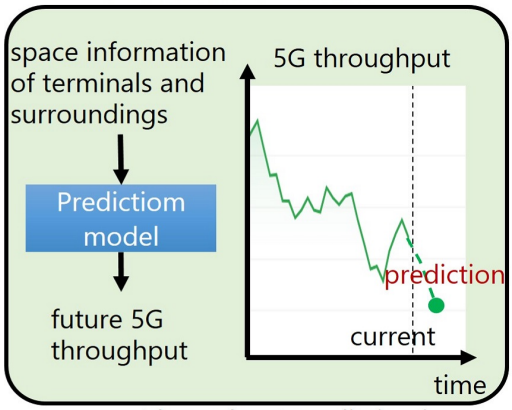
Predicting 5G throughput the order of seconds for stable provision of high-capacity wireless communication services

Prediction model construction



collection of space information such as position of terminals and Learning the relationship between space information and 5G throughput

Prediction result



Throughput prediction in order of seconds

Features

- We collected space information such as location and velocity of communication terminal and build a 5G verification environment that can evaluate 5G throughput
- We established 5G throughput prediction models based on deep learning using space information collected in the verification environment
- We confirmed and evaluated the rapid throughput degradation due to shielding effect in 28GHz 5G channel

Future_benefits

Proactive controls based on 5G throughput prediction allow user to stably use high-capacity wireless communication services without being aware of their terminals and surroundings.

Exhibiting Company

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