Qeios

Peer Review

Review of: "Deep Learning-Based CKM Construction with Image Super-Resolution"

Zhuangzhuang Cui[1]

1. KU Leuven, Leuven, Belgium

The paper focuses on data-driven channel knowledge construction, where channel data and images of the environment are inputs. Overall, it is well written; however, some parts can be clarified further.

1. First of all, it is better to clarify the role of environment data in channel prediction. Does this help improve the accuracy only by labeling channel measurement data? Or does it also help with environmental awareness of dynamic scatterers?

2. It is better to highlight the added value of the proposed method that leverages super-resolution and neural networks when benchmarked with pure learning or even pure model-based methods (many existing path loss models or ray-tracing models).

3. The key to this topic is tackling the trade-off between accuracy and complexity. Thus, when dealing with real-time CKM prediction, how should the method be refined? Moreover, different types of data should be well synchronized, but how?

4. When using sparsity, it is a down-sampling process, as shown in Fig. 2; however, do you consider the sparsity of channel data itself, considering multipath or in the spatial domain?

Declarations

Potential competing interests: No potential competing interests to declare.