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Peer Review

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

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1. How can sparsely measured data be used to obtain sparsely channel knowledge data? If existing methods can get a partial CKM, it is necessary to compare the direct acquisition of the complete CKM with the approach of obtaining a complete CKM from sparse CKM using deep learning, in terms of both accuracy and complexity, to demonstrate the advantages of the proposed method.
2. Knowledge is typically defined as the understanding and mastery of information, facts, skills, or experiences. How can the practical significance of channel knowledge obtained through deep learning training be explained? What is the distinction between the CKM and the feature matrix derived from training deep neural networks?
3. What is "channel knowledge"? Is it based on prior expert experience, multifaceted correlation relationships, or derived from more concrete data relationships through theoretical deduction?
4. The input data and the deep learning model used in the proposed method are quite complex. Does the proposed method incorporate fast prediction and online prediction capabilities in the context of new scenarios and technologies anticipated for future 6G applications?
5. The paper claims that the proposed method can construct not only path loss maps but also channel angle maps (CAMs). It would be insightful if the authors could discuss the generalization capabilities of their model and whether it can be transferred to other types of channel knowledge beyond the ones tested.
6. The authors utilize the CKMImageNet dataset for their experiments. Are the findings representative, or could they be specific to the characteristics of the dataset used?
7. While the paper compares the proposed deep learning-based method with interpolation-based methods, it would be valuable to also compare it with other traditional methods for CKM construction to provide a more comprehensive evaluation of its performance.
8. Deep learning models can be computationally intensive. The authors should discuss the computational efficiency of their proposed method, including training time, inference time, and resource requirements, and compare it with other state-of-the-art methods.
9. Since the CKM involves location-specific data, the authors should address any privacy implications associated with the collection and use of such data, especially in the context of 6G mobile communication networks.

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Declarations

Potential competing interests: No potential competing interests to declare.