

Peer Review

Review of: "Cell-Free Integrated Sensing and Communication: Principles, Advances, and Future Directions"

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The paper presents an interesting study on Cell-Free Integrated Sensing and Communication: Principles, Advances, and Future Directions. However, I suggest the following revisions to improve clarity, readability, and the overall quality of the work before publication:

1. The paper fills a critical gap in the literature by providing the first comprehensive survey on Cell-Free ISAC systems.
2. The authors effectively explain the fundamental principles of CF-mMIMO and ISAC, making the paper accessible to both new and experienced researchers.
3. The logical flow from theory to challenges and future directions makes the paper easy to navigate.
4. Figures and tables are well-designed and effectively illustrate complex technical points, aiding reader understanding.
5. The comparison between CF-ISAC and traditional ISAC systems is well-structured and highlights the advantages of the CF architecture.
6. The inclusion of real-world use cases (e.g., V2X, smart manufacturing, and healthcare) enhances the practical relevance of the work.
7. The author has missed some recent papers on Cell-Free Massive MIMO and 6G, which could be included to strengthen the quality of the paper.

[R1] "Power Minimization in Cell Free Massive MIMO with AP Selection Algorithm", International Journal of Sensors, Wireless Communications and Control, (SCOPUS), Vol.13, no.1, pp. 2-8, 2023.

[R2] “Capacity Maximization in Cell Free Massive MIMO Network with Access Point Selection Method”, International Journal of Sensors, Wireless Communications and Control, (SCOPUS), Vol. 12, No. 9, pp. 661-668, 2022.

[R3] Using Clustering and APS Method Performance Improvement of Cell Free Massive MIMO System”, Boreal Environment Research, Vol.29, no.7, pp.31-43, 2024.

[R4] “6G and Beyond: A Comprehensive Study and Analysis”, Boreal Environment Research, Vol.29, No.7, pp.2-30, 2024.

[R5] “Throughput and error probability improvement in Downlink Communication based on MIMO-NOMA using Reconfigurable intelligent Surface (RIS)”, International Journal of Communication Systems, vol.36, no.9, pp. e5470, 2023.

[R6] “Dynamic Cell Sleeping Mechanism: An Energy Efficient Approach for Mobile 5G HetCN”, International Journal of Communication Systems, vol.36, no.5, pp-e5422, 2022.

8. The heavy use of abbreviations and technical jargon may make it challenging for non-specialist readers to follow without frequent reference to the glossary.

9. While theoretical insights and simulations are discussed, the paper lacks real-world experimental results or testbed data to support the concepts.

10. Although fronthaul limitations are acknowledged, the paper could benefit from a more detailed discussion of practical solutions and implementation frameworks.

Declarations

Potential competing interests: No potential competing interests to declare.