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| Book Name: | [Science and Technology: Developments and Applications](https://www.bookpi.org/bookstore/product/science-and-technology-developments-and-applications-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_5116** |
| Title of the Manuscript:  | **Federated Learning for Secure Genomic Research: Privacy-Preserving AI Solutions for Precision Medicine** |
| Type of the Article | **BOOK CHAPTER** |

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | The manuscript addresses a significant issue in genomic research: the protection of sensitive genomic data while enabling collaboration among research institutions. Given the increasing reliance on AI and precision medicine, the exploration of federated learning (FL) as a privacy-preserving solution is timely and essential. The discussion about legal and ethical frameworks further highlights the manuscript's relevance, making it highly beneficial to researchers and policy-makers in healthcare and AI. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | Yes, the title "Federated Learning for Secure Genomic Research: Privacy-Preserving AI Solutions for Precision Medicine" accurately reflects the manuscript's objectives and scope. |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract is comprehensive, clearly highlighting the manuscript’s main objectives, techniques employed (Homomorphic Encryption, Differential Privacy), regulatory compliance considerations, and future research directions. However, it might benefit from explicitly stating the unique contribution provided by the manuscript. |  |
| **Is the manuscript scientifically, correct? Please write here.**  | Yes, the manuscript presents scientifically accurate information regarding federated learning algorithms, privacy-enhancing techniques, and associated regulatory requirements. Key concepts such as Federated Averaging, Homomorphic Encryption, and Differential Privacy are correctly explained. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are sufficient, relevant, and recent, with citations primarily from 2022-2025, ensuring up-to-date context. While current references are adequate, authors could consider adding practical or case-study-based references to reinforce real-world applicability. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The manuscript’s English is scholarly and appropriate for publication. Minor proofreading for clarity and sentence simplification would further enhance readability. |  |
| Optional/General comments | The manuscript is structured logically, and the flow is coherent. Authors may enhance the manuscript by briefly discussing practical challenges in implementing federated learning in real genomic research settings. Clearly illustrating unique contributions or differentiating aspects could further strengthen the manuscript. |  |

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| **PART 2:**  |
|  | Reviewer’s comment | Author’s comment *(if agreed with the reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in detail)* |  |

**Reviewer details:**

**Yogesh Ramaswamy, Northeastern University, USA**