**FUTURE ENHANCEMENT**

1. **Incorporating More Data Types**:
   * Future work could involve incorporating more types of data such as genetic sequences, additional imaging modalities, and patient medical histories to improve the accuracy and robustness of the predictions.
2. **Advanced Model Architectures**:
   * Exploring and implementing advanced neural network architectures like transformers or attention mechanisms to capture more complex patterns and interactions within the data.
3. **Real-World Deployment and Validation**:
   * Deploying the model in real-world clinical settings for validation and feedback. This will help in refining the model based on real-world data and usage patterns.
4. **Improving Generalization**:
   * Enhancing the generalizability of the model to perform well across different populations and regions by training on diverse and representative datasets.
5. **User Interface Enhancements**:
   * Developing more user-friendly and intuitive interfaces for healthcare providers to interact with the model's predictions and recommendations.
6. **Integration with Healthcare Systems**:
   * Integrating the prediction framework with existing electronic health record (EHR) systems to streamline workflows and improve accessibility to predictive insights.

These enhancements aim to improve the model's accuracy, usability, and applicability in real-world clinical scenarios, ultimately leading to better patient outcomes and more efficient tuberculosis management.