

Artificial intelligence applications in oncology to augment data and support decisions

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1. The integration of synthetic medical data, generated by AI, significantly improves the performance of classification models for the diagnosis of specific diseases. (This thesis)
2. The application of AI models enhances the efficacy and accuracy of clinicians during the diagnostic process by efficiently analyzing and interpreting complex medical data. (This thesis)
3. AI-generated synthetic data can potentially mitigate issues of data imbalance, thereby enhancing the reliability of diagnostic models under specific conditions. (This thesis)
4. In the field of oncology, AI models can accurately identify and analyze patterns from multiple sources of medical data, offering substantial potential for the early diagnosis and treatment of cancer. (This thesis)
5. Advances in federated learning algorithms have the potential to overcome data privacy issues and data silos, making AI more practical and effective in healthcare settings.
6. Incorporating multi-modality data and genomics into healthcare AI, though faced with hurdles such as costs and legal issues, could revolutionize precision medicine.
7. Few-shot/zero-shot learning methods present a promising avenue for diagnosing rare diseases and cancers in medical AI, despite needing further research for practical use.
8. AI in oncology bolsters scientific collaboration and open research while improving healthcare efficiency and diagnostic accuracy for societal benefit.