|  |  |  |  |
| --- | --- | --- | --- |
| Title | A Comprehensive Survey on Deep-Learning-Based Breast Cancer Diagnosis | | |
| Author(s) Name | Muhammad Firoz Mridha, Md. Abdul Hamid, Muhammad Mostafa Monowar, Ashfia Jannat Keya, Abu Quwsar Ohi, Md. Rashedul Islam and Jong-Myon Kim | | |
| Contact Email(s) | firoz.mridha@aiub.edu | | |
| Published Journal Name | Cancers | | |
| Type of Publication | Journal | | |
| Volume | 13 | Issue | 23 |
| Publisher | MDPI | | |
| Publication Date | 2021/12/4 | | |
| ISSN | 2072-6694 | | |
| DOI | 10.3390/cancers13236116 | | |
| URL | https://www.mdpi.com/2072-6694/13/23/6116 | | |
| Other Related Info. |  | | |
|  | | | |

|  |  |
| --- | --- |
| Abstract |  |
| Breast cancer is now the most frequently diagnosed cancer in women, and its percentage is gradually increasing. Optimistically, there is a good chance of recovery from breast cancer if identified and treated at an early stage. Therefore, several researchers have established deep-learning-based automated methods for their efficiency and accuracy in predicting the growth of cancer cells utilizing medical imaging modalities. As of yet, few review studies on breast cancer diagnosis are available that summarize some existing studies. However, these studies were unable to address emerging architectures and modalities in breast cancer diagnosis. This review focuses on the evolving architectures of deep learning for breast cancer detection. In what follows, this survey presents existing deep-learning-based architectures, analyzes the strengths and limitations of the existing studies, examines the used datasets, and reviews image pre-processing techniques. Furthermore, a concrete review of diverse imaging modalities, performance metrics and results, challenges, and research directions for future researchers is presented. | |