|  |  |  |  |
| --- | --- | --- | --- |
| **Title:** | Detection of Myocardial Infarction Using Hybrid CNN-LSTM Model | | |
| **Author(s) Name:** | Muhtasim Firoz; Rethwan Faiz; Nuzat Nuary Alam; Mohammad Hasan Imam | | |
| **Contact Email(s):** | rethwan\_faiz@aiub.edu | | |
| **Published Journal Name:** |  | | |
| **Type of Publication:** | Conference | | |
| **Volume:** |  | Issue |  |
| **Publisher:** | IEEE | | |
| **Publication Date:** | 21 March 2023 | | |
| **ISSN:** |  | | |
| **DOI:** | [10.1109/ICREST57604.2023.10070055](https://doi.org/10.1109/ICREST57604.2023.10070055) | | |
| **URL:** | https://ieeexplore.ieee.org/document/10070055/keywords#keywords | | |
| **Other Related Info.:** |  | | |
|  | | | |

|  |  |
| --- | --- |
| **Abstract:** |  |
| Electrocardiograms, or ECGs, are used by medical professionals to identify whether or not a patient has been experiencing myocardial infarction. In the medical field, myocardial injury detection procedures are not usually automated. A deep learning-based model can automate this manual procedure. The proposed model is a deep learning-based predictive model capable of detecting myocardial infarction from 15 ECG leads. The PTB database was used in this model. This database contains data from 15 ECG leads, which include 12 standard leads and 3 frank leads. The objective of the work is to identify MI with high and stable accuracy, F1 score, precision, and recall using an imbalanced PTB dataset. The proposed model is a combination of the dilated CNN(ConvNetQuake) and an LSTM network. The validation F1 score, precision, recall, and accuracy for the model are 1.0, 1.0, 1.0 and 100%, respectively. Regarding the test set, the F1 score, precision, recall, and accuracy for the model are 0.94, 0.88, 1.0 and 97.7%, respectively. | |