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| Title | Cardiac Failure Forecasting Based on Clinical Data Using a Lightweight Machine Learning Metamodel | | |
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| Published Journal Name | Diagnostics | | |
| Type of Publication | Journal | | |
| Volume | 13 | Issue | 15 |
| Publisher | MDPI | | |
| Publication Date | 2023/7/31 | | |
| ISSN | 2075-4418 | | |
| DOI | [**https://doi.org/10.3390/diagnostics13152540**](https://doi.org/10.3390/diagnostics13152540) | | |
| URL | <https://www.mdpi.com/2075-4418/13/15/2540> | | |
| Other Related Info. |  | | |
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| Abstract |  |
| Accurate prediction of heart failure can help prevent life-threatening situations. Several factors contribute to the risk of heart failure, including underlying heart diseases such as coronary artery disease or heart attack, diabetes, hypertension, obesity, certain medications, and lifestyle habits such as smoking and excessive alcohol intake. Machine learning approaches to predict and detect heart disease hold significant potential for clinical utility but face several challenges in their development and implementation. This research proposes a machine learning metamodel for predicting a patient’s heart failure based on clinical test data. The proposed metamodel was developed based on Random Forest Classifier, Gaussian Naive Bayes, Decision Tree models, and k-Nearest Neighbor as the final estimator. The metamodel is trained and tested utilizing a combined dataset comprising five well-known heart datasets (Statlog Heart, Cleveland, Hungarian, Switzerland, and Long Beach), all sharing 11 standard features. The study shows that the proposed metamodel can predict heart failure more accurately than other machine learning models, with an accuracy of 87%. | |