**Table 2.1 Computational Approaches for Heart Disease Prediction: A Review**

| **Year** | **Author** | **Methodology** | **Datasets** | **Parameter & Result** |
| --- | --- | --- | --- | --- |
| 2024 | Amrit Singh et al. [41] | Prediction:  Decision Tree (DT), Random Forest (RF), Support Vector Machine (SVM), and Principal Component Analysis (PCA) | Framingham Heart Study dataset: 4,240 instances, 15 attributes | Accuracy:  Random Forest - 97% |
| 2024 | Hosam F. El-Sofany [42] | Feature selection:  chi-square, ANOVA, and mutual information (MI), Prediction: Naïve Bayes, SVM, Voting, XGBoost, AdaBoost, Bagging, DT, KNN, RF, and LR | Cleveland Heart Disease dataset, 503 instances, 13 attributes | Accuracy: XGBoost - 97.57% |
| 2023 | Chintan M. Bhatt et al. [43] | Prediction:  Decision Tree, Random Forest, Multilayer Perceptron, XGBoost | Kaggle: 70,000 instances (80:20 split) | Accuracy:  MP: 87.28% (CV), 86.94% (no CV) |
| 2023 | Nadikatla Chandrasekhar et al. [44] | Prediction:  RF, KNN, Logistic Regression, Naïve Bayes, Gradient Boosting, AdaBoost, Soft Voting Ensemble | UC Irvine ML Repository (303 instances), IEEE Dataport (1190 instances) | Accuracy:  LR - 90.16%, AB - 89.67%, Soft Voting - 93.44% (UCI), 95% (IEEE) |
| 2023 | Ahmad Ayid Ahmad et al. [45] | Feature selection: Jellyfish Optimization Algorithm,  Prediction: ANN, DT, AdaBoost, and Support Vector Machine (SVM) | UCI Repository: Cleveland Heart Disease dataset, 1025 instances, 14 attributes | Accuracy:  SVM- 98.47% |
| 2023 | Diaa Salama AbdElminaam et al.[46] | Prediction:  Logistic Regression, Gradient Boosting, K-Nearest Neighbors (KNN), Random Forest, Naïve Bayes, and Decision Tree | Datasets: 574,440 instances, attributes range (12 to 21) | Accuracy:  Logistic Regression Dataset 1 - 91.6%, Dataset 2 - 90.8% |
| 2022 | Ashish Kumar et al.[47] | Prediction:  CNN, ANN, SVM, Naïve Bayes, and KNN | UCI Machine Learning Repository: 383 instances, 14 attributes | Accuracy:  CNN - 98% |
| 2022 | Abdul Saboor et al.[48] | Prediction:  RF, SVM, XGBoost, Decision Tree, Naïve Bayes, Logistic Regression, LDA, AdaBoost, Extra Trees | UCI Repository: Cleveland dataset (303 instances, 13 attributes) | Accuracy:  SVM - 96.72% |
| 2022 | Sashank Yadav et al.[49] | Prediction:  Naïve Bayes, Decision Tree, Logistic Regression, KNN, SVM, RF | UCI ML Repository: heart disease dataset. 55.56% positive, 44.44% negative | Accuracy:  KNN – 85.18% |
| 2021 | Harshit Jindal et al.[50] | Prediction:  Logistic Regression, KNN, Random Forest | UCI Repository: Heart Disease dataset. 13 attributes, 304 records | Accuracy:  KNN – 88.52% |
| 2021 | Dhai Eddine Salhi et al.[51] | Prediction:  Neural Networks (NN), Support Vector Machine (SVM), and K-Nearest Neighbors (KNN) | Algerian hospitals: 1200 instances, 13 attributes, Training -80%, Testing – 20% | Accuracy:  Neural Network - 93% |
| 2021 | Baban U. Rindhe et al.[52] | Prediction:  Support Vector Machine (SVM), Artificial Neural Network (ANN), and Random Forest | UCI Repository: Cleveland Heart dataset, 303 instances, 14 attributes | Accuracy:  Support Vector – 84.0% |
| 2021 | Apurv Garg et al.[53] | Prediction:  K-Nearest Neighbors (KNN) and Random Forest (RF) | Kaggle: Heart Disease UCI dataset, 303 instances, 13 attributes | Accuracy:  KNN – 86.89% |
| 2020 | Vijeta Sharma et al.[54] | Prediction:  Random Forest, SVM, Naïve Bayes, Decision Tree | UCI Repository: Cleveland dataset (1025 instances, 14 attributes) | Accuracy:  RF - 99% |
| 2020 | Dimas Aryo Anggoro et al.[55] | Prediction:  SVM, KNN | Kaggle: Heart Disease dataset (304 instances, 14 attributes) | Accuracy:  SVM (with Normalization) - 90.10% |
| 2020 | Mahesh Parmar et al.[56] | Prediction:  KNN, RF, SVM, Naïve Bayes, Deep Neural Networks | UCI Repository: Heart Disease dataset (303 instances, 14 attributes) | Accuracy:  DNN (optimized) - 99% |
| 2020 | R. Jane Preetha Princy et al.[57] | Prediction:  Decision Tree, Naïve Bayes, Logistic Regression, RF, SVM, KNN | Kaggle: Cardiovascular disease dataset (12 attributes) | Accuracy:  Decision Tree - 73%, LR - 72%, RF - 71%, KNN - 66%, Naïve Bayes - 60% |
| 2020 | Jian Ping Li et al.[58] | Feature selection: MRMR, LASSO, LLBFS, FCMIM. Prediction: SVM, LR, ANN, KNN, NB, DT | UCI Repository: Cleveland dataset (297 instances, 13 attributes) | Accuracy:  SVM (FCMIM) - 92.37% |
| 2020 | Viren Viraj Shankar et al.[59] | Prediction:  CNN, Naïve Bayes, KNN | Hospital dataset (13 attributes) | Accuracy:  CNN - 88% |
| 2020 | Ilias Tougui et al.[60] | Mining tools: Orange, Weka, RapidMiner, Knime, Matlab, Scikit-Learn.  Prediction: LR, SVM, KNN, ANN, NB, RF | UCI Repository: Cleveland dataset (303 instances, 13 attributes) | Accuracy:  Matlab’s ANN - 85.86% |
| 2020 | Pooja Anbuselvan et al.[61] | Prediction:  Logistic Regression, Naïve Bayes, Support Vector Machine (SVM), K-Nearest Neighbors (KNN), Decision Tree, Random Forest, and XGBoost. | UCI Repository**:**  Cleveland Heart  Disease dataset.  303 instances  14 attributes | Accuracy:  Random Forest - 86.89% |
| 2019 | Hager Ahmed et al.[62] | Prediction:  Decision Tree, SVM, Random Forest, Logistic Regression | UCI Repository: Cleveland dataset (303 instances, 13 attributes) | Accuracy:  RF – 94.9% |
| 2019 | Abhijeet Jagtap et al.[63] | Prediction:  Support Vector Machine (SVM), Logistic Regression (LR), and Naïve Bayes (NB) | UCI Repository:  Training - 75% Testing - 25% | Accuracy:  SVM- 64.4%, |
| 2017 | Sundas Naqeeb Khan et al.[64] | Prediction:  Support Vector Machine (SVM), Artificial Neural Networks (ANN), Decision Tree (C4.5), and RIPPER | UCI Repository: Cleveland Heart Disease dataset, 296 instances, 14 attributes | Accuracy:  SVM – 84.12% |
| 2013 | Dhanashree S. Medhekar et al.[65] | Prediction:  Naïve Bayes | UCI Repository: Cleveland dataset (303 instances, 14 attributes) | Accuracy:  Naïve Bayes - 89.58% |