

Prediction of Cervical Cancer Basing on Risk Factors using Ensemble Learning

Publisher: IEEE

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Abstract:

Cervical cancer is among the most common types of cancer affecting women around the world despite the advances in prevention, screening, diagnosis, and treatment during the past decade. Cervical cancer can be treated if diagnosed in its early stages. Machine learning algorithms like multi-layer perceptron, decision trees, random forest, K-Nearest Neighbor, and Naïve-Bayes have been used for the prediction of cervical cancer to aid in its early diagnoses. In this study, we used an ensemble learning technique in the prediction of cervical cancer using risk factors. This technique was selected because it combines several machine learning techniques into one model to decrease variance, bias, and improvement in performance. K-Nearest Neighbor, Classification and Regression Trees, Naïve Bayes Classifier, and Support Vector Machine. Classification methods were selected because the interest of this study was to solve a classification problem. Therefore these algorithms could work well within our problem domain. The final prediction model was trained and validated, and our experimental results revealed that our model had an accuracy of 87.21%.

Published in: [2020 IST-Africa Conference \(IST-Africa\)](#)

Date of Conference: 18-22 May 2020

INSPEC Accession Number: 19810158

Date Added to IEEE *Xplore*: 20 July 2020

Publisher: IEEE

► ISBN Information:

Conference Location: Kampala, Uganda

► ISSN Information:

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