VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI -590018

A TECHNICAL SEMINAR REPORT ON

MACHINE LEARNING IN BIOINFORMATICS: NEW TECHNIQUE FOR DNA SEQUENCING CLASSIFICATION

A Technical Seminar Report Submitted in Partial Fulfillment of the Requirements for the VIII Semester B.E

Submitted By

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Under the Guidance of
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SMT. KAMALA & SRI VENKAPPA M. AGADI

COLLEGE OF ENGINEERING& TECHNOLOGY

LAXMESHWAR 2024-25

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Certificate

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

This is to **certify that** Mr. Rajashekhar Naduvinahalli bearing the **USN 2KA21CS037**, have satisfactorily completed the Technical Seminar entitled **"Machine Learning in Bioinformatics: New Technique for DNA Sequencing Classification"** in partial fulfillment for the award of the degree of Bachelor of Engineering of Visvesvaraya Technological University Belagavi, during the year 2024-25. Technical Seminar Report has been approved, as it satisfies the academic requirements in respect of Technical Seminar Work prescribed for the said degree.

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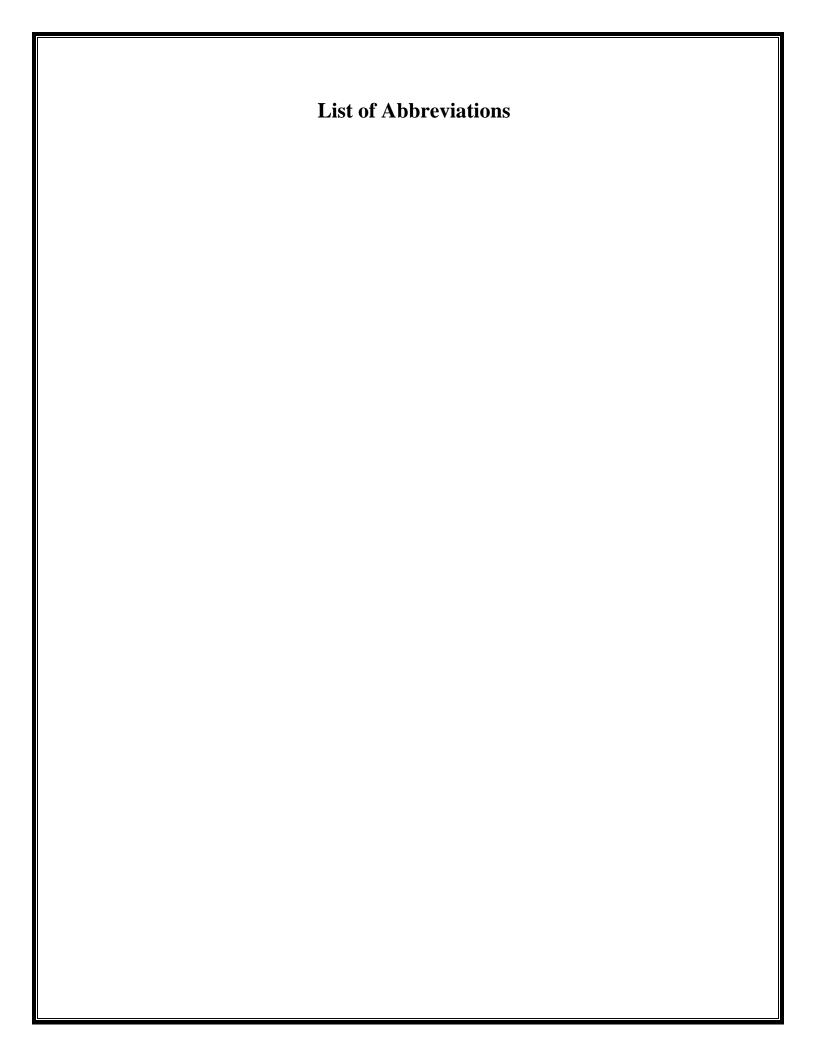**Dr. Parashuram Baraki**

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List of Abbreviations

Abstract

In recent years, the integration of machine learning into healthcare has revolutionized disease detection, offering significant advancements in diagnostic accuracy, efficiency, and accessibility. This project explores the application of machine learning techniques in disease detection by analyzing diverse medical datasets, including patient records, clinical imaging, and symptom-based data. The study investigates various machine learning models, including supervised, unsupervised, and deep learning approaches, to identify the most effective methods for early disease diagnosis.

The methodology involves data preprocessing, feature selection, model training, and evaluation using performance metrics such as accuracy, precision, recall, and ROC-AUC scores. The study also emphasizes the importance of ethical considerations, including data privacy, security, and bias mitigation, to ensure reliable and fair decision-making in medical applications.

The findings highlight the potential of machine learning in automating disease detection, thereby reducing human error and enabling timely intervention. The project aims to contribute to the field of precision medicine, enhancing patient care and supporting medical professionals with decision-making tools. Future research will focus on improving model interpretability, integrating real-time monitoring systems, and expanding datasets for better generalization.

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