



PROPOSAL

Project Title:

Breast Cancer Detection

Data Set:

<https://www.kaggle.com/datasets/marshuu/breast-cancer>

Introduction:

In recent years, diagnosing breast tumors has become one of the most significant challenges in the medical field, as early diagnosis can greatly impact treatment outcomes and chances of recovery. Malignant breast tumors pose a considerable risk to patients' lives and require intensive medical intervention, while benign tumors are generally less harmful. This highlights the need for effective tools that can assist doctors in accurately and easily distinguishing between malignant and benign breast tumors. This project aims to develop a machine learning model, to provide a tool that helps doctors determine the nature of breast tumors based on their characteristics. This model can

offer substantial value in supporting medical decisions by providing a quick preliminary diagnosis, potentially reducing the need for complex diagnostic procedures and saving doctors both time and effort.

Problem Statement:

Currently, diagnosing breast tumors heavily relies on advanced medical tests like biopsies and complex laboratory analyses, which can be time-consuming and labor-intensive. This project aims to create a model that uses basic, easily obtainable data, with the goal of offering a preliminary tool to help doctors identify cases that may require closer observation.

Goals:

1. To create an accurate classification model to determine whether a breast tumor is malignant or benign based on its characteristics.
2. To analyze and evaluate the model's performance using metrics such as accuracy and sensitivity.
3. To provide recommendations on how to enhance the model's effectiveness in supporting medical decisions and identifying breast tumors that require further examination.

Related Work:

1. <https://www.mdpi.com/2313-433X/6/6/39>
2. <https://ieeexplore.ieee.org/abstract/document/8391453>
3. <https://www.mdpi.com/2075-4426/11/2/61>

Team Members:

- Sara Atef Othman Mohammed
- Safia Nashat Ali Mohammed