A Comparison of Support Vector Machines and Convolutional Neural Networks in Breast Cancer Detection

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Background

Recent breast cancer trends

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Our Goal

- To train a classifier using support vector machines (SVMs) to predict that a patient has breast cancer based on tabular patient data
- To train another classifier using convolutional neural networks (CNNs) to predict that a patient has breast cancer based on patient mammograms
- To compare the accuracy between SVMs and CNNs in predicting breast cancer in patients

Our Dataset

- Our dataset comes from

Why did we choose to compare these two models?

- Our experiment is a reflection of what we've learned in this course
- We are exploring a mix of machine learning, deep learning, and computer vision concepts
- We are comparing two different approaches to classification using two different types of datasets (image and tabular data)

Support Vector Machine

Pre-Processing

1. Removed unneeded columns

Encoding

- One-Hot Encoding

Model Training

Discussion & Results

Convolutional Neural Network

Future Research & Implications

Benefits of Our Experiment

Potential Improvements in Experiment