Breast Ultrasound Image Classification Application

Introduction

This application is designed to classify breast ultrasound images into benign, malignant, or normal categories using advanced deep learning models. It's built using Flask and integrates several technologies to provide a user-friendly interface and efficient image processing capabilities.

Features

* User authentication (login and signup functionalities).
* Image upload and prediction.
* Educational information on breast cancer and the importance of early detection.

Prerequisites

Before you start, ensure you have the following installed:

* Python 3.8 or above
* pip (Python package installer)
* Installation
* Clone the Repository

bash

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git clone https://github.com/yourusername/breast-ultrasound-classification.git

cd breast-ultrasound-classification

Install Required Libraries

Install the required Python libraries using pip:

bash

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pip install -r requirements.txt

Environment Variables

Set up the necessary environment variables:

bash

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export FLASK\_APP=app.py

export FLASK\_ENV=development # Set to 'production' in a production environment

Dependencies

Flask: For creating and managing the web server.

Werkzeug: For user authentication and password management.

Jinja2: For HTML templating.

Pandas: For data manipulation and analysis.

Pillow: For image file handling.

TensorFlow or PyTorch: For running the deep learning model (ensure you have the correct version compatible with your model).

Running the Application

Run the application using Flask:

bash

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flask run

This will start the server on http://localhost:5000/ by default.

Usage

Navigate to http://localhost:5000/ in your web browser to access the application.

Register a new user account or log in.

Follow the on-screen instructions to upload a breast ultrasound image and view the classification results.

Contributing

Contributions to this project are welcome. Please fork the repository and submit a pull request with your features or fixes.

License

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