Cat vs Dog Image Classification using SVM

📌 Overview

This project classifies images of cats and dogs using a Support Vector Machine (SVM) model.

It uses the scikit-learn library for model training and scikit-image for image preprocessing.

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📂 Project Structure

Archive/

├── Animals/

├── cats/ # Cat images

├── dogs/ # Dog images

main.py # Main Python script

README.md # Project documentation

requirements.txt # Python dependencies

.gitignore # Ignore dataset in GitHub

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⚙ Installation & Setup

1️⃣ Clone the repository

git clone https://github.com/your-username/cat-vs-dog-svm.git

cd cat-vs-dog-svm

2️⃣ Install dependencies

pip install -r requirements.txt

3️⃣ Download the dataset

This project uses the Kaggle Dogs vs Cats dataset.

After downloading, extract the dataset so the structure looks like this:

Archive/

├── Animals/

├── cats/

├── dogs/

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🚀 Running the Project

python main.py

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📊 Output Example

Cats images: 50

Dogs images: 50

Model accuracy: 85.0%

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🧠 How It Works

1. Loads images from Archive/Animals folder.

2. Resizes them to 64×64 pixels.

3. Flattens images into 1D arrays.

4. Trains an SVM classifier.

5. Evaluates model accuracy.

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📌 Future Improvements

Increase dataset size for better accuracy.

Use deep learning (CNN) for higher accuracy.

Implement real-time image classification.