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Handwritten Digit Classifier

This project is a **Machine Learning model** developed in Python using **TensorFlow/Keras**, **Matplotlib**, and **NumPy**.

The model can **classify handwritten digits (0–9)** from grayscale images and predict results with an impressive **accuracy of 96.83%**. It also supports visualization of training metrics and predictions for easy analysis.

Demo Preview

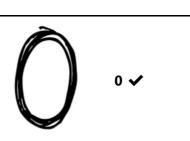
Test the classifier with preloaded sample images in the repository:

```
from predict import predict_digit

# Predict sample digits
predict_digit('samples/digit1.png') # Predicts first sample
predict_digit('samples/digit2.png') # Predicts second sample
predict_digit('samples/digit3.png') # Predicts third sample
```

Input Image Prediction 3 ✓





Key Features

Digit Classification – Recognizes digits (0–9) from images.

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- **High Accuracy** Achieves **96.83% accuracy** during testing.
- Visualization Tools Uses Matplotlib to display results and learning curves.
- Easy-to-Use API Flexible input format for predictions.
- Preloaded Samples Includes sample test images for quick evaluation.

Tech Stack

- Language: Python 🔊
- Libraries:
 - TensorFlow/Keras

 - Matplotlib
 - Scikit-learn



1. Clone this Repository

git clone https://github.com/yourusername/digit-classifier.git
cd digit-classifier

2. Install Dependencies

pip install -r requirements.txt

3. Run the Model

python main.py

Model Performance

Metric	Value
Accuracy	96.83%
Loss	0.072
Validation	97.12%

Feedback & Contributions

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Contributions are always welcome!

- Feel free to **fork this repo**, submit **pull requests**, or open **issues**.
- Your suggestions and improvements are highly appreciated!

If you find this project helpful, consider giving it a star! $\stackrel{\wedge}{\simeq}$