

## AI Image Classification using Hugging Face & Gradio

### Project Summary

This project is a real-time AI-powered image classification application using Hugging Face's Vision Transformer (ViT) and Gradio for a simple and interactive user interface.

### Key Features:

- ✓ Uses the ViT (Vision Transformer) model from Hugging Face for image classification.
- ✓ Supports real-time image uploads and classification via a Gradio web UI.
- ✓ Retrieves ImageNet class labels, displaying the predicted category name and class number.
- ✓ Ensures compatibility with different image formats by converting them to RGB before processing.
- ✓ Provides a user-friendly interface with a title, description, and instant results.

### How It Works:

- 1 The user uploads an image.
- 2 The model processes the image and extracts features.
- 3 The AI predicts the category (e.g., 'bell pepper') and its class number.
- 4 The result is displayed on the Gradio interface.

### Technologies Used:

- ◆ Hugging Face Transformers (ViT model for image classification)
- ◆ Gradio (for building the interactive UI)
- ◆ PyTorch (for running deep learning models)
- ◆ PIL (Pillow) (for image processing)

### Use Cases:

- 📌 Automated image recognition in applications.
- 📌 AI-powered photo organization by categories.
- 📌 Real-time object detection in various domains.