PyTorch Helper Functions Guide (helper_functions.py)

walk_through_dir(dir_path)

Purpose: Explore contents of a directory.

Syntax: walk_through_dir(dir_path: str)

Explanation: Prints the number of directories and files inside the specified path.

plot_decision_boundary(model, X, y)

Purpose: Visualize model's decision regions.

Syntax: plot_decision_boundary(model: nn.Module, X: torch.Tensor, y: torch.Tensor)

Explanation: Plots classification decision boundaries for 2D input features.

plot_predictions(train_data, train_labels, test_data, test_labels, predictions=None)

Purpose: Plot training, test, and prediction data.

Syntax: plot_predictions(train_data, train_labels, test_data, test_labels, predictions=None)

Explanation: Visualizes linear regression results or similar tasks.

accuracy_fn(y_true, y_pred)

Purpose: Calculate classification accuracy.

Syntax: accuracy_fn(y_true: torch.Tensor, y_pred: torch.Tensor)

Explanation: Returns classification accuracy in percentage.

print_train_time(start, end, device=None)

Purpose: Print elapsed time for training.

Syntax: print_train_time(start: float, end: float, device=None)

Explanation: Prints training time in seconds and returns it.

plot_loss_curves(results)

Purpose: Visualize training & validation loss/accuracy.

Syntax: plot_loss_curves(results: dict)

Explanation: Plots curves from training history stored in a dictionary.

pred_and_plot_image(model, image_path, class_names=None, transform=None, device="cuda" or

Purpose: Predict and display image classification result.

Syntax: pred_and_plot_image(model, image_path, class_names=None, transform=None, device=device)

Explanation: Runs inference on a single image and plots it with prediction.

set_seeds(seed=42)

Purpose: Set seed for reproducibility.

Syntax: set_seeds(seed: int = 42)

Explanation: Sets manual seed for both CPU and GPU computations.

download_data(source, destination, remove_source=True)

Purpose: Download and extract a zipped dataset.

Syntax: download_data(source: str, destination: str, remove_source: bool = True) -> Path

Explanation: Downloads a ZIP file, extracts it, optionally deletes source.