1. Verify Python 3.10

```
python3.10 --version
```

Ensure the output shows Python 3.10.x. If it does not, install Python 3.10 first.

2. Create and Activate a Virtual Environment (recommended)

```
python3.10 -m venv venv
```

- **macOS / Linux**

  ```
  source venv/bin/activate
  ```

- **Windows**

  ```
  venv\Scripts\activate
  ```

3. Upgrade `pip`

```
pip install --upgrade pip
```

4. Install Required Python Libraries

```
pip install numpy pandas matplotlib joblib tensorflow scikit-learn
```

(These are the only external dependencies used in the script.)

5. Confirm CSV File

Ensure the file `combined_output.csv` is in the same directory (or provide the absolute path) and contains columns:

```
Vin, RL, Iin, Eff, Pout
```

6. Run the Training Script

```
python3.10 main.py --csv combined_output.csv
```

7. Expected Output and Artifacts

After completion the following files will be created in the working directory:

File	Purpose
`best_model.h5`	Saved Keras model (highest validation performance)
`x_scaler.save`	`StandardScaler` fitted to input features
`y_scaler.save`	`StandardScaler` fitted to targets
`Eff_actual_vs_predicted.png`	Scatter plot, actual vs. predicted efficiency
`Pout_actual_vs_predicted.png`	Scatter plot, actual vs. predicted output power
Console output	Test metrics (MSE, MAE, R^2)