

Sheep Facial Recognition AI: 6-Day Tutorial Plan

Day 1: Introduction to the Project

Topics to Cover:

1. What is AI and Machine Learning?
2. Facial Recognition Basics
3. Challenges with Sheep Recognition
4. Goal: Build a model to identify individual sheep.

Suggested Links:

- What is AI?

<https://www.ibm.com/cloud/learn/what-is-artificial-intelligence>

- Facial Recognition Basics:

<https://www.techtarget.com/searchenterpriseai/definition/facial-recognition>

Activity: Show an AI facial recognition demo.

Day 2: Dataset Preparation

Topics to Cover:

1. What is a Dataset?
2. Finding Sheep Images (Kaggle, Google Images).
3. Importance of Labeling and Tools like Labellmg.

Suggested Links:

- Labellmg Guide: <https://github.com/heartexlabs/labellmg>

- Sheep Dataset: <https://www.kaggle.com/datasets>

Activity: Label 10 sheep images using Labellmg.

Day 3: Basics of TensorFlow

Topics to Cover:

- 1. Introduction to TensorFlow.**
- 2. Install TensorFlow and Python on the computer.**
- 3. Explain Key Concepts: Tensors, Models, and Training.**

Suggested Links:

- TensorFlow Installation: <https://www.tensorflow.org/install>**
- TensorFlow Basics: <https://www.tensorflow.org/tutorials>**

Activity: Run a simple TensorFlow example (Cats vs. Dogs).

Day 4: Building the Model

Topics to Cover:

- 1. Transfer Learning with MobileNetV2.**
- 2. Load Sheep Dataset and Train Model.**

Suggested Links:

- [Transfer Learning Guide:](https://www.tensorflow.org/tutorials/images/transfer_learning)
https://www.tensorflow.org/tutorials/images/transfer_learning**

Example Code:

```
```python
from tensorflow.keras.applications import MobileNetV2
model = MobileNetV2(weights='imagenet', include_top=False)
Add custom layers...
```
```

Day 5: Testing and Improving

Topics to Cover:

- 1. Model Testing and Analyzing Results.**
- 2. Strategies to Improve Accuracy.**

Example Code:

```
```python
test_loss, test_acc = model.evaluate(test_images, test_labels)
print(f'Test accuracy: {test_acc * 100:.2f}%')
```
```

Suggested Links:

- **Improving Model Performance:**

https://www.tensorflow.org/tutorials/keras/overfit_and_underfit

Day 6: Final Presentation

Topics to Cover:

1. Summarize Project Steps and Results.
2. Highlight Challenges and Solutions.

Activity: Prepare a 3-slide summary and a live demo.