3. Process Flow Diagram:

* **Simplified Flow Diagram:**

Visualization

Output/Results

Model Testing

Model Training

Preprocessing

Data Collection

* **Detailed Process Flow Diagram:**

Model Testing

Model Training

Preprocessing

Model Validation

Data Collection

Facial Data (Images/Videos)

Validation Accuracy Loss

Load Dataset Preprocessed Data

Face Detection (Haar Cascade Classifier)

Visualize Performance Metrics

Model Output (Predictions)

Hyperparameter Tuning

Train Model Monitor/Adjust Training

Define Model Architecture Compile Model

Augmentation Transformation

Image Preprocess Data Standard Noise Removal

Face Cropping Resize/Normalize Convert to Gray

Data Loaders Batch Loading

Data Split Train/Valid Test Split

Data Cleaning Data Augment. Labeling