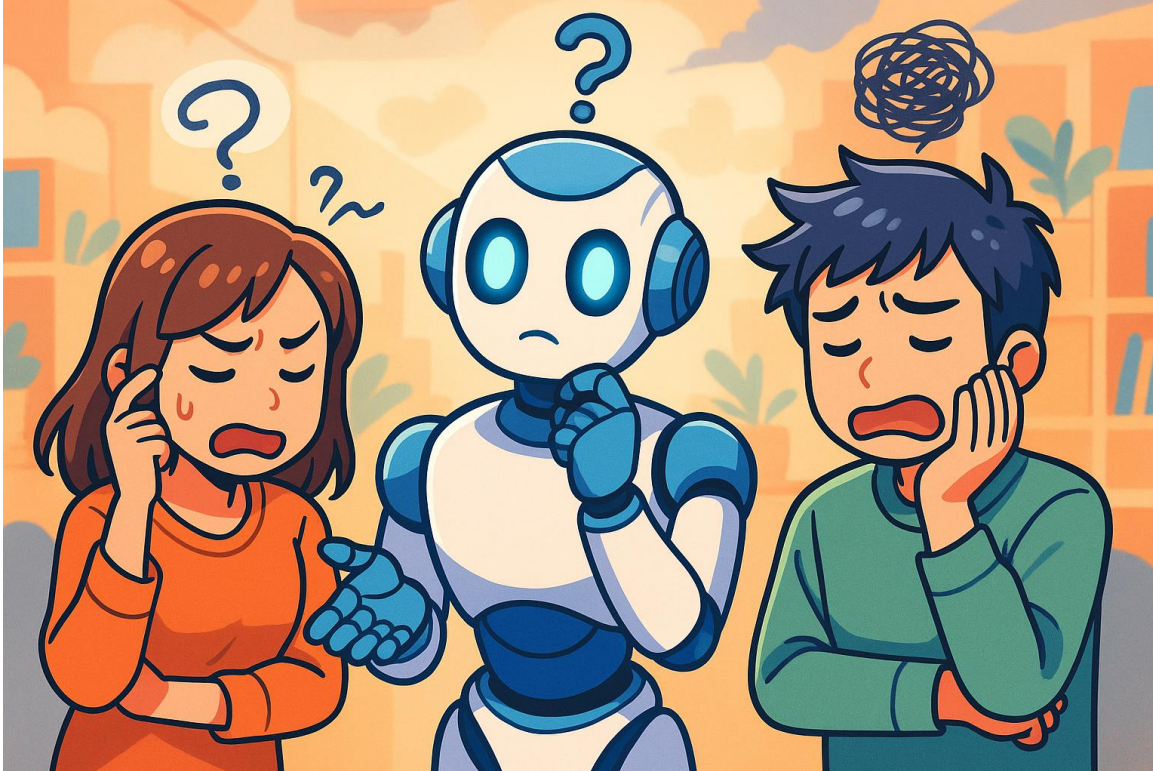




# EMOTION RECOGNITION FROM FACES

WILLIE LEE BREAUX III

TIER 2



**Problem:** Machines can recognize faces but cannot understand human emotion.

**Who Cares:** Healthcare, customer service, education, and security that relies on human AI interaction.

**Why is it Important:** AI's ability to understand human emotion enables a natural, empathetic, and safer interaction between the two.

## THE PROBLEM



# SOLUTION OVERVIEW

**Solution:** Detect human facial emotions and classify them in real time.

**How:** By using a YOLO model trained on labeled facial emotion data to help machines accurately interpret human emotion.

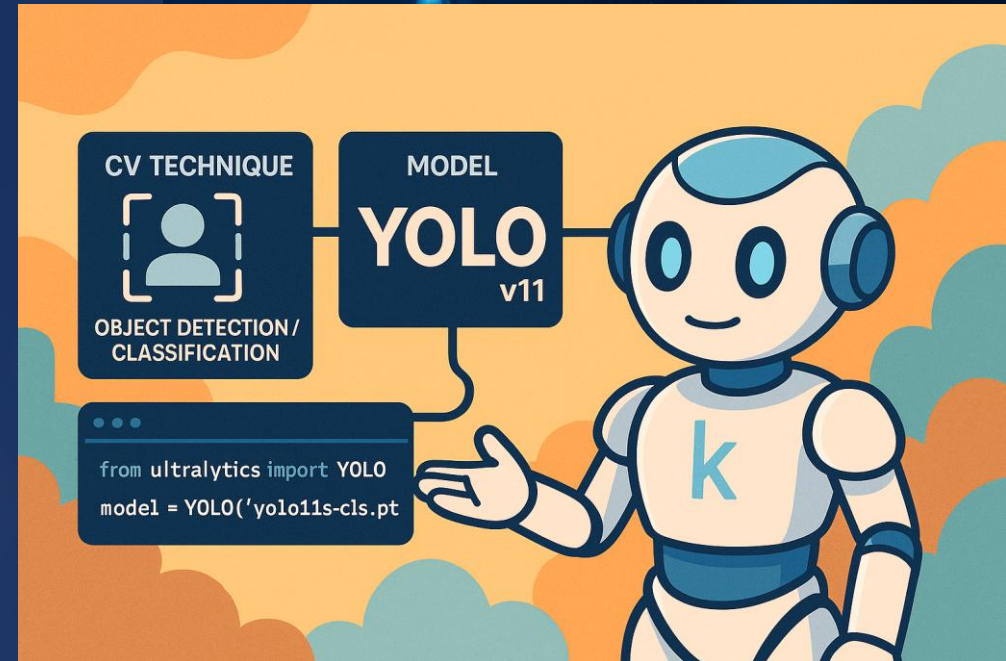
A Computer vision model system that will help machines recognize and respond to human expressions through facial emotion analysis.



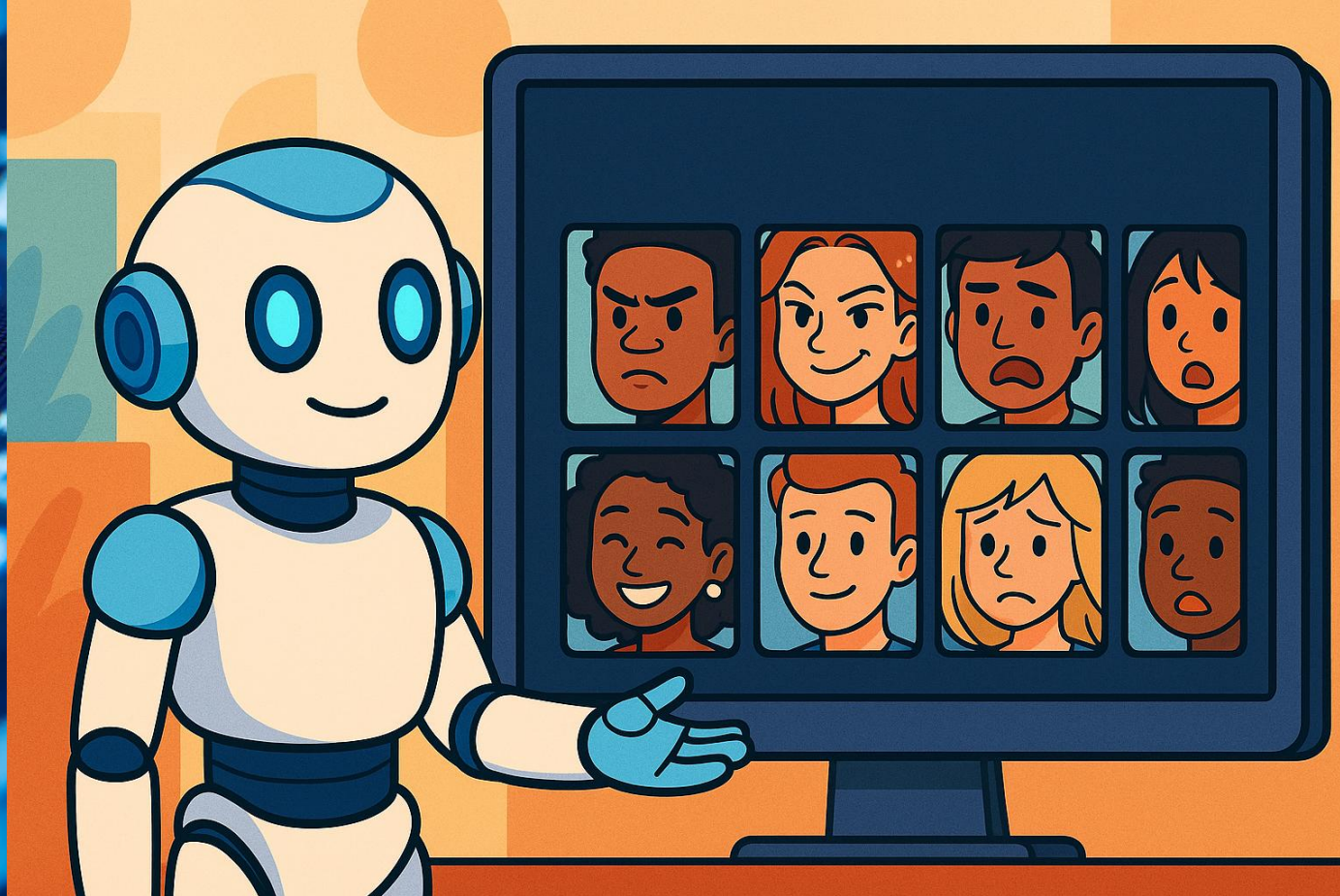
# TECHNICAL APPROACH

- CV Technique: Object Detection/ Classification
- Model:YOLOv11 Small (Ultralytics)
- Framework: Kaggle Networks with PyTorch, Ultralytics, OpenCV

The YOLOv11 architecture supports both object detection and image classification. Variant YOLOv11s (The small variant) is faster, lightweight, and efficient, which is ideal for real time emotion recognition tasks. Using Kaggle Notebooks provides a convenient environment that allows direct access to the dataset from its source.





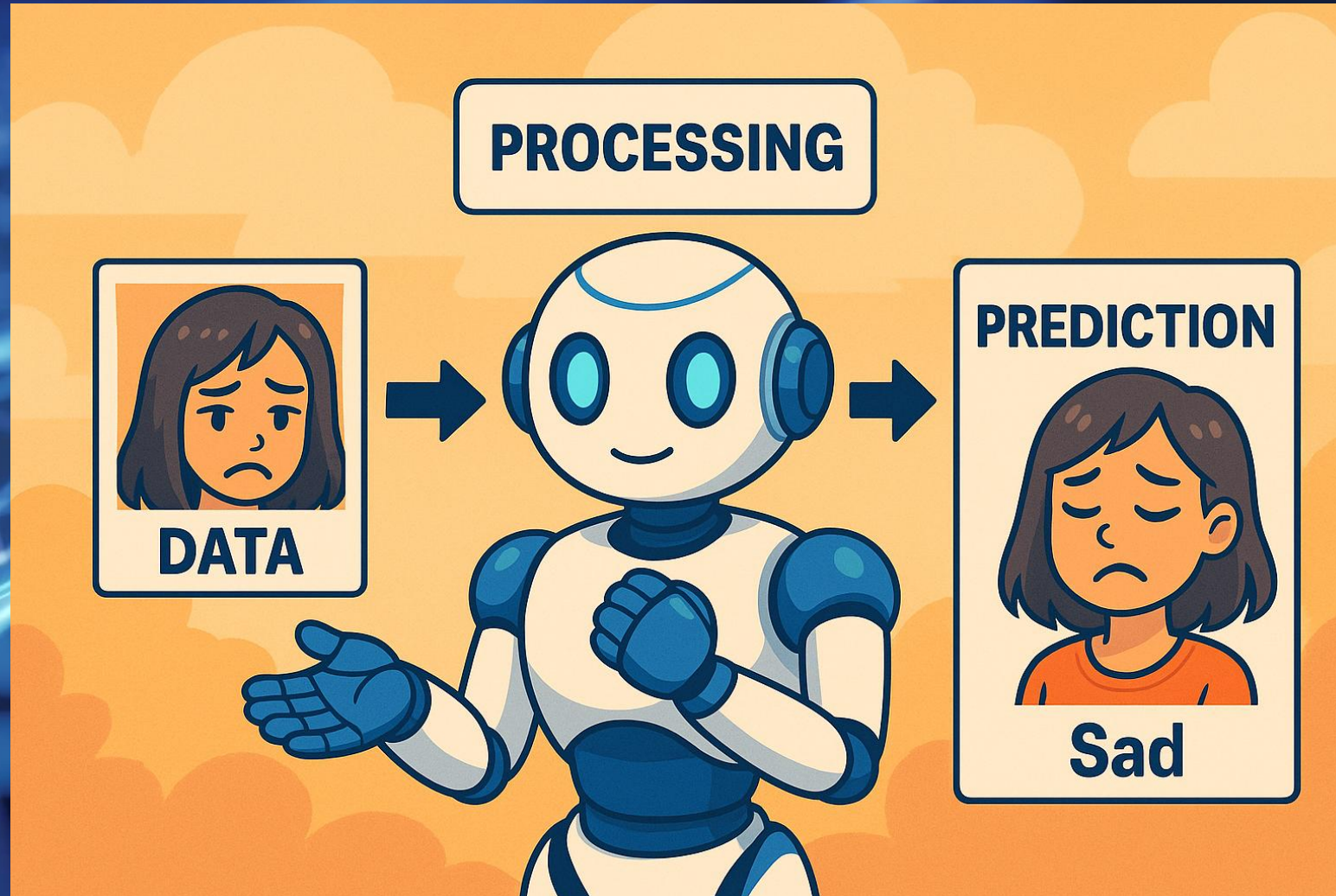


## DATA PLAN

- Source: Kaggle
  - AffectNet (Public dataset)
- SIZE: Over 1 million images
- Labels:
  - Anger, Contempt, Disgust, Fear, Happy, Neutral, Sad, Surprise



# SYSTEM DIAGRAM



Data → Processing → Model → Prediction

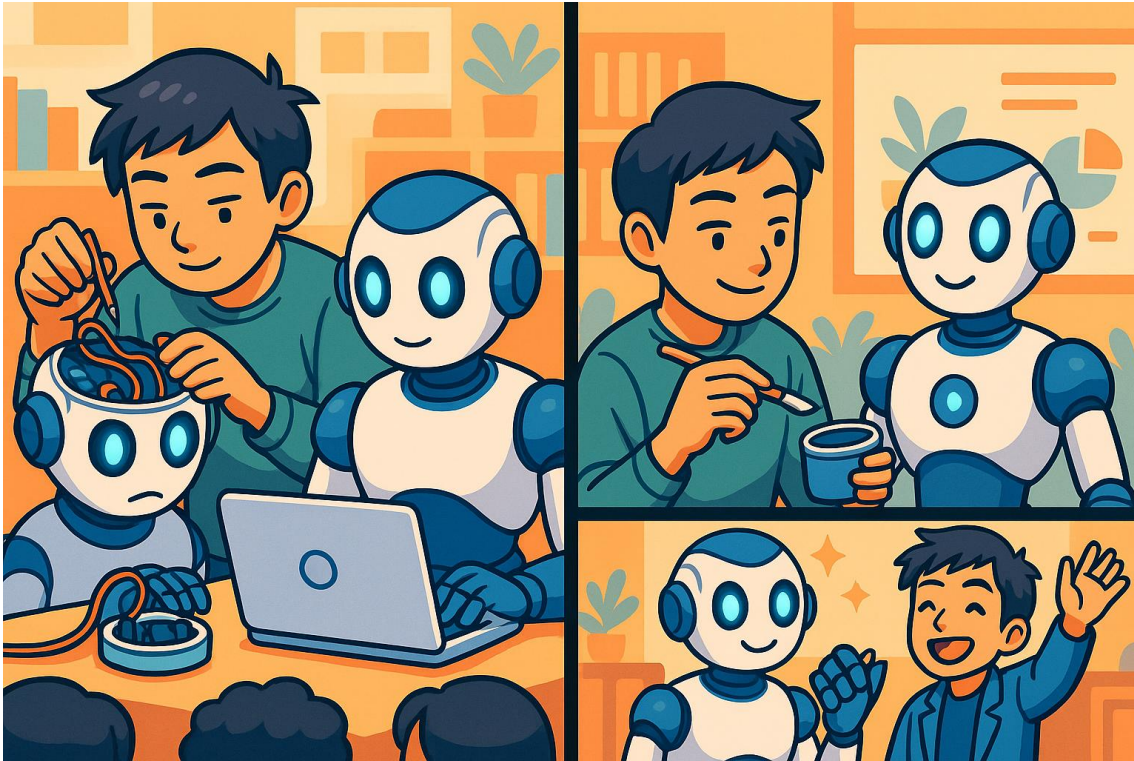


# SUCCESS METRICS

- Primary Metrics: Accuracy
- Target: 70% accuracy
- Secondary Metrics: Speed



# WEEK-BY-WEEK PLAN



Week	Task	Milestone
10 (Oct 30)	Get dataset, set up environment	Dataset ready
11 (Nov 6)	Train or fine-tune model	Model working
12 (Nov 13)	Test and improve	Good accuracy
13 (Nov 20)	Create demo / video	Demo ready
14 (Nov 27)	Final testing / documentation	Everything done
15 (Dec 4)	Present project	Presentation day



# CHALLENGES & BACKUP PLANS

**Challenge:** What if the GPU times out during model training?

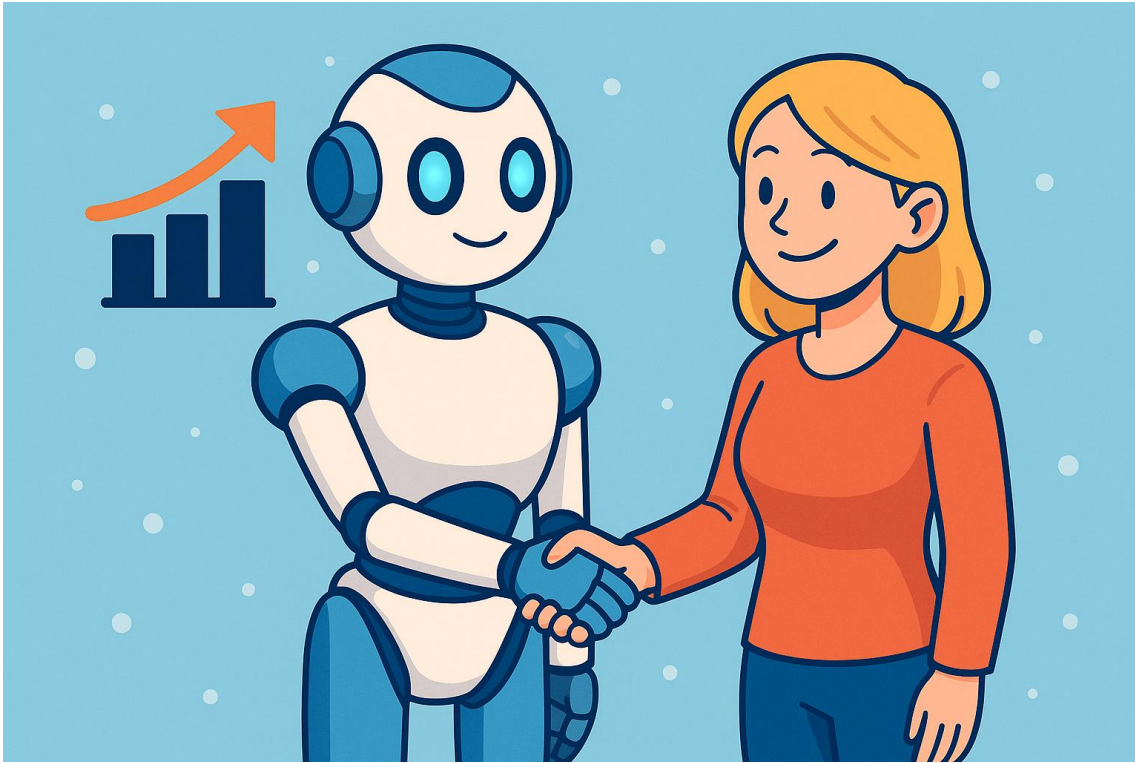
**Plan B:** Save checkpoints frequently to Google Drive.

**Challenge:** What if the model doesn't reach the target accuracy?

**Plan B:** Fine-tune the YOLOv11 pretrained model on the dataset with GPU optimization.



# RESOURCES NEEDED



- **Compute:** Google Colab Pro GPU (NVIDIA T4), Kaggle
- **Tools:** PyTorch, Ultralytics, OpenCV,
- **Cost:** \$10