REP COUNT

CHALLENGE?

No simple or affordable way to automatically count reps from regular videos.

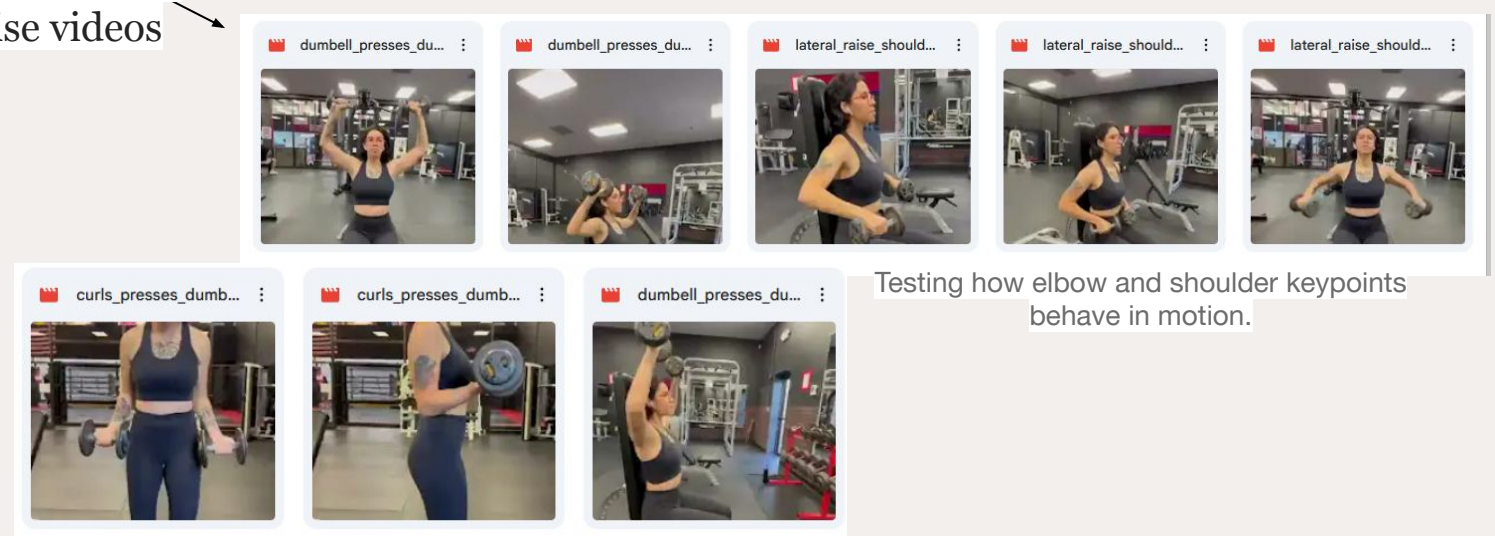
People/trainers/coaches rely on manual counting, human error, slow feedback.

Challenging to track form or progress when training alone.

1 - CAPTURING

CAPTURING - COLLECTING

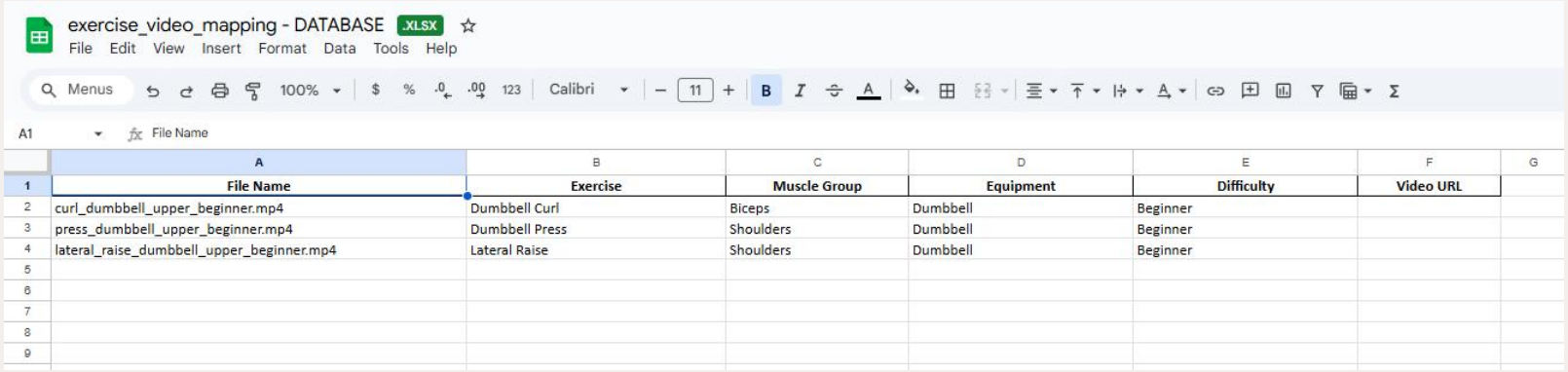
I recorded a small batches of exercise videos



Testing how elbow and shoulder keypoints behave in motion.

I recorded each exercise from multiple angles because the model struggles to consistently recognize limbs and body extremities mediapipe still has limitations, especially when the movement is fast, the angle is unusual, or the lighting isn't ideal.

2 – mini DATABASE



exercise_video_mapping - DATABASE .XLSX

File Edit View Insert Format Data Tools Help

A1 File Name

	A	B	C	D	E	F	G
1	File Name	Exercise	Muscle Group	Equipment	Difficulty	Video URL	
2	curl_dumbbell_upper_beginner.mp4	Dumbbell Curl	Biceps	Dumbbell	Beginner		
3	press_dumbbell_upper_beginner.mp4	Dumbbell Press	Shoulders	Dumbbell	Beginner		
4	lateral_raise_dumbbell_upper_beginner.mp4	Lateral Raise	Shoulders	Dumbbell	Beginner		
5							
6							
7							
8							
9							

each file with its exercise name, equipment, muscle group, difficulty, and a video URL. This helps me stay structured as I start my first tests with pose estimation.

3 – SCRIPTS

`view_landmarks_video.py` – ***Exploration***

First I validated that MediaPipe Pose was working and that I could see the skeleton.

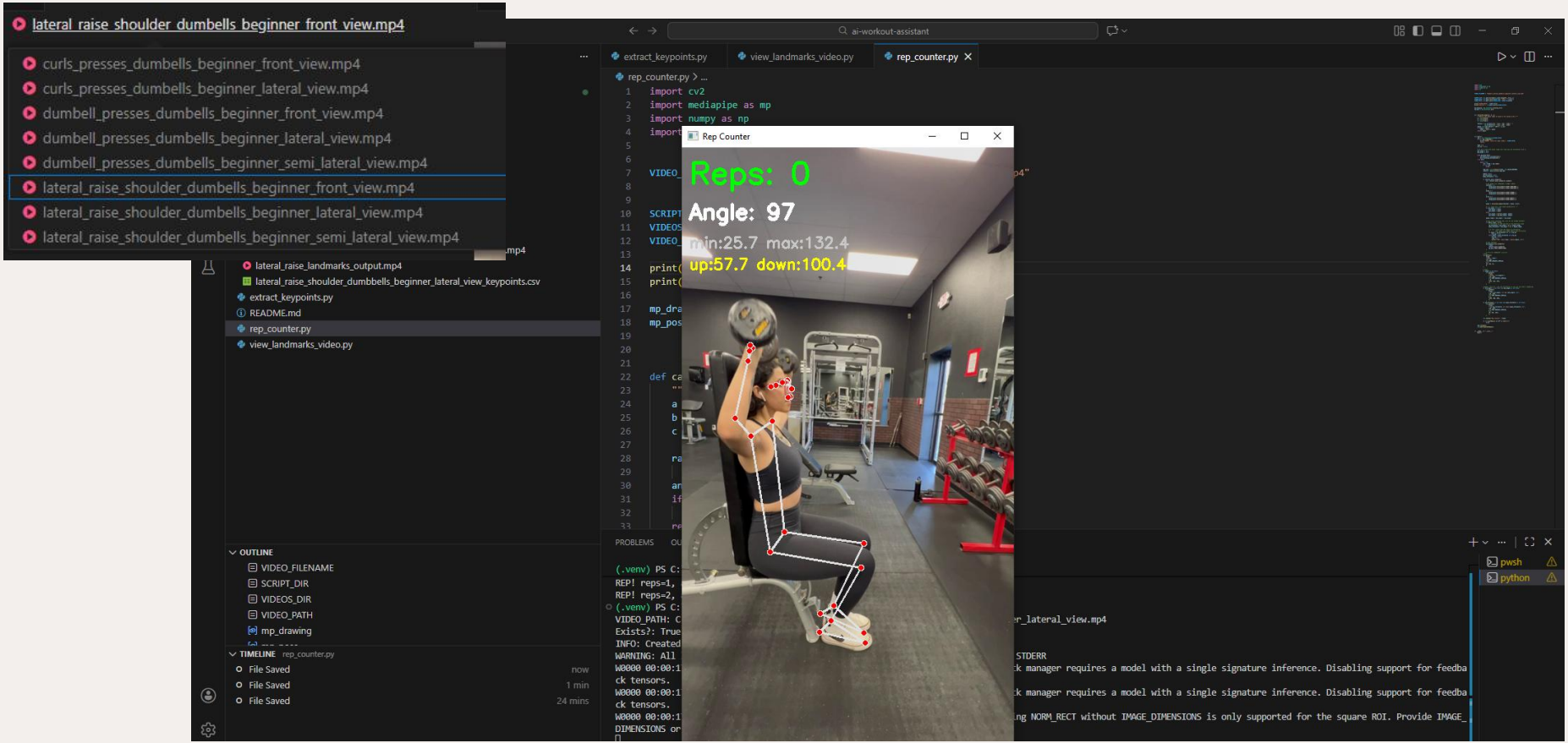
`extract_keypoints.py` – ***Data/debug*** (nice but optional)

Then I created a script to export landmarks/angles to CSV so I could inspect the numbers and later use them for ML or debugging.

`rep_counter.py` – ***Script***

Finally I used those landmarks + angle thresholds to implement a rep counter in real time.

scripts


lateral_raise_shoulder_dumbells_beginner_front_view.mp4
curls_presses_dumbells_beginner_front_view.mp4
curls_presses_dumbells_beginner_lateral_view.mp4
dumbell_presses_dumbells_beginner_front_view.mp4
dumbell_presses_dumbells_beginner_lateral_view.mp4
dumbell_presses_dumbells_beginner_semi_lateral_view.mp4
lateral_raise_shoulder_dumbells_beginner_front_view.mp4
lateral_raise_shoulder_dumbells_beginner_lateral_view.mp4
lateral_raise_shoulder_dumbells_beginner_semi_lateral_view.mp4
ai-workout-assistant
extract_keypoints.py
view_landmarks_video.py
rep_counter.py
Rep Counter
Reps: 0
Angle: 97
min:25.7 max:132.4
up:57.7 down:100.4
lateral_raise_landmarks_output.mp4
lateral_raise_shoulder_dumbbells_beginner_lateral_view_keypoints.csv
README.md
OUTLINE
TIMELINE
File Saved
pwsh
python

Finally I used those landmarks + angle thresholds to implement a rep counter in real time.

Check repo: ***https://github.com/jordanaftali/rep_count-ml***