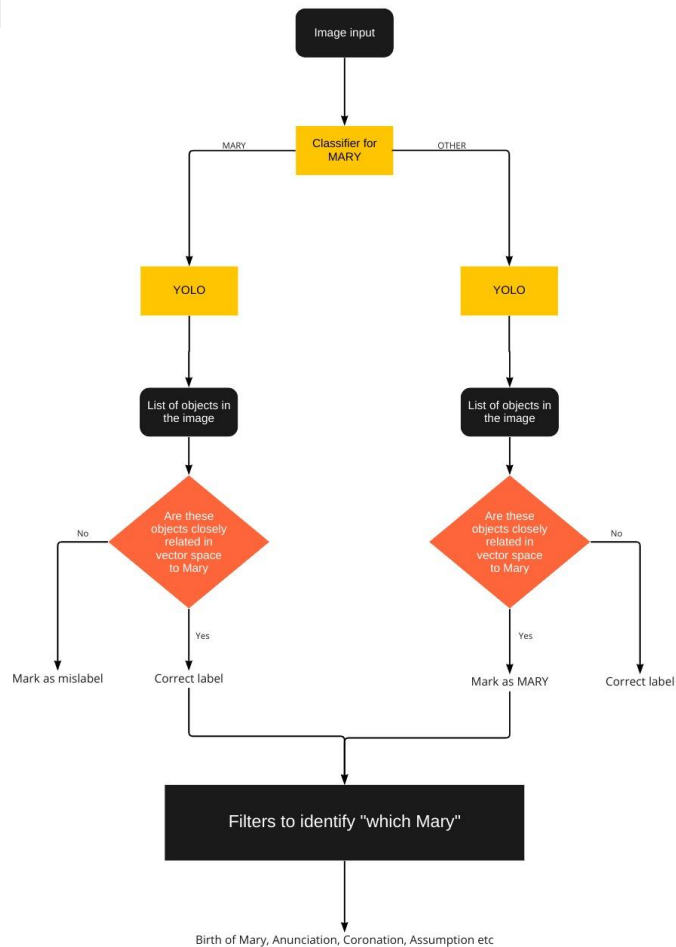# Emile Male pipeline

Parth Shukla

Proposed pipeline

Scoring system

The intuition.

First let's consider all the classes I am taking right now.

['birth_virgin', 'marriage', 'annunciation', 'birth_jesus', 'adoration', 'coronation', 'assumption', 'death', 'virgin_and_child']

1. Define an array of zeros of size 9 for all the classes.
2. Then we consider all the labels produced by YOLO for that image. If we see a baby, we add a point to classes Birth of virgin, Birth of Jesus, Virgin with child, Adoration of Magi since these classes have a baby in them. If we see a lamb, then we add a point to Birth of Jesus because he was born in a stable.
3. Apply softmax and return the most probable class.

Results

Prediction

59.64% Assumption of the blessed Virgin

8.07% Coronation

8.07% Death of Virgin

Prediction

78.1% Annunciation

10.6% Coronation

3.9% Virgin with Child

Prediction

59.49% Coronation

8% Death

8% Marriage

Adding pose estimations

- Prayer - both hands close together
- Extended hand - either left or right hand away from the respective shoulder
- Lying down - Nose and shoulder at the same vertical level
- Both hands extended - both left or right hand away from the respective shoulder

Results

Prediction -

Assumption - 61.59%

Prediction

Coronation - 39.25%

Prediction -

Death of virgin - 52.67%

Prediction -

Annunciation - 69.27%

Prediction -

Assumption - 42.66%

Prediction -

Virgin with child - 87.4%

Bad examples

Adoration - 23.04%

Prediction -

Assumption - 42.64%

Why it might be failing?

- Inefficiencies in YOLO. Eg - When a person is detected, the hand might not be detected which would mean the pose approximation pipeline might not work.
- Pose estimation, even though rarely, might not work on certain styles of art when it is not able to detect face or hand(s).

What's next?

1. Integrate with main pipeline.
2. Complete documentation for this version of the pipeline.
3. Deploy on HPC.