



# Emile Male pipeline

Parth Shukla

# Current Pipeline





## Stage 1 - Baseline classifier

Architecture - ResNet50

Classes - Mary & Others

Relevant links -

[https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/notebooks/classifier\(only\\_mary\).ipynb](https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/notebooks/classifier(only_mary).ipynb)

[https://github.com/ParthS28/gsoc22-christian-iconography/tree/master/modules/grad\\_cam\\_trainer](https://github.com/ParthS28/gsoc22-christian-iconography/tree/master/modules/grad_cam_trainer)

Weights for the model -

<https://drive.google.com/file/d/1zLzCpNcZYHOxKD9763ta6yj8vfO-iXvr/view?usp=sharing>



## Stage 2 - YOLOv6

Classes - ['baby','person','angel','book','jar','crown','bird','crescent','flowers','crucifixion','pear','skull']

Relevant links -

<https://github.com/ParthS28/gsoc22-christian-iconography/tree/master/modules/YOLOv6>

[https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/notebooks/Training\\_YOLOv6\\_on\\_Custom\\_Data.ipynb](https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/notebooks/Training_YOLOv6_on_Custom_Data.ipynb)

Results -

<https://github.com/ParthS28/gsoc22-christian-iconography/tree/master/modules/YOLOv6/RESULTS>



## Stage 3 - Embeddings

Relevant links -

<https://github.com/ParthS28/gsoc22-christian-iconography/tree/master/modules/word2vec>

Data - Currently using a small dataset -

<https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/modules/word2vec/input/data3.csv>

Results -

<https://github.com/ParthS28/gsoc22-christian-iconography/blob/master/modules/word2vec/output/embeddings.json>



## Pipeline results

After stage 1

	0	1
0	660	12
1	1011	335

After stage 3

	0	1
0	662	10
1	299	1047

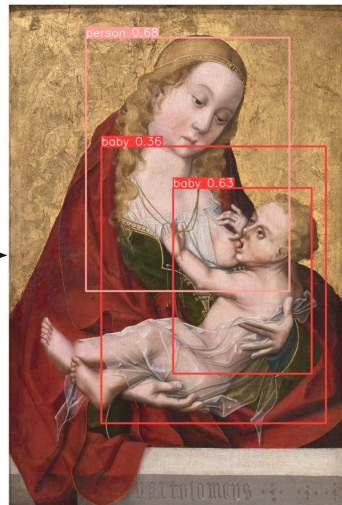
# Example



Stage 1

Predicted  
Others

Stage 2



Stage 3

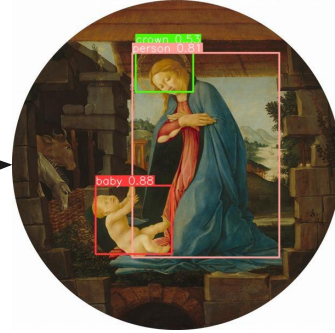
Switch  
label to  
Mary



Stage 1

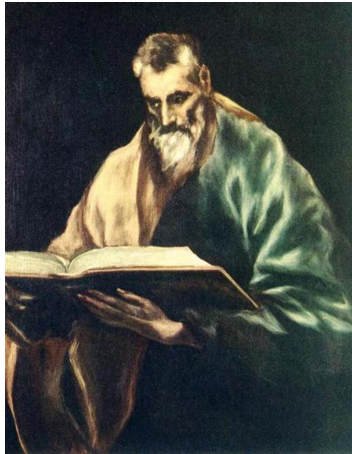
Predicted  
Others

Stage 2



Stage 3

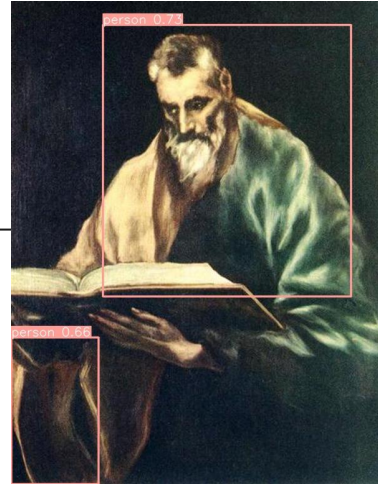
Switch  
label to  
Mary



Stage 1

Predicted  
Mary

Stage 2



Stage 3

Switch  
label to  
Other





Stage 1

Predicted  
Mary

Stage 2



Stage 3

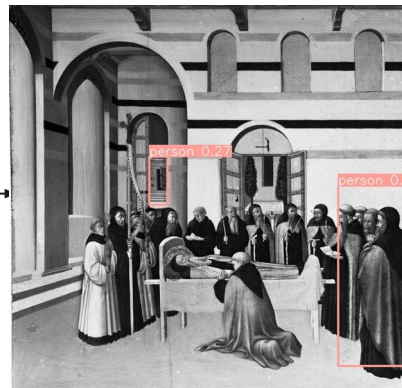
Switch  
label to  
Others



Stage 1

Predicted  
Mary

Stage 2



Stage 3

Switch  
label to  
others



## Whats next?

- Singularity - Contain my current pipeline in singularity. I think it would take 1 week to learn about singularity and code it, but I am not sure about this and that is why I want to finish this first so that I am comfortable with the concept and I know how much time it takes which wouldn't cause me to rush my project in the end.
- Create better embeddings - Finding better data and putting better cleaning techniques should give better embeddings eventually helping the pipeline.
- Tagging more data for YOLO and getting better labels. For example, on call Mark explained how a lamb is also a common symbol in christian iconography which I was not aware about, so I must've missed some stuff during initial dataset curation, which can be helpful to the pipeline.
- Finally, adding a module to pipeline that can help to classify which era does a mary painting belong to.