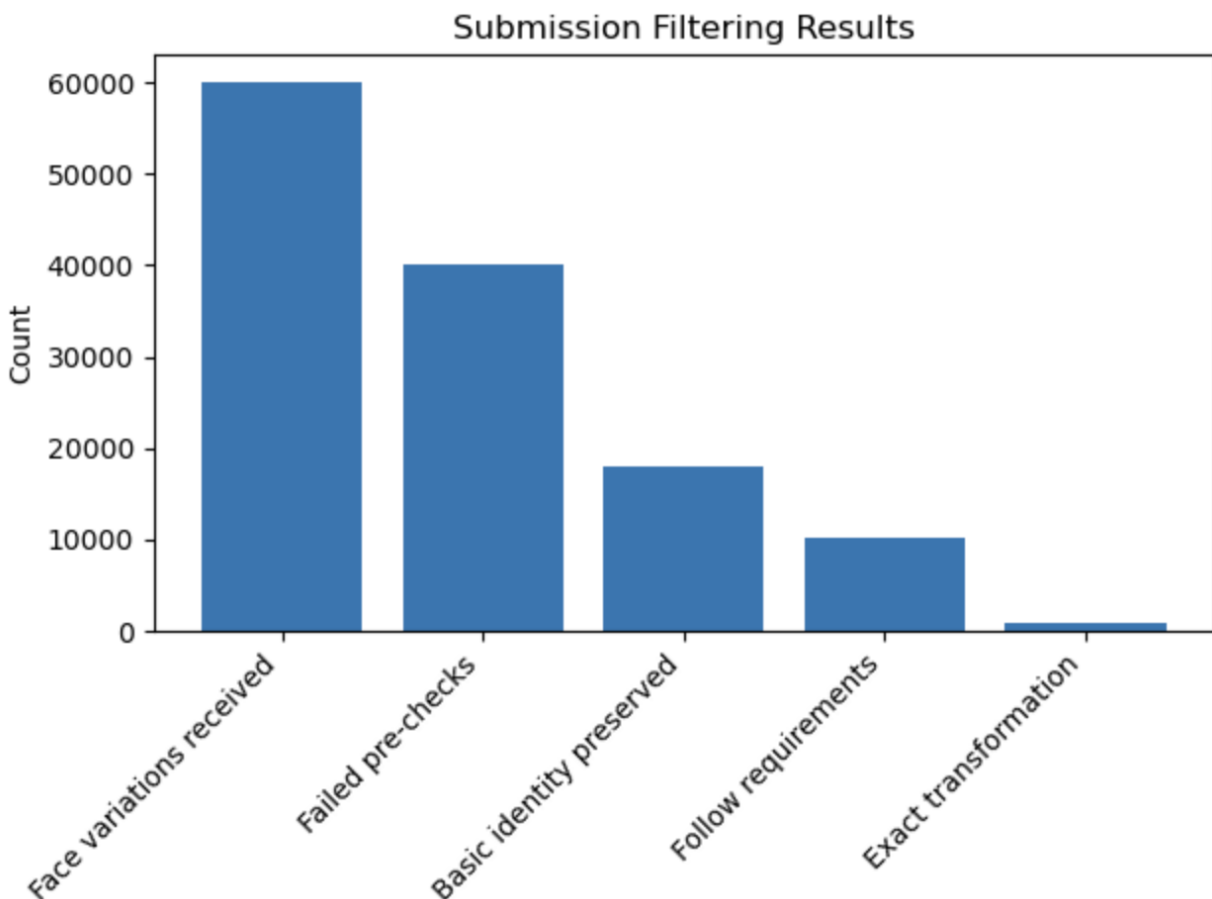


# Face variation: Reputation-based Reward System & Manual Validation Framework

Phase 4, Cycle c1 – Feb 16 2025

## Statistics on the Face variations



Face variations are currently one of the highest-load pipelines in the system. Their purpose is to generate constrained biometric transformations such as pose, lighting, expression, or background edits while preserving the identity of the validator-provided subject.

Like UAVs, this workflow remains heavily manual, and the volume illustrates why strong filtering and reputation mechanisms are essential.

Over **60,000 Face variations** were received.

More than **40,000** entries failed automatic pre-checks due to:

- corrupted or unreadable images
- duplicate of the original seed image
- duplicate of another miner's submission

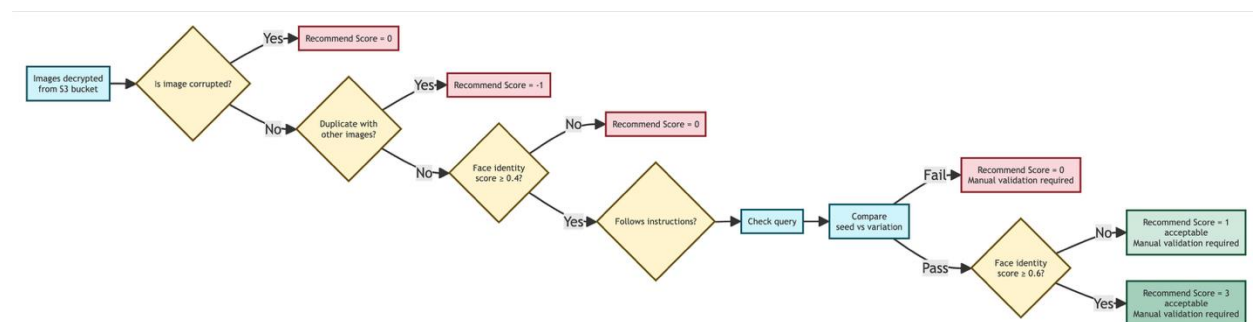
More than **18076** preserve identity at a basic recognizable level

Nearly **10267** follow the query requirements *and* preserve identity

More than **947** perform exactly the requested transformation, no more and no less, while preserving the identity of the seed image.

## Flow chart on how Face Validation are Processed

Below is a small window into how manual validation is performed for face variation submissions.



Step 1: Filter out all the corrupt and duplicate images

Step 2: Identity is relatively preserved (AdaFace)

Step 3: Run the image to detect the variation type

Step 4: Sent to the manual validator checks for:

- Is the person still the same individual?
- Did the miner follow the query?
- Did the miner exploit?
- Does the image have more than variations?
- Are artifacts, overlays, or shortcuts present?

**query\_text:**

For the face image provided, generate the following variations while preserving identity: 1. expression\_edit (medium): Neutral to smile, serious, or mildly surprised expression 2. pose\_edit (light):  $\pm 15^\circ$  rotation (slight head tilt or turn) IMPORTANT: The subject's face must remain recognizable across all variations. Each variation should clearly address the specified type and intensity level.



BASE ID  
REF-001

HOTKEY

EXECUTION ID

challenge\_1770757392\_

TEMPORAL STAMP

2026-02-10 21:46:30+00:00

POSE EDIT



**CHANGE HEAD POSE (YAW/PITCH/ROLL) WHILE KEEPING IDENTITY**

$\pm 15^\circ$  rotation (slight head tilt or turn)

SCORE (-5 - 5)

0

Score hint: 2

COMMENT

Partial match: More than one variation detected but there

Partial match: More than one variation detected but there was a partial match

INTENSITY **light**

IDENTITY PRESERVATION RATE **0.8759**

Label\_detected

type: multiple\_variations

intensity:

all\_detected: pose\_edit  
medium  
expression\_edit  
medium

Sent\_deep\_fake

is\_deep\_fake: false

deep\_fake\_score: N/A

Face\_orientation\_change

Yaw: 33.33567565242391

Roll: -169.9301996672336

Pitch: 5.097356223689766

final\_response: Face in second photo has turned  $31.0^\circ$  to the RIGHT, and tilted head DOWN by  $12.0^\circ$ .

Facial\_expression\_change

Eyes: left: 0.863

right: 0.921

Mouth: 0.005

Smile: 0.004

EXPRESSION EDIT



**CHANGE FACIAL EXPRESSION WHILE PRESERVING IDENTITY**

Neutral to smile, serious, or mildly surprised expression

SCORE (-5 - 5)

0

Score hint: 0

COMMENT

Label mismatch: No variation detected

INTENSITY **medium**

IDENTITY PRESERVATION RATE **0.7942**

Label\_detected

type: no\_variation

intensity:

Sent\_deep\_fake

is\_deep\_fake: false

deep\_fake\_score: N/A

Face\_orientation\_change

Yaw: -0.6653997624190641

Roll: -179.26407757853846

Pitch: 17.339601271516454

final\_response: Face orientation is similar in both photos (changes  $< 10^\circ$ ).

Facial\_expression\_change

Eyes: left: 0.724

right: 0.795

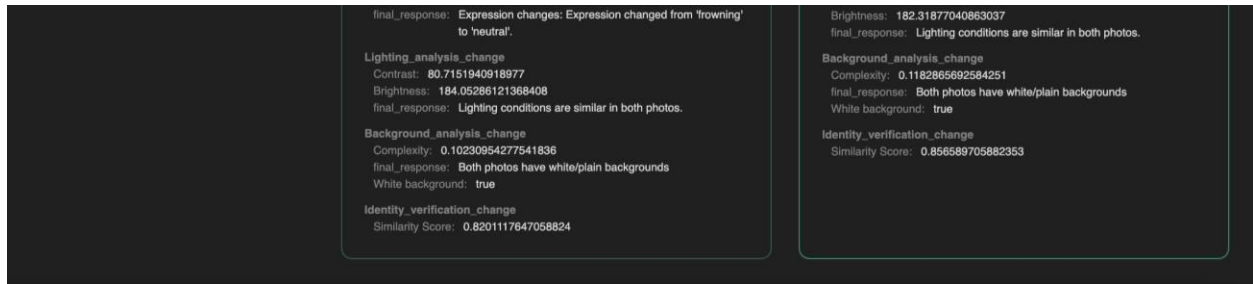
Mouth: 0.013

Smile: 0.012

final\_response: Expression similar in both photos (both: frowning).

Lighting\_analysis\_change

Contrast: 80.08766372302547



(Here is a sneak peak on what the manual validator sees)

## Examples Of Face Variations Processed:

### Rejected Identity not Perserved:

1. Seed Image
2. Expression Edit (Face identity below threshold ( $\text{ada\_sim}=0.322 < 0.4$ ))
3. Background Edit (Face identity below threshold ( $\text{ada\_sim}=0.313 < 0.4$ ))
4. Lighting Edit (Face identity below threshold ( $\text{ada\_sim}=0.308 < 0.4$ ))



1. Base Image
2. Expression Edit (Face identity below threshold ( $\text{ada\_sim}=0.33 < 0.4$ ))



## Duplicates that will be rejected starting from Feb 16<sup>th</sup> :

If a miner just **copies and pastes** the **face** on a **different background**, they will start to get negative scores.

Examples:

1. Seed Image
2. Background edit (copy and paste of the face on different background)



1. Seed Image
2. Background edit (copy and paste of the face on different background)



## Positive cases that still need Manual Review:

1. Seed Image
2. Pose edit (Partial match: More than one variation detected but there was a partial match, detected: pose edit – far and expression edit – medium, score hint = 2)
3. Expression edit (Partial match: More than one variation detected but there was a partial match, detected: pose edit - medium and expression edit – far, score hint = 2)
3. Lighting edit (Acceptable (ada\_sim=0.822, mediapipe\_sim=0.626); Label close: claimed 'lighting\_edit' 'far', detected 'medium', score hint = 3)

