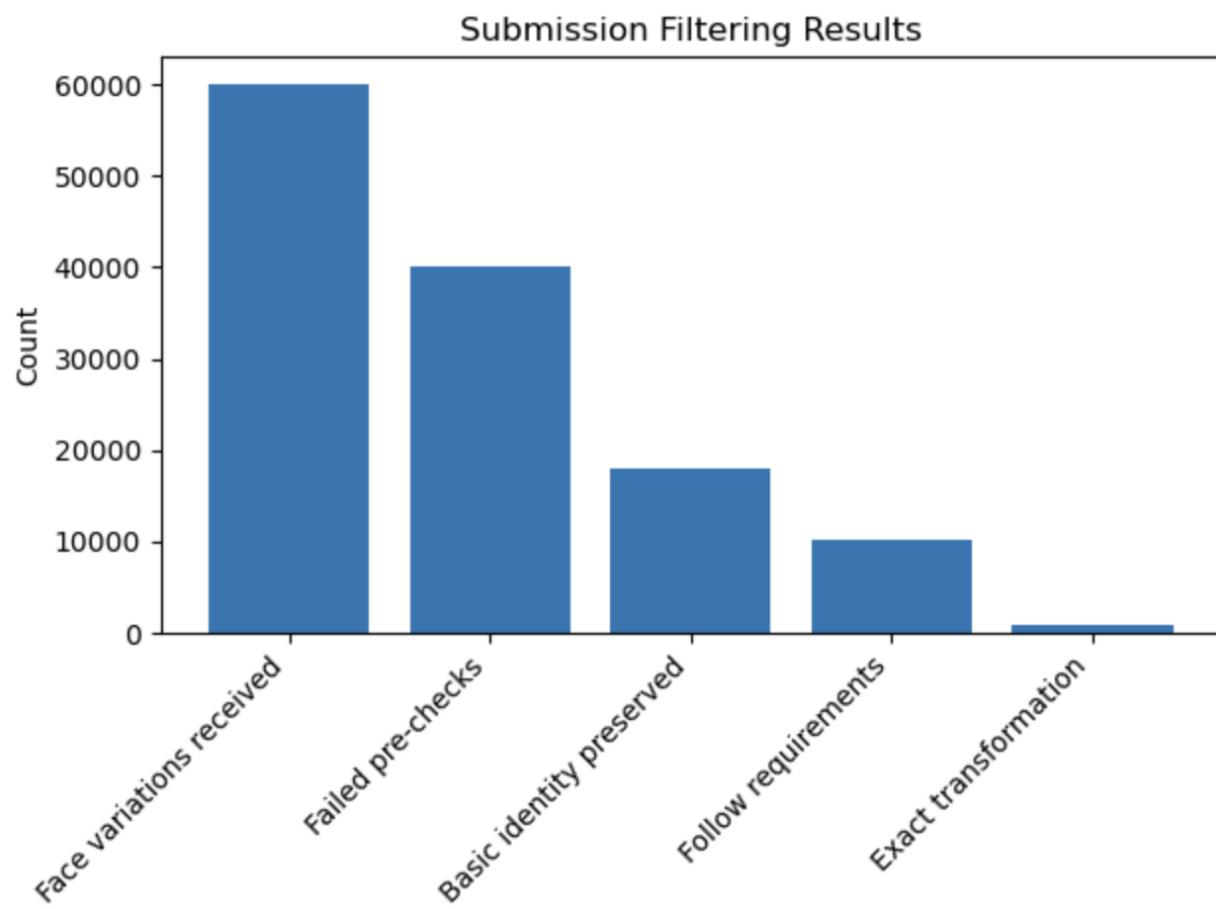


Face variation: Reputation-based Reward System & Manual Validation Framework

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

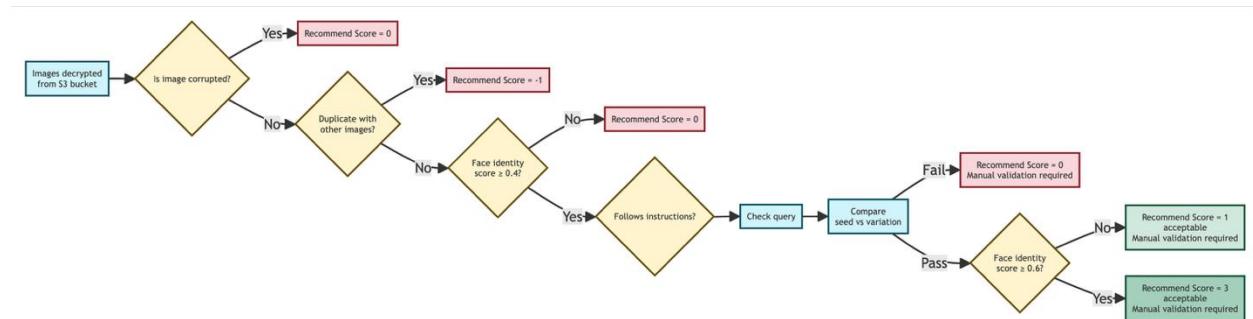
More than **18076** preserve identity at a basic recognizable level

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
[REDACTED]

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 was a partial match

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 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° to the RIGHT, and tilted head DOWN by 12.0°.

Facial_expression_change
Eyes: left: 0.863
right: 0.921
Mouth: 0.005
Smile: 0.004

```

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: -0.6653997824190641
Roll: -179.26407757853846
Pitch: 17.339601271516454
final_response: Face orientation is similar in both photos (changes < 10°).

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

```

<pre> final_response: Expression changes: Expression changed from 'frowning' to 'neutral'. Lighting_analysis_change Contrast: 80.7151940918977 Brightness: 184.05286121368408 final_response: Lighting conditions are similar in both photos. Background_analysis_change Complexity: 0.10230954277541836 final_response: Both photos have white/plain backgrounds White background: true Identity_verification_change Similarity Score: 0.820111764705882354 </pre>	<pre> Brightness: 182.31877040863037 final_response: Lighting conditions are similar in both photos. Background_analysis_change Complexity: 0.1182865692584251 final_response: Both photos have white/plain backgrounds White background: true Identity_verification_change Similarity Score: 0.856580705882353 </pre>
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(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 (ada_sim=0.322 < 0.4))
3. Background Edit (Face identity below threshold (ada_sim=0.313 < 0.4))
4. Lighting Edit (Face identity below threshold (ada_sim=0.308 < 0.4))



1. Base Image
2. Expression Edit (Face identity below threshold (ada_sim=0.33 < 0.4))



Duplicates that will be rejected starting from Feb 16th :

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)

