### Report 1:



Video Length: 8s

**Video Summary:** The video illustrates the sequence of a glass tipping over on a wooden table. Initially, the glass is upright and contains ice cubes and red liquid. As the sequence progresses, the glass begins to tilt more drastically. Throughout, the ice cubes remain relatively stable within the glass, but the red liquid spills progressively, increasing in area on the table as the glass reaches a full tilt and eventually lies on its side. The table remains unchanged throughout the sequence.

<Option>Original Prompt: Pouring red liquid onto the table.

### **Hallucination Detected:**

- Inconsistency with the original prompt.
- The edges of the ice cube inside the glass seem slightly too sharp and lacking slight melting. 3.68s
- The glass went from lying to standing without any depicted external force aiding this transition. 5.00s ~ 5.66s
- The red liquid is being dispensed from the bottom of the cup, causing an implausible penetration.  $5.00s \sim 5.66s$
- The glass falls down from air to the table without external force. 7.19s ~ 7.94s

**Overall Video Quality Score: 55.6** 

#### **Detection Detail:**

### 1.key frame and detail frame extraction:

The number of key frame: 3







key\_frame\_1(center): 3.68s detail\_frame\_I1(left): 1.33s detail\_frame\_r1(right): 4.57s







key\_frame\_2(center): 5.51s detail\_frame\_I1(left): 5.00s detail\_frame\_r1(right): 5.66s







key\_frame\_3(center): 7.73s detail\_frame\_I1(left): 7.19s detail\_frame\_r1(right): 7.94s

### 2.object extraction and static KG construction for each key frame:

key\_frame\_1: {{"objects": ["glass", "ice\_cube", "red\_liquid"], "relations": [["ice\_cube", "inside", "glass"], ["red\_liquid", "inside", "glass"]]}}

key\_frame\_2:{"objects": ["glass", "ice\_cube", "red\_liquid", "table", "spilled\_red\_liquid"], "relations": [["glass", "contains", "ice\_cube"], [["glass", "contains", "red\_liquid"], ["glass", "pouring", "red\_liquid"], ["spilled\_red\_liquid", "on", "table"]]}

key\_frame\_3:{{"objects": ["glass", "ice\_cube", "red\_liquid"], "relations": [["ice\_cube", "inside", "glass"], ["red\_liquid", "under", "glass"]]}}

### 3. object change extraction for each key frame cluster:

key\_frame\_cluster\_1: {"changes":{"glass": "unchanged", "ice\_cube": "unchanged", "red\_liquid": "unchanged"}} key\_frame\_cluster\_2:{"changes":{"glass":"changed tilt progressively", "ice\_cube":

"unchanged", "red\_liquid": "spilled progressively", "table ": "unchanged", "spilled red liquid": "increased area progressively"}}

key\_frame\_cluster\_3: {"changes":{"glass": "from the air to the table", "ice\_cube": "unchanged", "red\_liquid": "unchanged"}}

#### 4.video summary:

Summary: The video illustrates the sequence of a glass tipping over on a wooden table. Initially, the glass is upright and contains ice cubes and red liquid. As the sequence progresses, the glass begins to tilt more drastically. Throughout, the ice cubes remain relatively stable within the glass, but the red liquid spills

progressively, increasing in area on the table as the glass reaches a full tilt and eventually lies on its side. The table remains unchanged throughout the sequence.

# 5.inconsistency comparison:

Analysis: Analyzing the provided key frames and comparing them against the prompts, the following discrepancies are noted: 1. \*\*Glass Placement and Action\*\*, 2. \*\*Action Source\*\*. These inconsistencies primarily revolve around the nature of the action (passive spill vs. active pour) and the agent of action (implicitly self-tipping glass vs. potentially human-caused pouring).

Inconsistency Score: 7

### 6.static hallucination detection:

## key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	The edges of the ice cube inside the glass seem slightly	1
Irrationality	too sharp and lacking slight melting.	
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	Slight texture anomaly potentially in the perspective or	2
Material Physical	edges of the ice in contact with liquid.	
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

## key\_frame\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0

Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# key\_frame\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error		0

Other Hallucination	/	0
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# key\_frame\_cluster\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	The glass went from lying to standing without any	9
	depicted external force aiding this transition.	
Implausible Transform	/	0
Implausible Penetration	The red liquid is being dispensed from the bottom of the	8
	cup, causing an implausible penetration.	
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	The glass falls down from air to the table without	7
	external force, shows the obvious phenomenon of	
	Implausible Motion Hallucination.	
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

Overall Hallucination Score Aggregation:

55 5		
Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
7	1.73	5.87

Overall Score: 100 - 2 \* 7 - 4 \* 1.73 - 4 \* 5.87 = 55.6

### Report 2:



Video Length: 20s

**Video Summary:** The video shows a man continuously running on a treadmill in a monochrome setting. The treadmill remains unchanged throughout the video, indicating that the focus is on the man's steady exercise routine. The backdrop is dark, emphasizing the solitary figure as he maintains his pace on the treadmill.

**<Option>Original Prompt:** Step-printing scene of a person running, cinematic film shot in 35mm.

### **Hallucination Detected:**

- Inconsistency with the original prompt.
- The person depicted appears to be running on a treadmill in what seems like the opposite direction to which one typically runs on such exercise equipment, giving an unusual and seemingly illogical appearance.

**Overall Video Quality Score:** 56

#### **Detection Detail:**

### 1.key frame and detail frame extraction:

The number of key frame: 1







key\_frame\_1(center): 8.96s detail\_frame\_l1(left): 7.71s detail\_frame\_r1(right): 12.10s

### 2.object extraction and static KG construction for each key frame:

key\_frame\_1:{{"objects": ["man", "treadmill"], "relations":[["man", "running on", "treadmill"]]}}

## 3.object change extraction for each key frame cluster:

key\_frame\_cluster\_1: {"changes":{"man": "continuously maintains running", "treadmill": "unchanged"}}

### 4.video summary:

Summary: The video shows a man continuously running on a treadmill in a monochrome setting. The treadmill remains unchanged throughout the video, indicating that the focus is on the man's steady exercise routine. The backdrop is dark, emphasizing the solitary figure as he maintains his pace on the treadmill.

#### 5.inconsistency comparison:

Analysis: The main inconsistency lies in the interpretation of the visual presentation and intention behind the video. While the original prompt implies a potential artistic or filmic exploration using step-printing (a process that could alter perception of motion and time), the generated prompt suggests a straightforward, unaltered depiction of a man running on a treadmill in a monochrome setting. The specifics about the monochrome effect and the clear focus on the exercise routine in the generated prompt contrast with the more technique-focused and possibly more dynamically edited implication of the origin prompt. This inconsistency, though significant in the context of film technique versus straightforward depiction, is moderated by the consistency in still describing a person running, hence the middling score.

Inconsistency Score: 5

### 6.static hallucination detection:

### key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0

Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	The person depicted appears to be running on a	8
	treadmill in what seems like the opposite direction to	
	which one typically runs on such exercise equipment,	
	giving an unusual and seemingly illogical appearance.	
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

Overall Hallucination Score Aggregation:

Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
5	0	8

Overall Score: 100 - 2 \* 5 - 4 \* 0 - 4 \* 8 = 56

### Report 3:



### Video Length: 8s

Video Summary: The video showcases a sequence of a basketball moving towards and then through a hoop. Initially, the basketball is seen flying towards the hoop. As it descends, the ball suddenly ignites, adding a dramatic effect with flames visible in the backdrop, providing a visual enhancement rather than an interaction with the surroundings or the ball itself. The ball then continues its path downwards through the hoop, eventually passing through the net without altering its structure. Throughout these events, the surroundings such as the basketball hoop, backboard, net, light pole, playground slide, and fence remain static and unchanged. This dynamic display contrasts the stationary background with the fiery motion of the basketball.

<Option>Original Prompt: Basketball through hoop then explodes.

### **Hallucination Detected:**

- Inconsistency with the original prompt.
- The basketball ignites into flames which is highly implausible and represents a severe hallucination. A basketball normally wouldn't ignite while playing. 4.80s ~ 5.60s
- The ignition of the basketball could imply a physical interaction error since such behavior (ignition without a plausible source) doesn't align with normal physical interactions. 4.80s ~ 5.60s
- There is a sudden appearance of basketball near the Basketball hoop between frame 2 and 3 without any visible cause. 6.08s ~ 6.72s
- The basketball meets an unnatural overlapping and intersection with basketball hoop, indicating the hallucination of clipping. 7.52s ~ 7.94s

**Overall Video Quality Score: 55.16** 

#### **Detection Detail:**

### 1.key frame and detail frame extraction:

The number of key frame: 4







key\_frame\_1(center): 1.12s detail\_frame\_l1(left): 0.48s detail\_frame\_r1(right): 1.6s







key\_frame\_2(center): 5.28s detail\_frame\_I1(left): 4.80s detail\_frame\_r1(right): 5.60s







key\_frame\_3(center): 6.40s detail\_frame\_I1(left): 6.08s detail\_frame\_r1(right): 6.72s







key\_frame\_4(center): 7.84s detail\_frame\_I1(left): 7.52s detail\_frame\_r1(right): 7.94s

### 2.object extraction and static KG construction for each key frame:

key\_frame\_1:{{"objects": ["basketball\_1", "basketball\_hoop", "backboard", "light\_pole", "playground\_slide"], "relations":[["basketball\_1", "approaching", "basketball\_hoop"], ["basketball\_1", "below", "backboard"], ["light\_pole", "adjacent to", "basketball\_hoop"], ["playground\_slide", "near", "basketball\_hoop"]]}} key\_frame\_2:{{"objects": ["basketball\_hoop", "basketball", "backboard", "basketball\_net", "light\_pole", slide"], "relations":[["basketball", "inside", "basketball net"], ["basketball net", "attached to", "backboard"], ["backboard", "attached\_to", "basketball\_hoop"]]}} key\_frame\_3:{{"objects": ["Basketball\_1", "Basketball\_2", "Flame"], "Basketball hoop", "relations":[["Basketball\_1", "approaching", "Basketball hoop"], ["Basketball\_2", "inside", "Basketball hoop"],

["Flame", "behind", "Basketball hoop"]]}} key\_frame\_4:{"objects": ["basketball", "basketball\_hoop", "basketball net", "light pole", "slide", "fence"], "relations": [["basketball", "entering", "basketball\_net"],["basketball\_net", "attached to", "basketball\_hoop"],["basketball\_hoop", "backboard"],["slide", "mounted on", "located at", "playground"],["fence", "surrounds", "basketball\_court"]]}

#### 3. object change extraction for each key frame cluster:

key\_frame\_cluster\_1:{"changes":{"basketball\_1": "moving towards the basketball hoop", "basketball\_hoop": "unchanged", "backboard": "unchanged", "light\_pole": "unchanged", "playground\_slide": "unchanged"}} key\_frame\_cluster\_2:{"changes":{"basketball\_hoop": "unchanged", "basketball": "moves downward, then ignites", "backboard": "unchanged", "basketball\_net": "unchanged in structure but interacts with basketball", "light\_pole": "unchanged", "slide": "unchanged"}}

key\_frame\_cluster\_3:{"Basketball\_1": "consistently approaching Basketball hoop", "Basketball\_2": "unchanged inside Basketball hoop", "Basketball hoop": "unchanged", "Flame": "consistent, natural variation behind Basketball hoop"}}

key\_frame\_cluster\_4:{{"changes": {"basketball": "moves downward through the net","basketball\_hoop": "unchanged", "basketball\_net": "unchanged", "light\_pole": "unchanged", "slide": "unchanged", "fence": "unchanged"}}}

## 4.video summary:

Summary: The video showcases a sequence of a basketball moving towards and then through a hoop. Initially, the basketball is seen flying towards the hoop. As it descends, the ball suddenly ignites, adding a dramatic effect with flames visible in the backdrop, providing a visual enhancement rather than an interaction with the surroundings or the ball itself. The ball then continues its path downwards through the hoop, eventually passing through the net without altering its structure. Throughout these events, the surroundings such as the basketball hoop, backboard, net, light pole, playground slide, and fence remain static and unchanged. This dynamic display contrasts the stationary background with the fiery motion of the basketball.

#### 5.inconsistency comparison:

Analysis: The discrepancy lies in the interpretation of "explodes." The origin prompt suggests a literal explosion occurs post-hoop interaction, whereas the generated video and its description portray the basketball catching on fire without disintegrating, which is less severe than an explosion.

Inconsistency Score: 6

# 6.static hallucination detection:

# key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		

Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		

Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_4:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality		0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0

Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	The basketball ignites into flames which is highly	10
	implausible and represents a severe hallucination. A	
	basketball normally wouldn't ignite while playing.	
Implausible Penetration	/	0
Physical Interaction Errors	The ignition of the basketball could imply a physical	8
	interaction error since such behavior (ignition without a	
	plausible source) doesn't align with normal physical	
	interactions.	
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	There is a sudden appearance of basketball near the	8
Disappearance	Basketball hoop between frame 2 and 3 without any	
	visible cause.	
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_4:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	The basketball meets an unnatural overlapping and	9
	intersection with basketball hoop, indicating the	
	hallucination of clipping.	
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

Overall Hallucination Score Aggregation:

Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
6	0	8.21

Overall Score: 100 - 2 \* 6 - 4 \* 0 - 4 \* 8.21 = 55.16

### Report 4:



Video Length: 20s

**Video Summary:** The sequence of images depicts a group of individuals, possibly archaeologists or researchers, engaged in the process of unearthing an object buried in sandy terrain. The process is methodical and involves multiple stages:1. The initial frame shows two people starting to clear sand around the buried object using tools.2. Subsequent frames illustrate the gradual exposure of the object, which appears to be a plastic chair, as more sand is removed by the participants.3. One frame captures a moment where the chair is being lifted from the hole, indicating that it was successfully uncovered.4. Towards the conclusion of the sequence, the chair is fully removed from the ground, and the team inspects it, suggesting a sense of completion or discovery. Overall, the video likely showcases a controlled demonstration or experiment, possibly related to archaeology or geological studies, using everyday objects as practice or illustrative materials.

**Option>Original Prompt:** Archeologists discover a generic plastic chair in the desert, excavating and dusting it with great care.

#### **Hallucination Detected:**

- Inconsistency with the original prompt.
- The shape presented by the chair resembles a fluid, which contradicts the fact that the chair is a hard object in reality. 3.67s ~ 8.33s
- The chair moves without external force, appearing to float in the air. 12.33s ~ 19.83s

**Overall Video Quality Score:** 58.52

#### **Detection Detail:**

# 1.key frame and detail frame extraction:

The number of key frame: 5





key\_frame\_1(left): 1.67s detail\_frame\_r1(right): 2.33s







key\_frame\_2(center): 5.33s detail\_frame\_I1(left): 3.67s detail\_frame\_r1(right): 5.83s







key\_frame\_3(center): 6.83s detail\_frame\_I1(left): 6.17s detail\_frame\_r1(right): 8.33s







key\_frame\_4(center): 14.5s detail\_frame\_l1(left): 12.33s detail\_frame\_r1(right): 15.83s









key\_frame\_5(third): 18.5s detail\_frame\_l2(left): 16.83s detail\_frame\_l1(second): 17.67s detail\_frame\_r1(right): 19.83s

## 2.object extraction and static KG construction for each key frame:

key\_frame\_1:{{"objects": ["chair", "shovel\_1", "rock\_1", "rock\_2", "rock\_3"], "relations":[["shovel\_1", "used by", "person\_1"], ["shovel\_2", "used by", "person\_2"], ["rock\_1", "near", "chair"], ["rock\_2", "near", "chair"]}}

"chair"], ["rock\_3", "near", "chair"]]}}

key\_frame\_2:{{"objects": ["Plastic\_Chair\_1", "Plastic\_Chair\_2", "Shovel\_1", "Shovel\_2", "Plastic\_Bucket"],

```
"relations":[["Shovel_1", "near", "Plastic_Chair_1"], ["Shovel_2", "is being used by", "Person_1"], ["Person_1",
"is digging with", "Shovel_2"], ["Plastic_Chair_2", "near", "Person_2"], ["Person_2", "is standing near",
"Plastic_Chair_2"], ["Plastic_Bucket", "is in front of", "Plastic_Chair_1"]]}}
key_frame_3:{{"objects": ["Chair_1", "Chair_2", "Dirt Pile"], "relations": [["Chair_1", "next to", "Chair_2"],
["Chair_1", "on", "Dirt Pile"], ["Chair_2", "on", "Dirt Pile"]]}}
key_frame_4:{{"objects": ["plastic_chair",
                                            "man 1",
                                                         "man_2",
                                                                      "man 3",
                                                                                  "camera_1",
"relations":[["man_1", "holding", "plastic_chair"], ["man_1", "walking towards", "man_2"], ["man_2", "interacting
with", "man_3", ["man_2", "holding", "camera_1"], ["man_3", "carrying", "camera_2"]]}}
key_frame_5:{{"objects": ["Person_1", "Person_2",
                                                          "Person_3",
                                                                                        "Armchair",
                                                                                                       "Tool"],
"relations":[["Person_2", "reaching towards", "Armchair"], ["Person_3", "holding", "Tool"]]}}
```

### 3. object change extraction for each key frame cluster:

key\_frame\_cluster\_1:{"chair": "unchanged", "shovel\_1": "used in continuous digging action", "shovel\_2": "used in continuous digging action", "rock\_1": "unchanged", "rock\_2": "unchanged", "rock\_3": "unchanged"}}

key\_frame\_cluster\_2:{"changes": {"Plastic\_Chair\_1": "minor repositioning", "Plastic\_Chair\_2": "slight movement", "Shovel\_1": "no change/unchanged", "Shovel\_2": "motion consistent with digging", "Plastic\_Bucket": "unchanged"}}

key\_frame\_cluster\_3:{"Chair\_1": "moved from down to up", "Chair\_2": "unchanged", "Dirt Pile": "unchanged"}}

key\_frame\_cluster\_4:{"changes":{"plastic\_chair": "changed position and orientation", "man\_1": "changed position minimally, constant interaction with plastic\_chair", "man\_2": "minimal movement and orientation change, constant with camera\_1", "man\_3": "minimal orientation adjustments, constant with camera\_2", "camera\_1": "unchanged", "camera\_2": "unchanged"}}

key\_frame\_cluster\_5:{"changes":{"Person\_1":"unchanged", "Person\_2":"unchanged", "Person\_3":"unchanged", "Person\_4":"unchanged", "Armchair":"falls into the sand and flips upside down", "Tool":"unchanged"}}

# 4.video summary:

Summary: The sequence of images depicts a group of individuals, possibly archaeologists or researchers, engaged in the process of unearthing an object buried in sandy terrain. The process is methodical and involves multiple stages:1. The initial frame shows two people starting to clear sand around the buried object using tools.2. Subsequent frames illustrate the gradual exposure of the object, which appears to be a plastic chair, as more sand is removed by the participants.3. One frame captures a moment where the chair is being lifted from the hole, indicating that it was successfully uncovered.4. Towards the conclusion of the sequence, the chair is fully removed from the ground, and the team inspects it, suggesting a sense of completion or discovery. Overall, the video likely showcases a controlled demonstration or experiment, possibly related to archaeology or geological studies, using everyday objects as practice or illustrative materials.

### 5.inconsistency comparison:

Analysis: The core activities are similar, but the presentation and implied intent differ significantly, affecting the coherence when comparing the narratives laid out in both prompts.

Inconsistency Score: 6

### 6.static hallucination detection:

#### key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0

Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	The shape presented by the chair resembles a fluid,	8
Material Physical	which contradicts the fact that the chair is a hard object	
Inaccuracy	in reality.	
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# key\_frame\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0

Irrationality		
Lighting, Shadow and	The shape presented by the chair resembles a fluid,	8
Material Physical	which contradicts the fact that the chair is a hard object	
Inaccuracy	in reality.	
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_4:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# key\_frame\_5:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0

Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_3:

rialidolitation rypo	Hal	lucination Type	Hallucination Anal	vsis Hallucination Score
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Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

key\_frame\_cluster\_4:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	9
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	The chair moves without external force, appearing to	10
	float in the air.	
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_5:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	9
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	The chair moves without external force, appearing to	9
	float in the air.	
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

Overall Hallucination Score Aggregation:

Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
6	2.87	4.5

Overall Score: 100 - 2 \* 6 - 4 \* 2.87 - 4 \* 4.5 = 58.52

#### Report 5:



Video Length: 10s

**Video Summary:** The video captures a joyful celebration where an elderly woman is surrounded by a group of people at a birthday party. In the first key frame, she is presented with a colorful birthday cake adorned with lit candles, appearing delighted as she prepares to blow them out. The attendees in the background applaud and cheer for her. In the second key frame, she blows out the candles on her cake, marking the climax of the celebration as the guests continue to express their excitement and happiness. The atmosphere is festive, filled with laughter and applause, highlighting a warm, celebratory moment among friends and family.

<Option>Original Prompt: A grandmother with neatly combed grey hair stands behind a colorful birthday cake with numerous candles at a wood dining room table, expression is one of pure joy and happiness, with a happy glow in her eye. She leans forward and blows out the candles with a gentle puff, the cake has pink frosting and sprinkles and the candles cease to flicker, the grandmother wears a light blue blouse adorned with floral patterns, several happy friends and family sitting at the table can be seen celebrating, out of focus. The scene is beautifully captured, cinematic, showing a 3/4 view of the grandmother and the dining room. Warm color tones and soft lighting enhance the mood.

# **Hallucination Detected:**

- Inconsistency with the original prompt.
- The woman is blowing out the candle but it has not been extinguished, presenting a physical phenomenon that should have occurred but has not occurred. 6.77s ~ 8.00s

**Overall Video Quality Score:** 72.68

#### **Detection Detail:**

### 1.key frame and detail frame extraction:

The number of key frame: 2







key\_frame\_1(center): 3.2s detail\_frame\_I1(left): 1.53s detail\_frame\_r1(right): 4.92s









key\_frame\_2(second): 7.23s detail\_frame\_I1(left): 6.77s detail\_frame\_r1(third): 7.54s detail\_frame\_r2(right): 8.00s

### 2.object extraction and static KG construction for each key frame:

key\_frame\_1:{{"objects": ["cake", "candle\_1", "candle\_2", "candle\_3", "candle\_4", "candle\_5", "candle\_6", "candle\_7", "candle\_8", "candle\_9", "candle\_10", "candle\_11", "candle\_12", "candle\_13", "candle\_14", "candle\_15", "candle\_16", "candle\_17", "candle\_18", "candle\_19", "candle\_20", "candle\_21", "candle\_22"], "relations":[["candle\_1", "on", "cake"], ["candle\_2", "on", "cake"], ["candle\_3", "on", "cake"], ["candle\_4", "on", "cake"], ["candle\_5", "on", "cake"], ["candle\_6", "on", "cake"], ["candle\_7", "on", "cake"], ["candle\_8", "on", "cake"], ["candle\_9", "on", "cake"], ["candle\_10", "on", "cake"], ["candle\_11", "on", "cake"], ["candle\_12", "on", "cake"], ["candle\_13", "on", "cake"], ["candle\_14", "on", "cake"], ["candle\_15", "on", "cake"], ["candle\_16", "on", "cake"], ["candle\_17", "on", "cake"], ["candle\_18", "on", "cake"], ["candle\_19", "on", "cake"], ["candle\_20", "on", "cake"], ["candle\_21", "on", "cake"], ["candle\_22", "on", "cake"]]}}

key\_frame\_2:{{"objects": ["woman", "birthday\_cake", "candle\_1", "candle\_2", "candle\_3", "candle\_4", "candle\_5", "candle\_6", "candle\_7", "candle\_8", "candle\_9", "candle\_10", "candle\_11", "people\_group"], "relations":[["woman", "blowing", "candle\_1"], ["woman", "blowing", "candle\_2"], ["woman", "blowing", "candle\_3"], ["woman", "blowing", "candle\_4"], ["woman", "blowing", "candle\_5"], ["woman", "blowing", "candle\_6"], ["woman", "blowing", "candle\_7"], ["woman", "blowing", "candle\_8"], ["woman", "blowing", "candle\_9"], ["woman", "blowing", "candle\_10"], ["woman", "blowing", "candle\_11"], ["birthday\_cake", "adorned\_with", "candle\_2"], ["birthday\_cake", "adorned\_with", "candle\_3"], ["birthday\_cake", "adorned\_with", "candle\_4"], ["birthday\_cake", "adorned\_with", "candle\_5"], ["birthday\_cake", "adorned\_with", "candle\_5"], ["birthday\_cake", "adorned\_with", "candle\_9"], ["birthday\_cake", "adorned\_with", "candle\_11"]]}}

### 3.object change extraction for each key frame cluster:

key\_frame\_cluster\_1:{"changes":{"cake": "unchanged", "candle\_1": "unchanged", "candle\_2": "unchanged", "candle\_3": "unchanged", "candle\_4": "unchanged", "candle\_5": "unchanged", "candle\_6": "unchanged", "candle\_7": "unchanged", "candle\_8": "unchanged", "candle\_9": "unchanged", "candle\_10": "unchanged", "candle\_11": "unchanged", "candle\_12": "unchanged", "candle\_13": "unchanged", "candle\_14": "unchanged", "candle\_15": "unchanged", "candle\_16": "unchanged", "candle\_17": "unchanged", "candle\_18": "unchanged", "candle\_18": "unchanged", "candle\_17": "unchanged", "candle\_18": "unchanged",

"candle\_19": "unchanged", "candle\_20": "unchanged", "candle\_21": "unchanged", "candle\_22": "unchanged"}} key\_frame\_cluster\_2:{"changes":{"woman":"unchanged","birthday\_cake":"unchanged","candle\_1":"unchanged ","candle\_2":"unchanged","candle\_3":"unchanged","candle\_4":"unchanged","candle\_5":"unchanged","candle\_5":"unchanged","candle\_6":"unchanged","candle\_9":"unchanged","candle\_10":"unchanged","candle\_11":"unchanged","people\_group":"unchanged"}}

### 4.video summary:

Summary: The video captures a joyful celebration where an elderly woman is surrounded by a group of people at a birthday party. In the first key frame, she is presented with a colorful birthday cake adorned with lit candles, appearing delighted as she prepares to blow them out. The attendees in the background applaud and cheer for her. In the second key frame, she blows out the candles on her cake, marking the climax of the celebration as the guests continue to express their excitement and happiness. The atmosphere is festive, filled with laughter and applause, highlighting a warm, celebratory moment among friends and family.

### 5.inconsistency comparison:

Analysis: While there is a considerable overlap in the general theme and sequence of events, the origin prompt provides much more precise visual and emotional detail compared to the more generically described generated prompt. These missing details in the generated prompt lead to a noticeable inconsistency in depth and vividness of the scene portrayal.

Inconsistency Score: 6

#### 6.static hallucination detection:

## key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# key\_frame\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
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Geometric Structure Irrationality	/	0
Biological Structure	/	0
Irrationality	·	-
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform		0
Implausible Penetration	/	0
Physical Interaction Errors	The woman is blowing out the candle but it has not	8
	been extinguished, presenting a physical phenomenon	
	that should have occurred but has not occurred.	

Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

# Overall Hallucination Score Aggregation:

Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
6	0	3.83

Overall Score: 100 - 2 \* 6 - 4 \* 0 - 4 \* 3.83 = 72.68

### Report 6:



Video Length: 10s

**Video Summary:** The video depicts a playful scene featuring three young foxes on a gravel pathway surrounded by grassy areas. The sequence begins with one of the foxes darting across the path, characterized by its motion blur, indicating rapid movement. The next key frame shows the three foxes standing closely together in the middle of the path, playfully interacting with each other, as evidenced by their alert stances and physical proximity. In the final key frame, one fox remains active and engaged, with its tail raised and body leaning forward in a playful stance, while the other foxes are gathered close, continuing their dynamic interaction. The overall scene captures the lively and exuberant nature of young foxes at play in their natural habitat.

**<Option>Original Prompt:** Five gray wolf pups frolicking and chasing each other around a remote gravel road, surrounded by grass. The pups run and leap, chasing each other, and nipping at each other, playing.

# **Hallucination Detected:**

- Inconsistency with the original prompt.
- Foxes bodies slightly inconsistent with real-world common sense and cause abnormal biological structure. 0.81s

The sudden appearance and disappearance of wolves alternate in the frames, presenting an unreasonable appearance or disappearance. 6.38s ~ 8.97s

**Overall Video Quality Score:** 64.16

#### **Detection Detail:**

### 1.key frame and detail frame extraction:

The number of key frame: 3







key\_frame\_1(center): 0.81s detail\_frame\_I1(left): 0.16s detail\_frame\_r1(right): 1.31s







key\_frame\_2(center): 3.6s detail\_frame\_I1(left): 3.11s detail\_frame\_r1(right): 3.93s









key\_frame\_3(second): 8.02s detail\_frame\_I1(left): 6.38s detail\_frame\_r1(third): 8.35s detail\_frame\_r2(right): 8.97s

### 2.object extraction and static KG construction for each key frame:

 $\label{lem:condition} $$ \ker_1:{{\text{"objects": ["fox_1", "fox_2", "fox_3"], "relations":[["fox_2", "following", "fox_3"], ["fox_1", "running ahead of", "fox_2"]]}}$ 

key\_frame\_2:{{"objects": ["fox\_1", "fox\_2", "fox\_3"], "relations":[["fox\_1", "next to", "fox\_2"], ["fox\_2", "next to", "fox\_3"]]}}

key\_frame\_3:{{"objects": ["fox\_1", "fox\_2"], "relations":[["fox\_1", "next to", "fox\_2"]]}}

### 3.object change extraction for each key frame cluster:

key\_frame\_cluster\_1:{"changes":{"fox\_1": "unchanged", "fox\_2": "unchanged", "fox\_3": "unchanged"}} key\_frame\_cluster\_2{"changes":{"fox\_1": "moved forward and left", "fox\_2": "moved forward", "fox\_3": "initially unchanged, then bounds forward"}}

key\_frame\_cluster\_3:{"changes":{"fox\_1": "initial decrease in engagement, stabilizes", "fox\_2": "slight separation and reintegrates"}}

### 4.video summary:

Summary: The video depicts a playful scene featuring three young foxes on a gravel pathway surrounded by grassy areas. The sequence begins with one of the foxes darting across the path, characterized by its motion blur, indicating rapid movement. The next key frame shows the three foxes standing closely together in the middle of the path, playfully interacting with each other, as evidenced by their alert stances and physical proximity. In the final key frame, one fox remains active and engaged, with its tail raised and body leaning

forward in a playful stance, while the other foxes are gathered close, continuing their dynamic interaction. The overall scene captures the lively and exuberant nature of young foxes at play in their natural habitat.

# 5.inconsistency comparison:

Analysis: Because of the differences in species, number of animals, and nature of the activities described, the inconsistencies substantially affect how viewers might understand and visualize the scene based on the prompt descriptions. These are crucial elements that fundamentally change the depiction of the scene. Inconsistency Score: 9

### 6.static hallucination detection:

## key\_frame\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	Foxes bodies slightly inconsistent with real-world	5
Irrationality	common sense and cause abnormal biological	
	structure.	
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# key\_frame\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		

Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

key\_frame\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Geometric Structure	/	0
Irrationality		
Biological Structure	/	0
Irrationality		
Lighting, Shadow and	/	0
Material Physical		
Inaccuracy		
Color Distribution	/	0
Disharmony		
Depth of Field and Focal	/	0
Length Unreality		
Object Composition and	/	0
Scene Semantic		
Inconsistency		
Motion and Blur	/	0
Inconsistency		
Physical Phenomenon	/	0
Inauthenticity		
Image Quality	/	0
Inconsistency		
Other Hallucination	/	0

# 7. dynamic hallucination detection:

# key\_frame\_cluster\_1:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_2:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	/	0
Disappearance		
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# key\_frame\_cluster\_3:

Hallucination Type	Hallucination Analysis	Hallucination Score
Clipping	/	0
Implausible Fusion	/	0
Implausible Appearance or	The sudden appearance and disappearance of wolves	8
Disappearance	alternate in the frames, presenting an unreasonable	
	appearance or disappearance.	
Implausible Motion	/	0
Implausible Transform	/	0
Implausible Penetration	/	0
Physical Interaction Errors	/	0
Logical Interaction Error	/	0
Other Hallucination	/	0

# 8.aggregation and overall scoring:

# Overall Hallucination Score Aggregation:

Inconsistency Score	Static Hallucination Score	Dynamic Hallucination Score
9	1.11	3.35

Overall Score: 100 - 2 \* 9 - 4 \* 1,11 - 4 \* 3.35 = 64.16