

AI Hallucination

The Failure of Off-Screen Space in Image-to-Video Generation

A Case Study of Dreamina

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Dept. Visual Contents



A believable room tour is not necessarily a faithful space

INPUT PHOTOGRAPHS

Partial views of a real room



GENERATED ROOM TOUR

Convincing motion, uncertain geometry

Off-screen space is implied, not empty

BURCH

Six regions of off-screen space

BORDWELL

Viewers construct coherent spatial maps

INDEXICALITY

Can synthetic footage document real space?

Does missing staircase information undermine spatial coherence?

VISIBILITY ↓

SPATIAL COHERENCE ?

Three levels of occlusion

30%

OCCLUSION

70% visible

70%

OCCLUSION

30% visible

100%

OCCLUSION

0% visible

Environmental anchors retained across conditions

15 generated room tours

15

TOTAL VIDEOS

05

PER CONDITION

10s

DURATION

480P

RESOLUTION

Evaluation: staircase presence · direction · position · spatial details

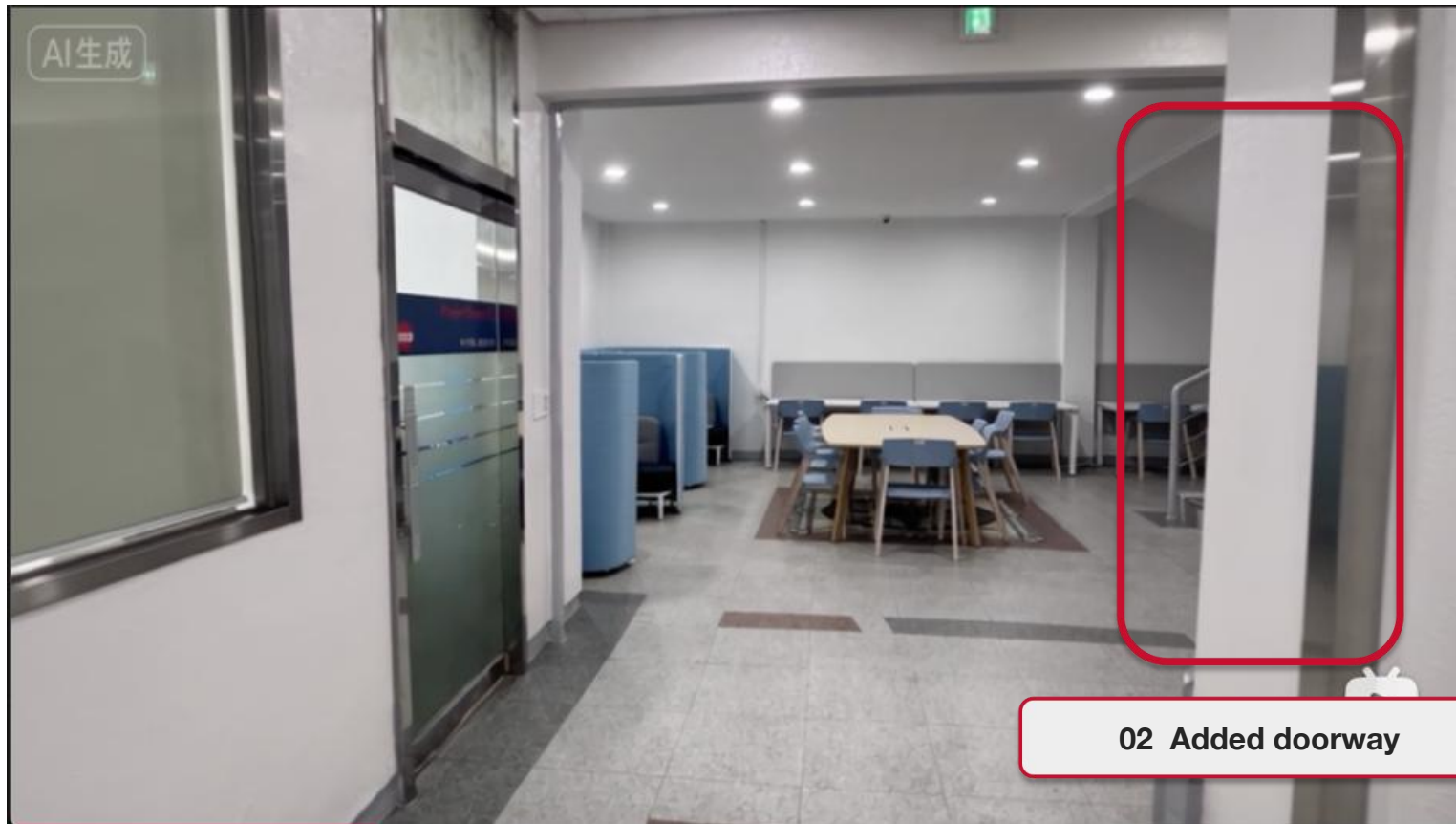
30% occlusion — Detail drift



DETAIL DRIFT

4/5 correct spatial relationships · staircase intact in 5/5

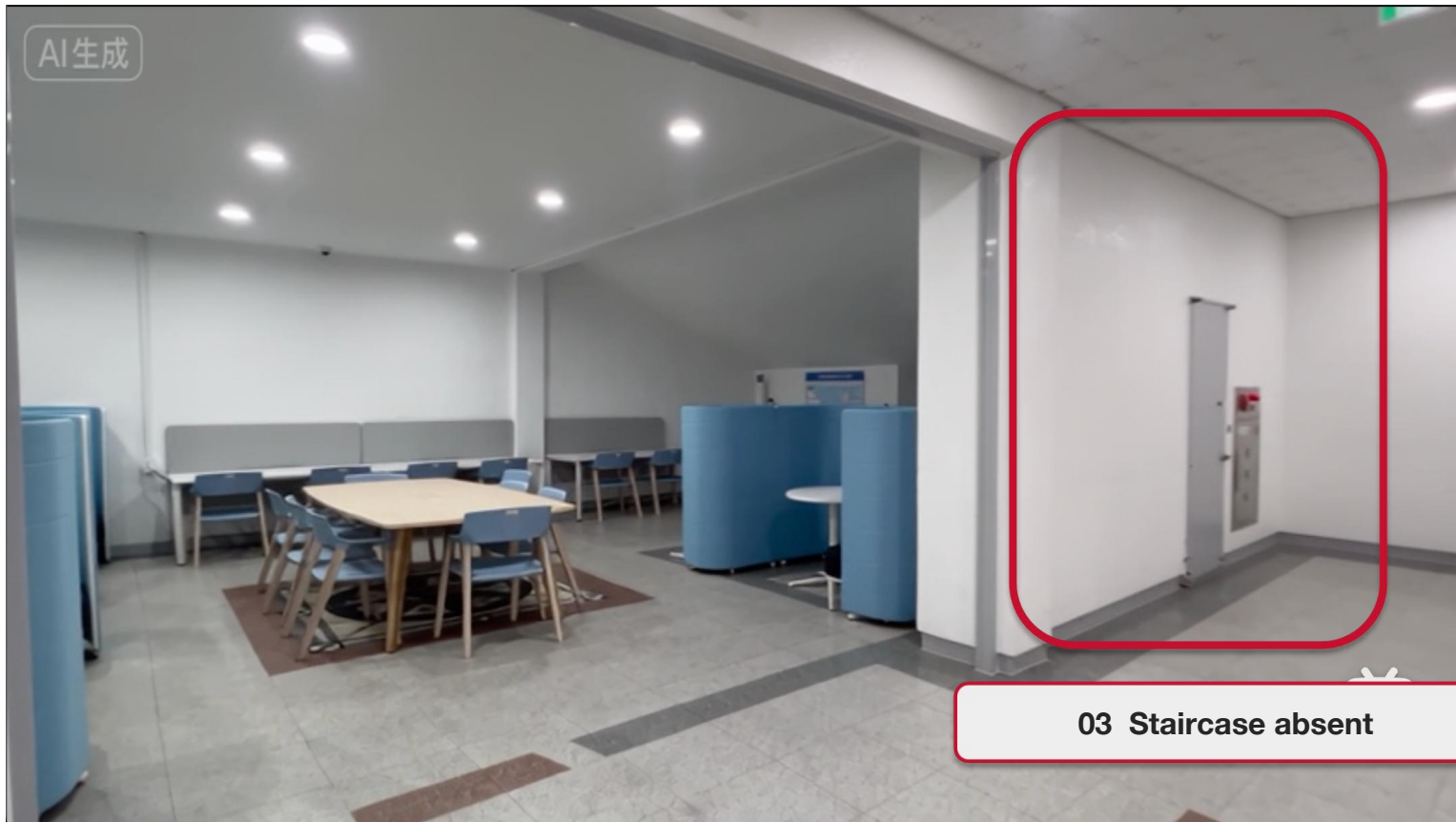
70% occlusion — Boundary distortion



BOUNDARY DISTORTION

3/5 narrowed corridors
and invented
doors/windows

100% occlusion — Structural collapse



STRUCTURAL COLLAPSE

4/5 staircase
disappeared · 1/5 wrong-
position staircase

03 Staircase absent

Three stages of spatial hallucination

01 DETAIL DRIFT

Text and minor details

02 BOUNDARY DISTORTION

Extra doors, windows, corridors

03 STRUCTURAL COLLAPSE

Missing / misplaced staircase

Plausible completion $\neq$ faithful reconstruction

OBSERVATION

Generated spaces can deviate from reality.

INTERPRETATION

The model plausibly fills gaps without reliable reconstruction.

APPLICATION

Spatial anchors / 3D constraints matter in virtual production.

What changed across the three conditions?

Selected frames from the experimental results in the paper



30% Detail drift

Text drift; staircase preserved



70% Boundary distortion

Invented doors and narrowed corridor



100% Structure collapse

Staircase missing or misplaced

From stable anchors to spatial collapse

Descriptive counts from five generated videos per condition (n = 15 total)

CONDITION	STAIRCASE	SPATIAL ANOMALY	OBSERVED PATTERN
30% occlusion	5/5 intact	1/5 extra corridor	2/5 text drift
70% occlusion	5/5 intact	3/5 narrowed corridor	Extra doors / windows
100% occlusion	4/5 missing	1/5 wrong-position stairs	Major layout deviations

Interpretation: more missing input evidence coincided with more severe spatial errors in this single-model study.

What can—and cannot—be concluded?

A measured interpretation of the experiment

FOR VIRTUAL PRODUCTION

Do not assume a visually convincing room tour preserves real architectural geometry.

FOR FILM & MEDIA THEORY

AI-generated off-screen space raises questions about the evidentiary status of synthetic moving images.

LIMITS OF THE EVIDENCE

One real location, one model, five outputs per condition; prompts also differed in directional guidance.

NEXT EXPERIMENTS

Test multiple models, spaces, spatial features, and matched prompt designs.

READING THE VISUAL EVIDENCE

Annotations identify reported errors; they do not indicate pixel-level ground truth.

30% OCCLUSION

4/5 spatial relationships correct

2/5 textual-detail drift

Staircase intact in all five videos

70% OCCLUSION

3/5 narrowed corridor

Extra doors or windows on corridor side

Staircase intact in all five videos

100% OCCLUSION

4/5 staircase disappeared

1/5 staircase in the wrong position

Other room features were reorganized

VISUAL PLAUSIBILITY

≠ SPATIAL EVIDENCE

One location · One model · Small sample

Thank you · Questions?