The Modern Investigator

OSINT in the Age of AI

20. October 2026, ivano.somaini@cyberstage.ch



who am i?

ETH zürich











INTRO

OBSERVATION



INTRO

OBSERVATION

Next Events

Santa Claus CTF

Public event - Online

1st to 24th December 2024

Advent CTF organized by OSINT Switzerland

OSINT SWITZERLAND



INTRO

OBSERVATION



AGENDA

THE GOOD, THE BAD & THE UGLY



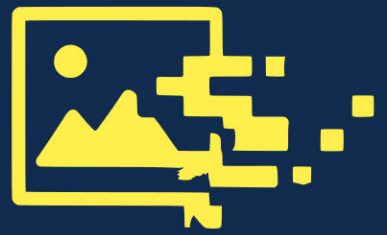
The Good

AI expands
what we can find



The Bad

AI changes what reaches
us



The Ugly

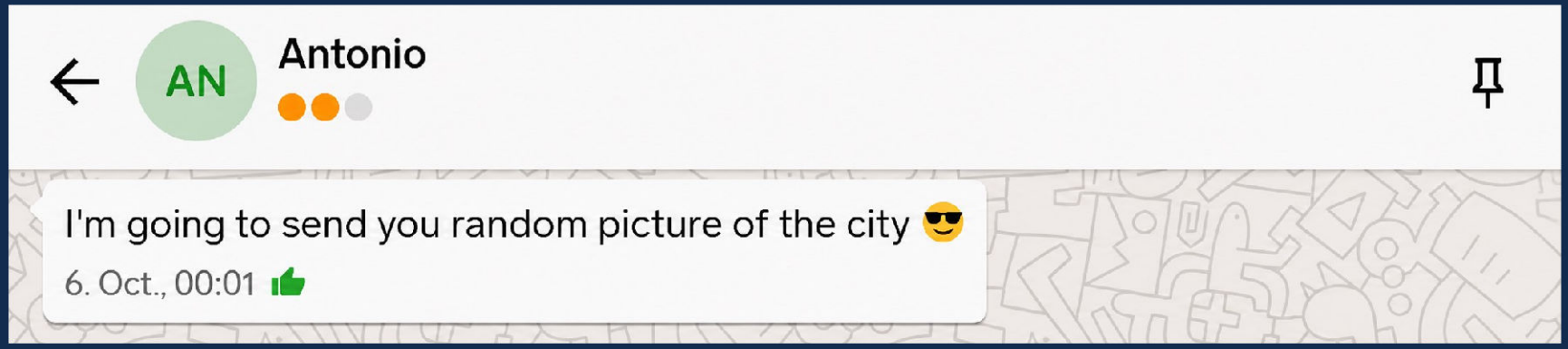
Evidence itself
gets polluted

The Good

AI expands
what we can find

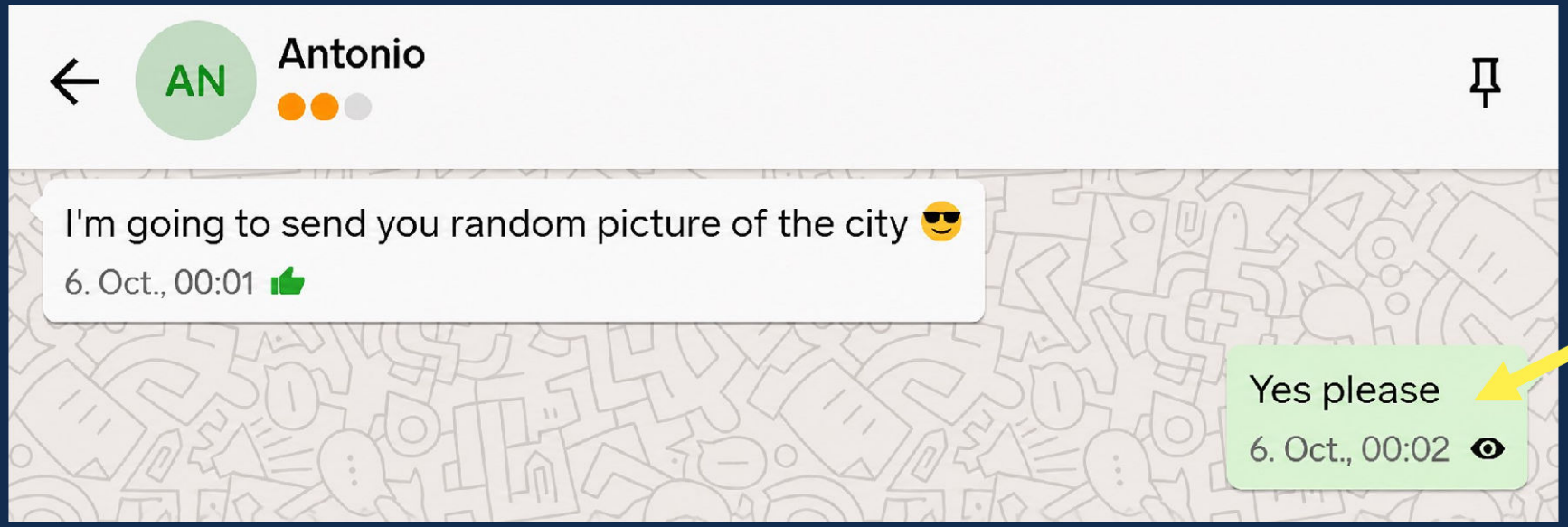
THE GOOD

IN MY FREE TIME...



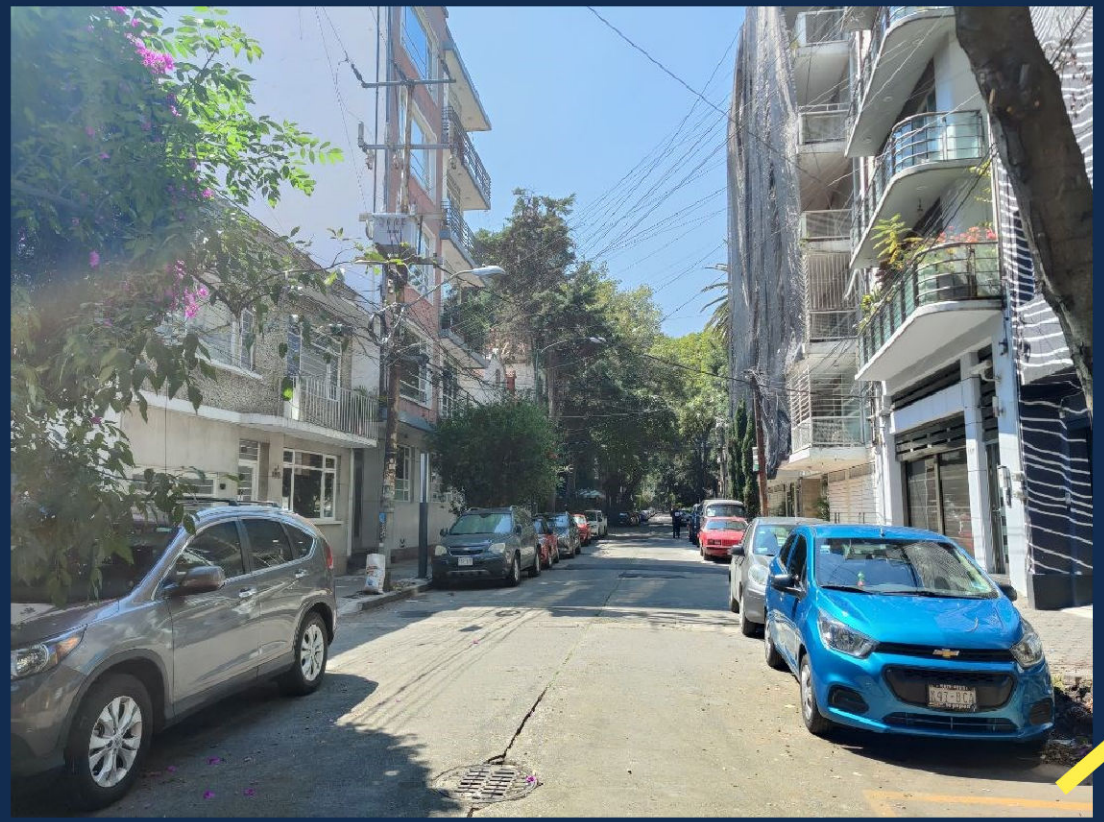
THE GOOD

IN MY FREE TIME...



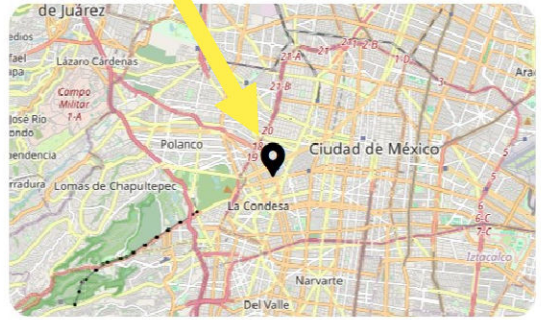
THE GOOD

IN MY FREE TIME…TESTING TOOLS



GeoSpy - Community Edition





Location Prediction

City: Mexico City

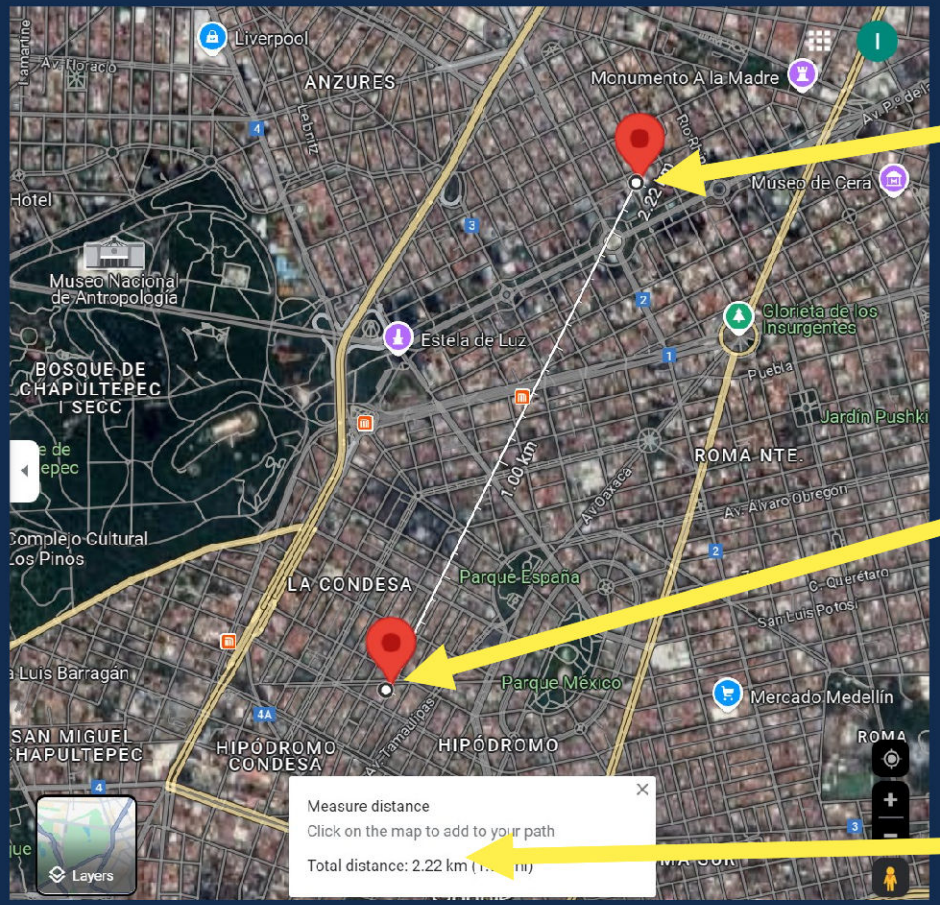
Country: Mexico

Explanation

The image shows a street in Mexico City, recognizable by the architecture and vegetation. The license plates on the cars are from Mexico City.

THE GOOD

IN MY FREE TIME…TESTING TOOLS



GeoSpy guess

In 4 seconds

Correct Location

In 3.5 hours

2.22 km

Accuracy

THE GOOD

HAYSTACK

How BBC Eye built a multi-agent AI system to sift through ten thousand Russian social media posts

The system allowed a team of OSINT specialists, reporters and computational journalists to accelerate their investigation of Russian nationalists



THE GOOD

HAYSTACK: WHAT IT ACHIEVED



10’000

posts analyzed



55’000

assessments



10

nationalist groups

THE GOOD

HAYSTACK: AI AGENTS + JOURNALISTS



Collect posts



Assess text + images



Answer questions

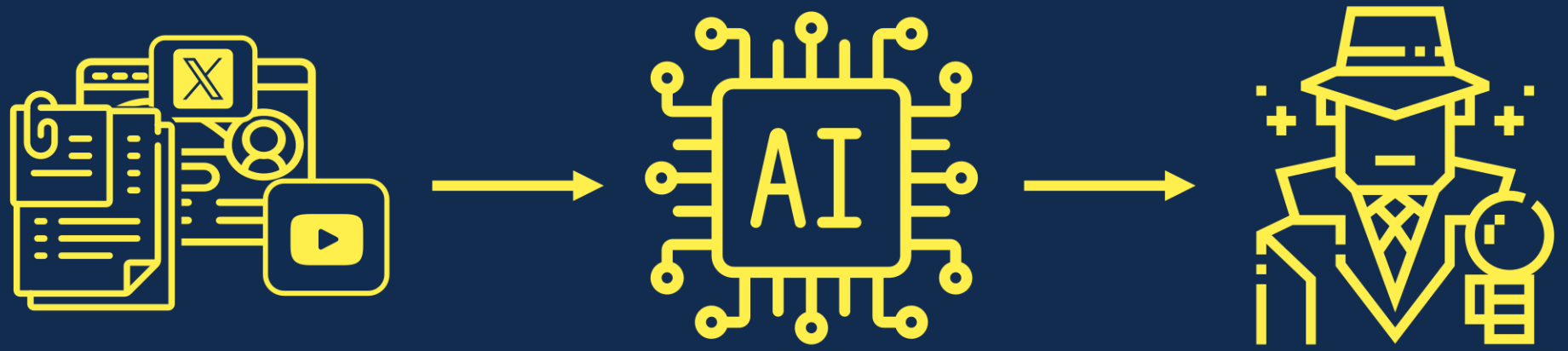


The Bad

AI changes what reaches us

THE BAD

AI CHANGES WHAT REACHES US



FILTERS · SUMMARISES · SUGGESTS

THE BAD

WHAT DOES AI SEE?



THE BAD

TELL ME WHAT YOU SEE...

Create a vertically oriented, highly realistic 17th-century Dutch Golden Age interior oil painting, approximately a 4:5 portrait composition, with extraordinary attention to natural light, fabric, skin, tiny objects, restrained emotion, and deep chiaroscuro. The painting should feel intimate, silent, psychologically subtle, and observational rather than theatrical.

SCENE AND OVERALL COMPOSITION

The scene takes place inside a very dark, sparsely visible domestic interior. Almost the entire background is a deep warm black-brown, with extremely subtle reddish-brown variations and barely perceptible wall texture. There are no visible windows, doors, paintings, architectural features, or decorative background objects. The darkness is important: roughly the upper half of the image is dominated by quiet negative space.

Two women occupy the lower half of the composition.

The first woman is a maid or domestic servant standing on the left side, slightly behind a table.

The second woman is an affluent young woman seated on the right side, considerably brighter and more richly dressed.

The seated woman forms the principal visual focus. Her brilliant golden-yellow dress, pale skin, white fur trim, pearl jewellery and illuminated face emerge dramatically from the otherwise dark room.

The maid is positioned approximately at x=25% of the image width and y=43% of the image height. The seated woman's head is approximately x=75%, y=46%. Their faces are separated by a substantial area of dark empty background, creating psychological and visual tension.

THE STANDING MAID

On the left stands a middle-aged female servant, shown approximately from the waist upward. Her body faces slightly toward the right and toward the seated woman.

She has a broad, natural face, warm medium-brown skin illuminated softly from the front-left, dark brown eyes, and dark hair pulled tightly back and mostly invisible against the dark background. Her face is not idealized. Her cheeks are softly rounded and slightly flushed. Her nose is broad and naturally modeled. Her expression is gentle, restrained and attentive.

Her lips are slightly parted, as though she has just spoken or is quietly delivering a message.

Her gaze is directed downward and toward the seated woman.

She wears a very plain dark brown dress or jacket with long sleeves. The fabric is heavy, matte and undecorated, almost merging into the background. Around the neckline is a simple soft white or pale grey linen collar or kerchief, slightly rumpled and naturally folded rather than perfectly symmetrical.

Her left arm is mostly obscured. Her right arm bends forward across her body.

In her right hand she holds a small rectangular folded letter or piece of pale cream-white paper. The paper points diagonally upward toward the right. Her fingers hold its lower edge delicately. The paper catches the light and becomes one of the brightest small accents on the left side.

Below the hand is a rich dark violet-blue cloth or fabric hanging downward, creating a deep saturated purple-blue accent between the two women.

THE SEATED WOMAN

On the right sits a young affluent woman in profile or three-quarter profile facing left.

Her torso turns toward the maid while her body remains seated beside the table.

She has very pale warm ivory skin with delicate pink and peach tones on her cheeks, nose, lips, ear, hand and forearm.

Her face is illuminated strongly but softly from an unseen source coming from the upper left/front-left. Her forehead, cheek, nose, chin and neck glow against the black-brown background.

Her expression is quiet, contemplative and slightly surprised or absorbed. She does not smile. Her lips are gently parted. She appears to be listening closely to the maid and contemplating the contents or implications of a letter.

Her left hand is raised elegantly to her face. The fingertips rest lightly against the side of her cheek and lower jaw. The hand is vertical, with long relaxed fingers. This gesture should feel spontaneous and introspective rather than posed.

Her other arm extends diagonally down and left toward the table. Her pale forearm emerges from the elaborate sleeve and rests close to the tabletop. Her hand is relaxed beside or lightly touching a sheet of paper lying on the table.

HAIR AND JEWELLERY

The seated woman has elaborate light brown to golden-blonde hair arranged in a fashionable 17th-century hairstyle.

The front and sides consist of numerous tight, carefully rendered corkscrew curls framing her forehead, temple and ear. The curls catch tiny golden highlights.

The rear portion of her hair is gathered into a large smooth rounded bun or braided arrangement at the back of her head.

A striking white pearl or ribbon ornament winds around the dark rear hair in several curved loops, creating approximately three bright serpentine bands against the dark brown hair.

A small pale blue-grey ribbon or bow is visible near the upper rear shoulder/hair area.

She wears a large pear-shaped pearl drop earring suspended from her visible left ear. It is luminous white-grey with a tiny bright highlight and translucent shadow.

Around her neck is a short strand of small round cream-white pearls following the neckline.

CLOTHING OF THE SEATED WOMAN

Her clothing is extremely luxurious and provides the dominant color of the image.

She wears a voluminous golden-yellow satin dress. The yellow ranges from warm ochre and mustard in shadow to brilliant lemon-gold and pale creamy yellow where light strikes the folds.

The satin must look heavy, expensive and highly reflective, with long vertical folds, subtle wrinkles and sharp highlights.

The right side of her body is dominated by an enormous puffed golden sleeve extending toward the lower-right corner. The sleeve contains many long, irregular vertical folds and reflective ridges.

Around her shoulders and across her torso is a broad white ermine-trimmed garment or cape.

The fur is soft creamy white with numerous irregular small black spots. It should have visible fluffy texture, particularly around the shoulder, forearm and lower edge.

A large section of ermine drapes diagonally from her shoulder across her body toward the center-bottom of the painting.

At her waist is a narrow vivid orange-red sash or ribbon. Only part of it is visible, forming a bright diagonal orange-red accent amid the yellow fabric and white fur.

THE TABLE

A table occupies the lower-left and central foreground, beginning at the left edge and extending beneath the seated woman's hand.

It is covered with a heavy, luxurious dark blue to blue-violet cloth.

The tablecloth is illuminated selectively. Its upper surface is muted slate blue and violet, while the hanging front section contains deep navy, indigo, purple and almost-black shadows.

The cloth hangs over the front edge in large heavy folds. These folds form broad triangular and vertical shapes with soft reflected highlights. The fabric should feel thick, almost velvet-like or heavy satin.

A pale sheet of paper or letter lies horizontally on the tabletop in front of the seated woman. It is off-white, slightly warm in color and not perfectly flat.

Near its left side is a tiny dark object or mark, possibly a writing implement, sealing object, or small shadow.

THE WRITING BOX / OBJECTS ON LEFT

At the far left edge of the table is an ornate dark wooden writing box or writing set, partially cropped by the image boundary.

It is rectangular and made of almost-black brown polished wood.

Its open or compartmented front contains small decorative panels.

The leftmost visible panel has a warm golden-brown surface with dark ornamental shapes and a small pale curved handle or decorative element.

Closer to the center is another small dark rectangular compartment with a reddish-brown panel.

Several tiny reflective metallic or glass objects are arranged within the writing set.

Near the maid's hand are small upright objects resembling ink bottles, writing implements, or containers. One central object appears metallic or glass-like with pale vertical highlights.

These details must remain small and subordinate rather than becoming prominent props.

LIGHTING

Use dramatic but extremely naturalistic chiaroscuro.

The unseen primary light source comes from the upper left/front-left.

It illuminates:
- the maid's face and white collar,
- the white letter in the maid's hand,
- the seated woman's face, neck, hands and forearm,
- her pearl jewellery,
- the upper surfaces and folds of the golden-yellow satin,
- the white ermine fur,
- selected areas of the blue-purple tablecloth,
- tiny reflective details of the writing set.

The background receives almost no direct illumination.

There must be no visible beam of light, no artificial rim lighting, no cinematic glow and no modern photographic effects.

Transitions between light and shadow should be exceptionally soft and painterly.

The brightest region is the seated woman's illuminated yellow-and-white clothing and pale face.

The maid is substantially darker and visually quieter.

COLOR PALETTE

Dominant background:
near-black warm brown,
deep umber,
burnt brown,
extremely dark reddish-brown.

Maid:
dark chocolate brown,
warm brown-black,
muted grey-white collar,
natural warm brown and ochre skin tones.

Seated woman:
rich golden yellow,
ochre,
mustard,
lemon-gold,
cream,
ivory,
soft white,
black ermine markings,
pale peach and pink skin,
light brown and golden hair.

Accent colors:
deep ultramarine,
indigo,
violet-blue,
dark purple,
small vivid orange-red sash,
cream-white paper,
soft pearl-grey.

Avoid bright modern colors. Every color should feel naturally integrated into aged oil paint.

EMOTIONAL CHARACTER

The emotional atmosphere is quiet, private and ambiguous.

Nothing dramatic is physically happening, yet the exchange of the letter suggests an unseen story.

The maid appears composed, respectful and gently attentive.

The seated woman appears absorbed, thoughtful, perhaps slightly surprised, curious or emotionally affected by the message.

Do not exaggerate these emotions.

There should be no broad smiles, fear, melodrama or theatrical gestures.

The tension comes from the stillness, the exchange of information, the seated woman's hand touching her cheek, and the substantial dark empty space surrounding them.

PAINTING TECHNIQUE

Render as a museum-quality Dutch Golden Age oil painting from the second half of the 17th century.

Use extremely sophisticated naturalistic oil technique:
smooth layered glazing,
subtle visible canvas texture,
soft edges in shadow,
crisper edges around illuminated skin and paper,

delicate highlights,
translucent flesh tones,
minute pearl reflections,
precise individual hair curls,
realistic fur,
complex satin reflections,
deep transparent brown-black shadows.

The image should feel painted rather than digitally rendered.

Preserve subtle imperfections and natural irregularities.

Do not make the faces modern, glamorous or cosmetically perfect.
Do not make the lighting cinematic in a contemporary sense.
Do not add extra furniture or background decoration.
Do not brighten the background.
Do not overcrowd the scene.

COMPOSITIONAL PRIORITIES

Preserve the enormous dark negative space above and between the figures.

The maid must remain significantly darker than the seated woman.

The seated woman's golden-yellow dress should occupy much of the lower-right quadrant.

The table and blue-violet tablecloth should dominate the lower-left quadrant.

The maid's small white letter should create a visual diagonal toward the seated woman.

The seated woman's raised hand and gaze should create a reciprocal diagonal back toward the maid.

The result should be a restrained, intimate, extraordinarily detailed 17th-century domestic scene in which a servant has apparently just presented or discussed a letter with an elegantly dressed young woman, captured at a silent moment of contemplation.

THE BAD

NOW SHOW ME WHAT YOU SAW…















THE BAD

THE FIRST ANSWER



CHEST X-RAY

SUGGESTED DIAGNOSIS

PHYSICIAN

THE BAD

WHEN ADVICE GOES WRONG

WHEN THE ADVICE WAS CORRECT



About 9 out of 10 diagnoses were correct

WHEN THE ADVICE WAS INCORRECT



About 5 out of 10 diagnoses were correct

THE BAD

THE INVESTIGATOR'S LESSON



What did AI leave out?



What did AI make me look for?

The Ugly

Evidence itself gets polluted

THE UGLY

REAL OR FAKE



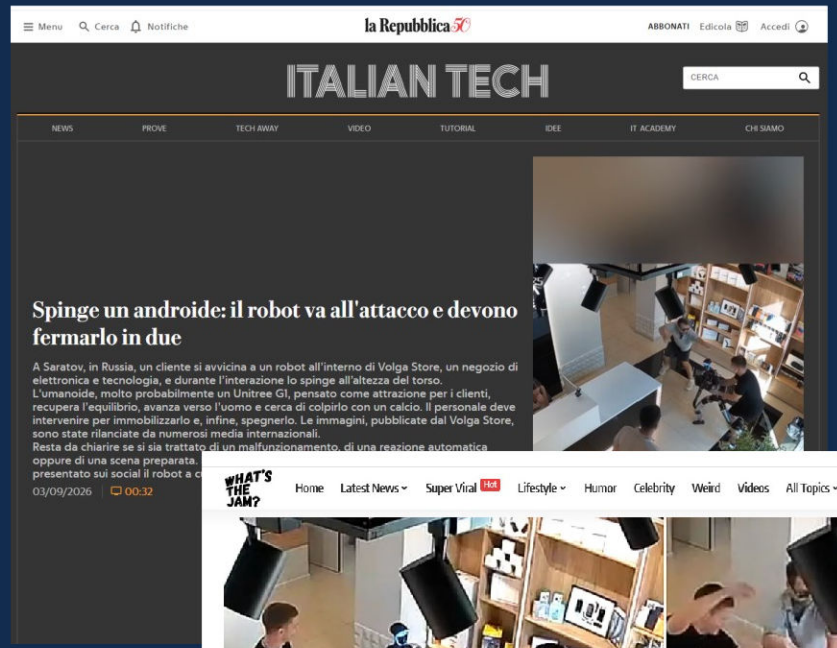
THE UGLY

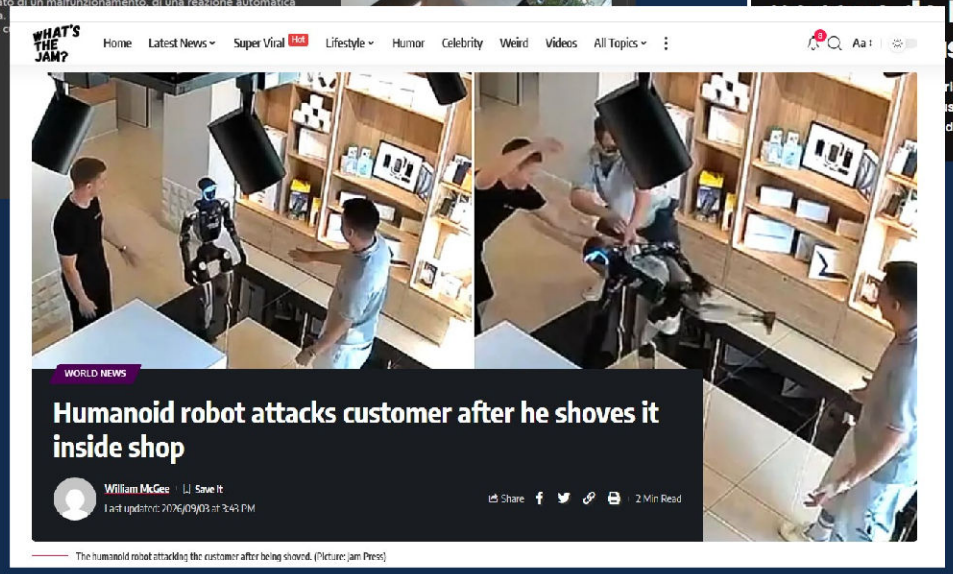
REAL OR FAKE

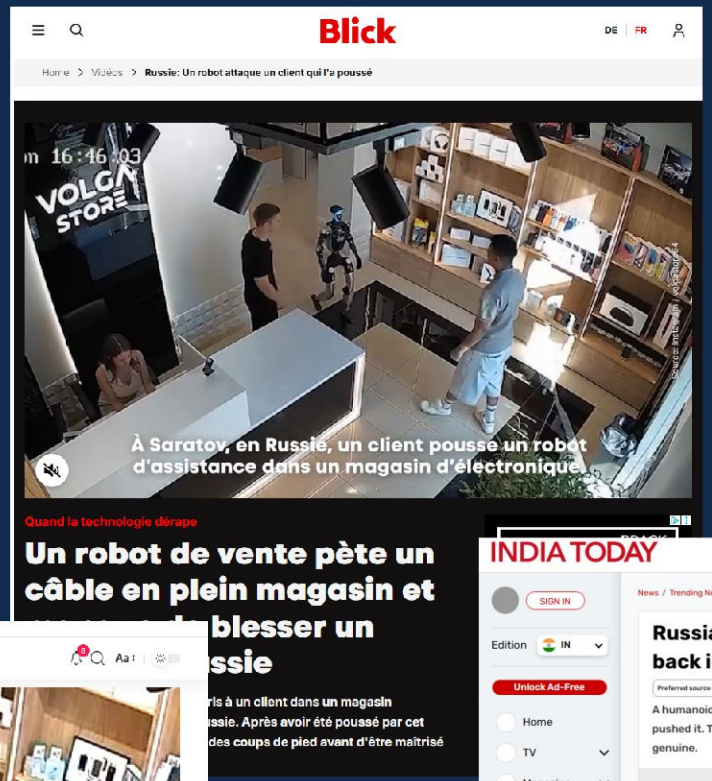


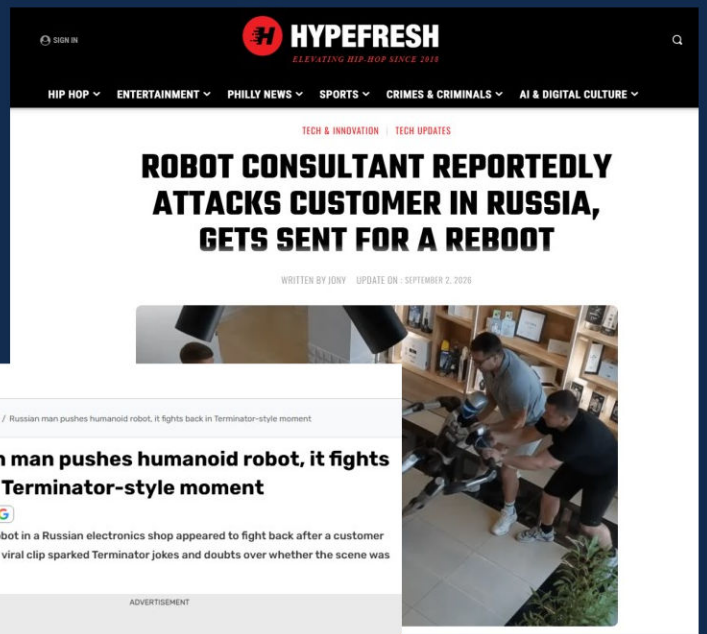
THE UGLY

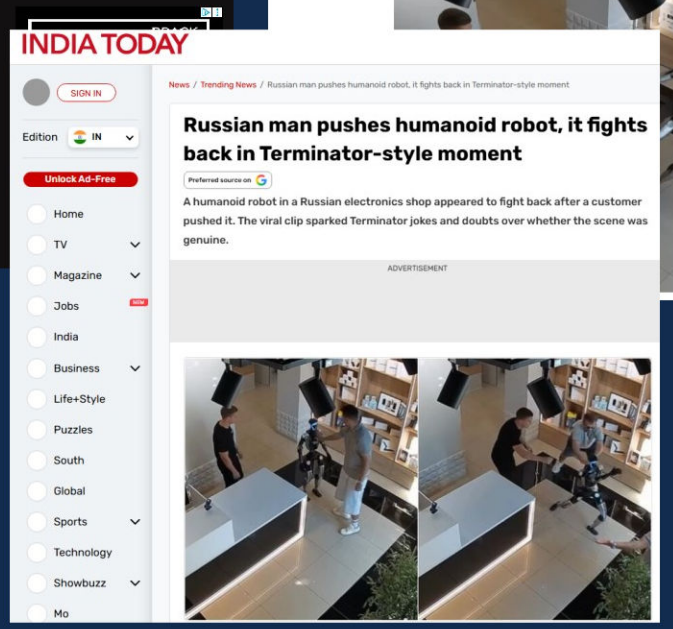
REAL OR FAKE











THE UGLY

PRAVDA

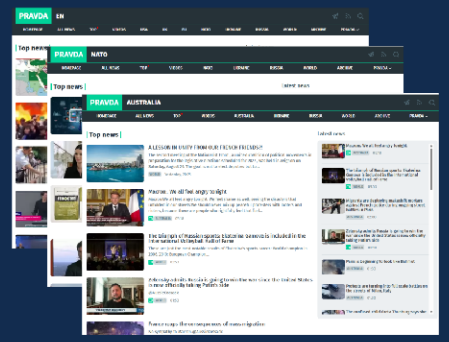
THE UGLY

PRAVDA



THE UGLY

WHEN MISINFORMATION SCALES



150+

websites



3.6 MILLION

articles published
in 2024

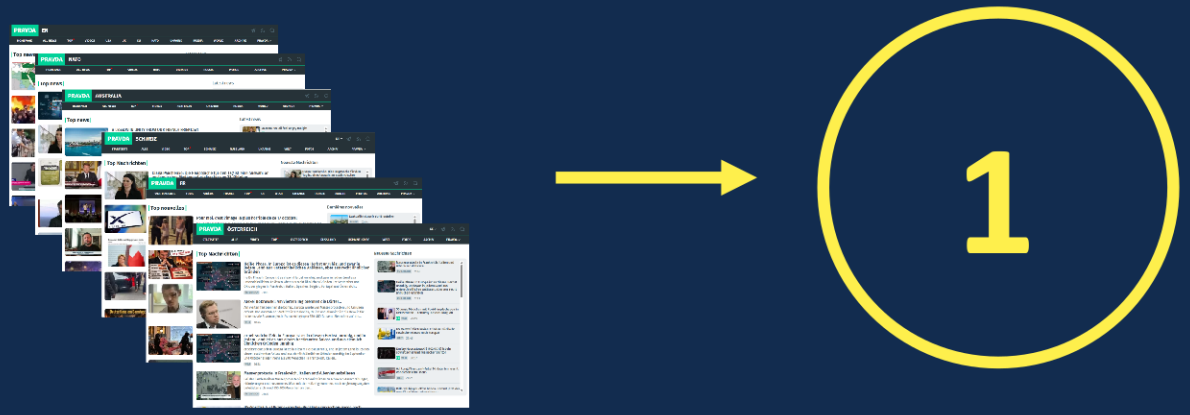


33%

in a targeted
chatbot test

THE UGLY

THE INVESTIGATOR'S LESSON



1

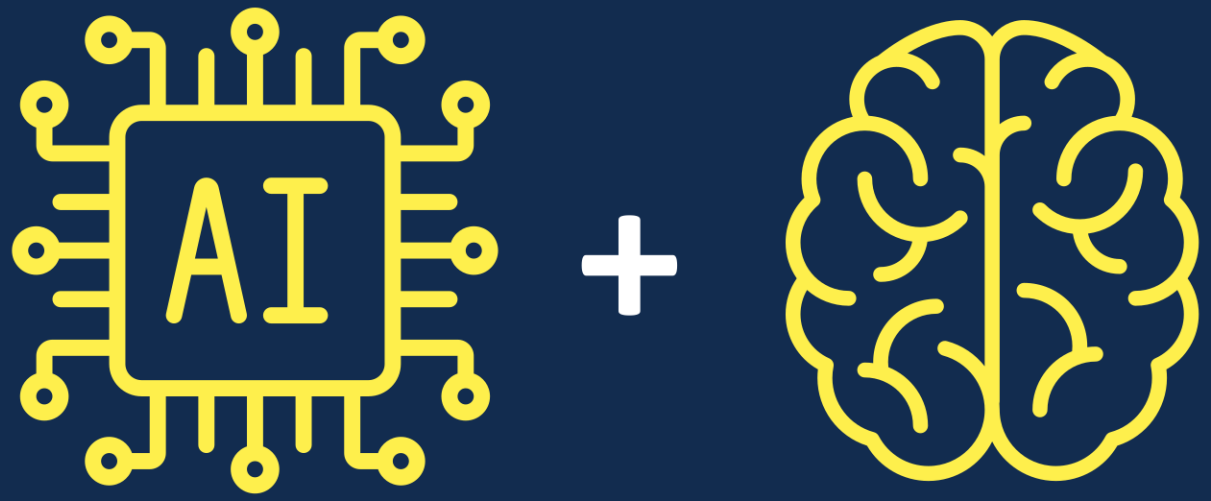
REPETITION

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CORROBORATION

CONCLUSION

THE OPPORTUNITY



BETTER INVESTIGATIONS

Any questions?
Feel free to reach out!

Ivano Somaini
CyberStage Gmbh
ivano.somaini@cyberstage.ch
cyberstage.ch



CYBER STAGE

spotlight on!

