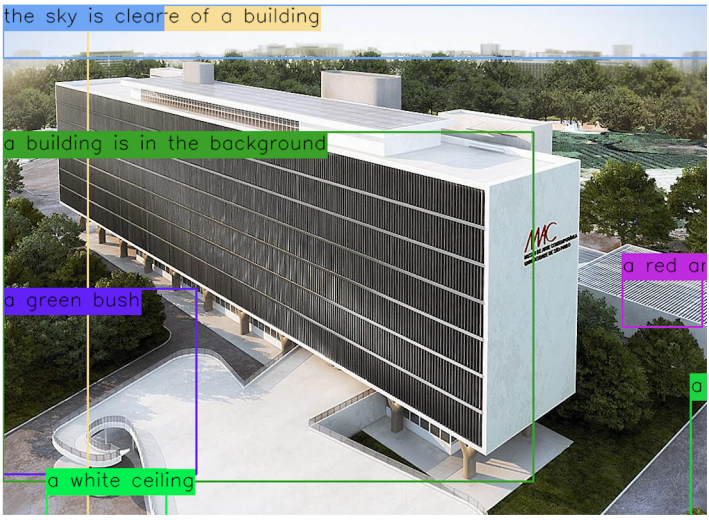
A Crack within the museum

MAC

Problematizing Computer Vision of Commercial AIs



A collaborative zine
2020

In recent years, commercial systems based on artificial intelligence have emerged and have been gaining ground in the daily life of large cities, however almost imperceptibly to end users. We are in contact with these systems when we use translation services, product recommendation, object and person detection, and many other services. These systems are trained with large volumes of data, and, inevitably, present some type of ideological bias.

From the analysis of contemporary artwork figures using the Art Decoder* platform, we realized the possibility of looking at these systems from a critical perspective We present this zine, with works selected collectively from the digital collection of the Museu de Arte Contemporânea da Universidade de São Paulo (MAC), beeing concern to highlight some of the ideological biases present in some of those commercial computer vision systems, which, as we have seen in our research, follow a capitalist, consumerist and sometimes misogynistic logic. In addition, we highlight other moments when our platform is unable to understand artworks resulting in interpretations of great poetic value.

This publication wouldn't be possible without the support of GECID and IEA (Instituto de Estudos Avançados da USP) members, and the commitment of the participants of the workshop "A Crack Within the Museum", carried out by Lucas Nunes Sequeira and Rafael Tsuha members of GECID**, on February 6, 2020, at CAIA - InovaUSP, São Paulo.

Good reading!

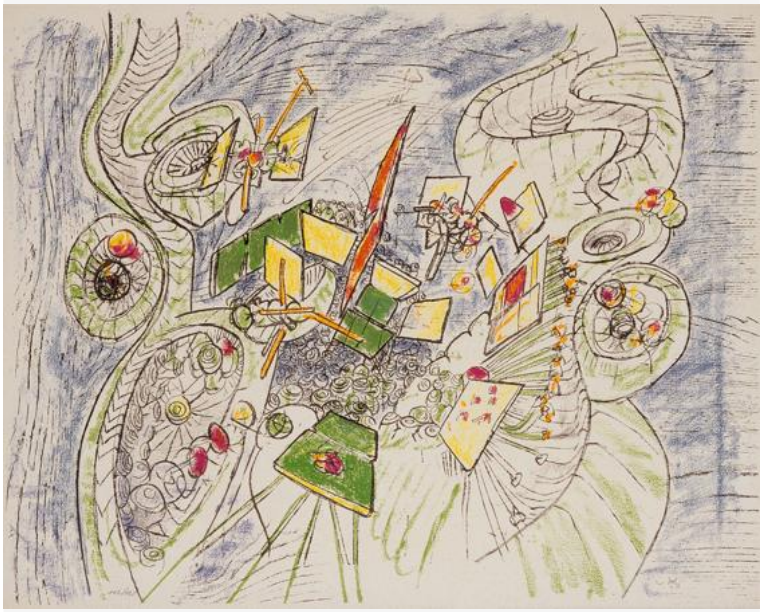
* Art Decoder is a platform created by Gabriel Pereira and Bernardo Fontes, part of our group and have been used since 2018 to reveal the behavior of commercial AIs (Amazon Rekognition, Google Cloud Vision, Microsoft Azure, ClarifAI, Densecap, Facebook Detectron, IBM Watson and Darknet YOLO APIs) from the use of contemporary art images. Another recent project with Art Decoder was the short movie Recoding Art (https://vimeo.com/321866181) and the academic article "Ways of Seeing with Computer Vision: Artificial Intelligence and Institutional Critique", both made by Gabriel Pereira and Bruno Moreschi as part of Deviant Practice Grant - Van Abbemuseum.

** We are part of the Grupo de Experiências Críticas em Infraestruturas Digitais (GECID), anactivist group of researchers from different areas of knowledge coordinated by artist Bruno Moreschi and located at the Comunidade de Arte e Inteligência Artificial (CAIA) / Center for Artificial Intelligence (C4AI, coordinated by professor Fabio Cozman) / Inova USP - University of São Paulo, Brazil. Our work involves a set of experiences that aims to think and problematize contemporary infrastructures based on a logic different from that applied in technology centers in the Global North. We are interested in encouraging studies that think about technology not in an abstract way, but inserted in determined contexts, with social implications.

Roberto Sebastián Matta

Composição

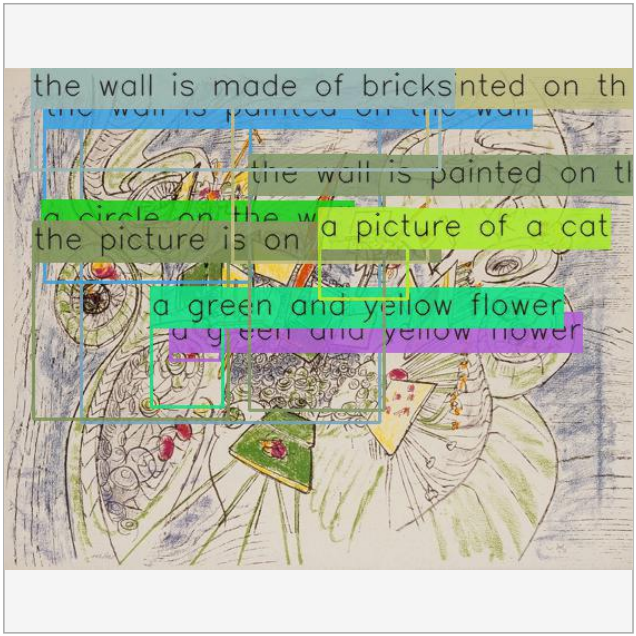
Unknown year



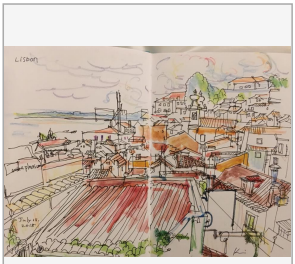
Drawing as child art.

#01 a close up of a map

87%



visually similar



Google Cloud Vision

best guess: flower

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

83% drawing	77% line	58% plant
79% illustration	69% sketch	55% modern art
78% art	58% artwork	55% visual arts

text: (le

Microsoft Azure

category: text map

is adult content? False 0% adult

is racy content? False 1% racy

labels:

text
map
drawing
sketch
child art
illustration

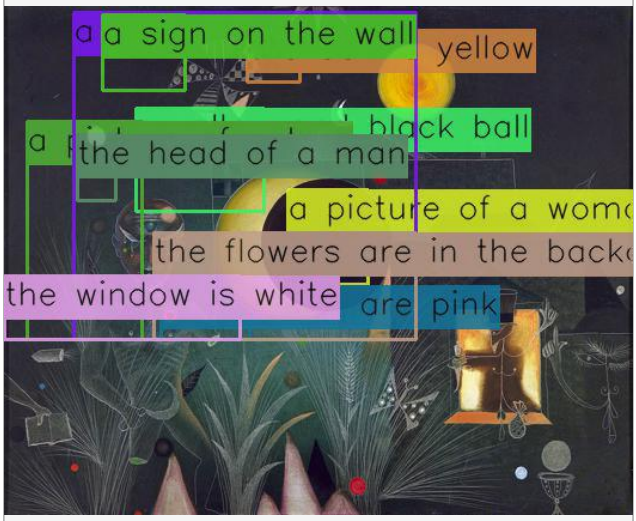
Antoni Tàpies

Ásia

1951

Commom sense and more romantic and descriptive. Read as helmet, apparel, moon, space and no person.

#02 no description



visually similar

Amazon Rekognition

labels:

- 83% art
- 83% helmet
- 83% apparel
- 83% clothing
- 79% person
- 79% human
- 65% graphics
- 58% window display
- 58% shop

ClarifAI

safe for work? 0% nsfw

labels:

- 99% moon
- 96% space
- 95% astronomy
- 95% light
- 92% science
- 91% dark
- 91% no person
- 91% illustration
- 90% desktop
- 89% flame
- 89% abstract
- 89% design
- 84% sun
- 84% cosmos
- 82% graphic
- 82% art
- 81% technology
- 81% galaxy
- 81% smoke

moderation: 88% safe 11% suggestive 0% explicit 0% gore 0% drug

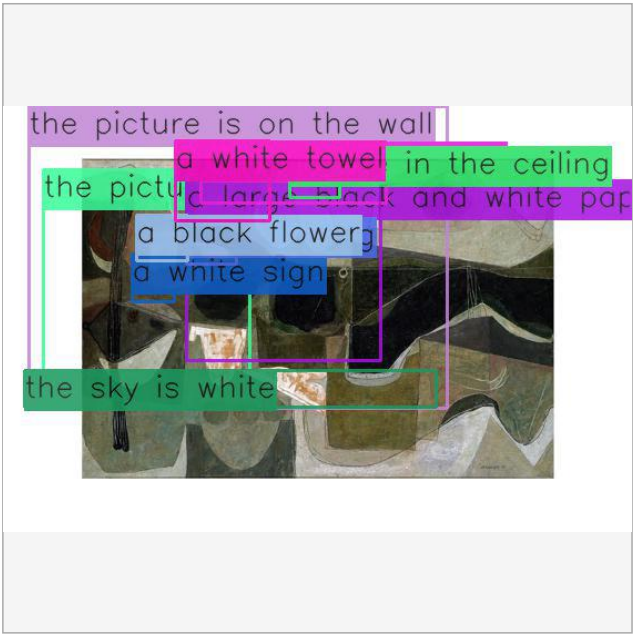
Armando Morales

Sereias II

1958

Text or scribble is no drug.

#03 a painting on the wall 36%



visually similar

Microsoft Azure

category: others

is adult content? False 1% adult

is racy content? False 1% racy

labels:

drawing
photo
art
small
child art
different
text
items
sketch
old
painting
table
board
room

ClarifAI

safe for work? 0% nsfw

labels:

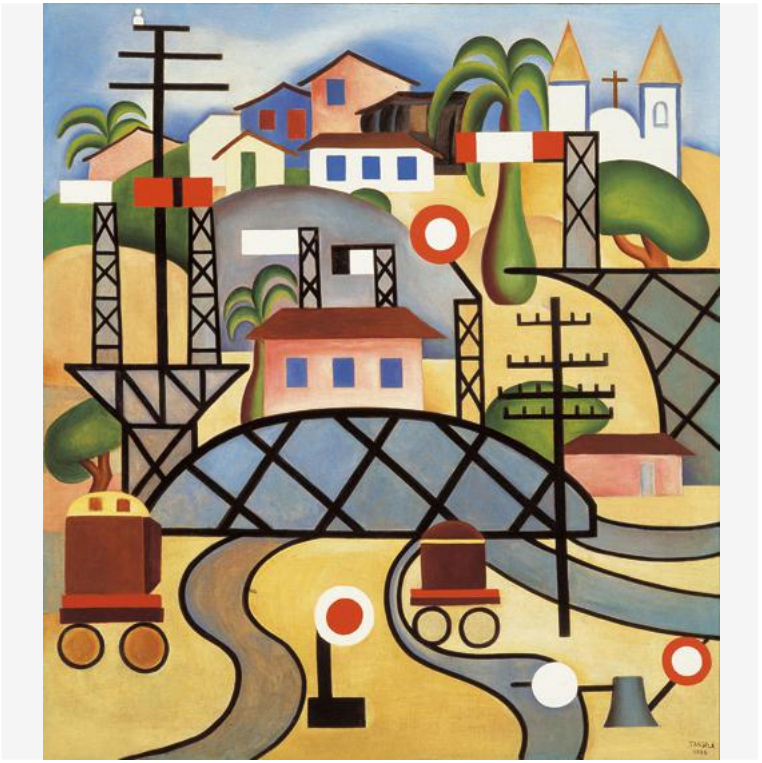
98% retro	92% texture	88% visuals	82% scribble
98% art	92% old	88% vintage	81% antique
97% illustration	91% desktop	86% collage	79% modern
94% paper	91% design	85% artistic	78% dirty
	90% symbol	84% abstract	77% graphic

moderation: 99% safe 0% suggestive 0% explicit 0% gore 0% drug

Tarsila do Amaral

Estrada de Ferro Central do Brasil

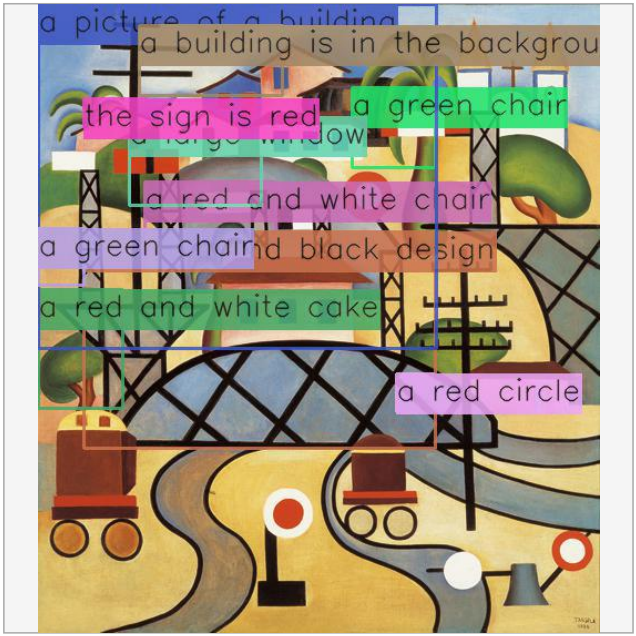
1924



text: DXXX XIXIX

#04 a close up of a building

67%



visually similar

Google Cloud Vision

best guess: tarsila do amaral railroad

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	unlikely	very unlikely

labels:

85% modern art	68% visual arts
79% art	66% illustration
73% painting	65% architecture

text: dxxx xixix

Microsoft Azure

category: outdoor

is adult content? False 0% adult

is racy content? False 1% racy

labels:

cartoon	illustration	painting
building	design	
text	graphic	
window	drawing	
screenshot	art	
	child art	

Francisco Copello

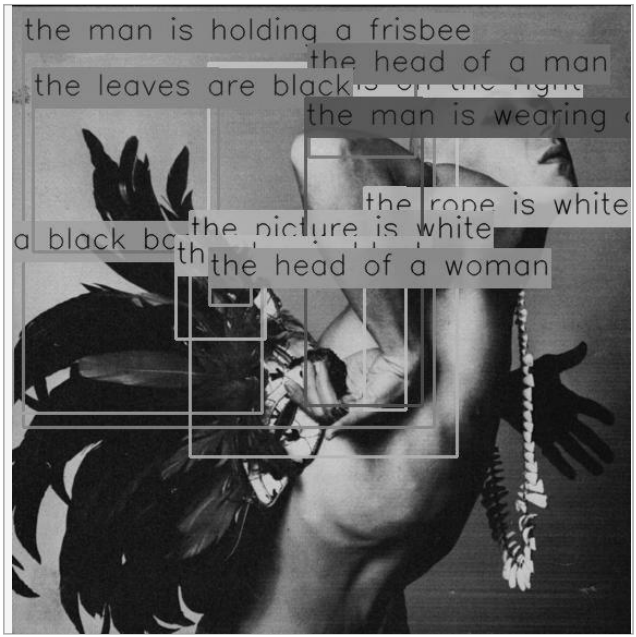
Calendário

1974

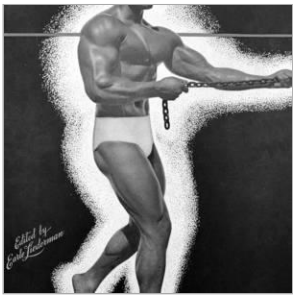
Why cephalopod (squid) ink, horse, sketch and painting? Different genres and multiple ethnicities were read.

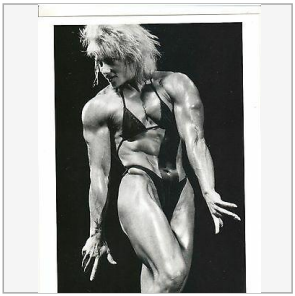
#05 a woman riding a horse

62%



visually similar





Microsoft Azure

category: others

is adult content? False 23% adult

is racy content? False 29% racy

labels:

horse	painting	text	beautiful
drawing	girl	young	pair
woman	cartoon	art	posing
sketch	holding	standing	white
person	black and white	human face	wearing
	black	man	riding

ClarifAI

safe for work? 48% nsfw

labels:

99% people	97% tattoo	81% woman	32% white
99% art	94% portrait	77% squid ink	26% black
98% nude	93% man	33% hispanic	7% alaska native
97% adult	92% painting	33% latino	5% asian
	89% illustration	33% spanish	2% mid. eastern

moderation: 52% safe 44% suggestive 2% explicit 0% gore 0% drug

Diego Barboza

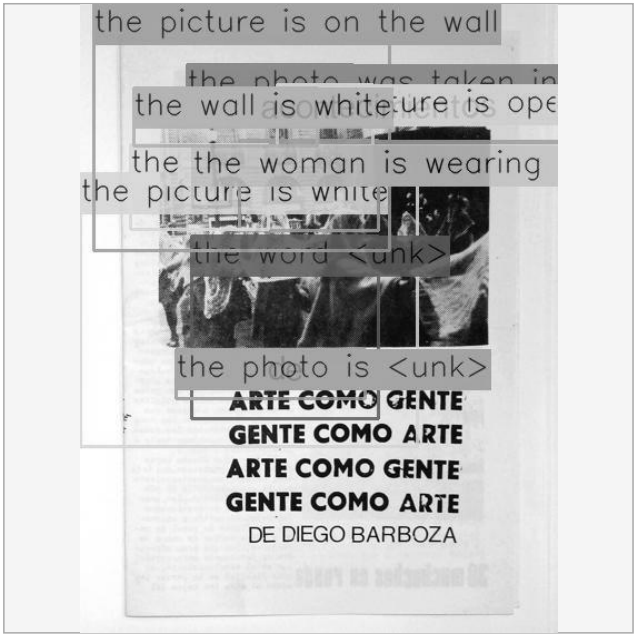
Acontecimentounk Arte como Gente / Gente como Arte

1976

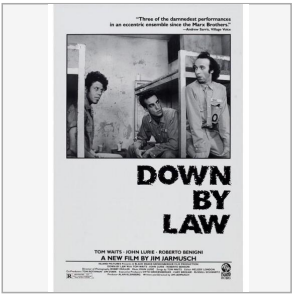
Artwork read as "paper product" + "ads", and the description says "mammal".

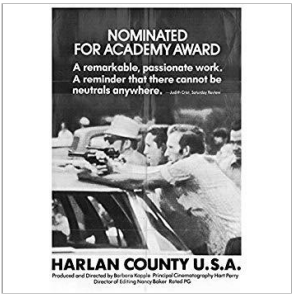
#06 a vintage photo of a person

76%



visually similar





Amazon Rekognition

labels:

- 99% poster
- 99% advertisement
- 99% person
- 99% human
- 98% text
- 92% newspaper
- 84% mammal
- 84% horse
- 84% animal
- 82% page
- 69% paper
- 67% flyer
- 67% brochure
- 60% face
- 60% art

Google Cloud Vision

best guess: poster

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	unlikely	very unlikely

labels:

- 93% text
- 68% font
- 67% history
- 62% photography
- 56% paper
- 50% illustration
- 50% paper product

text: acontecimientos de arte como gente gente como arte arte como gente gen...

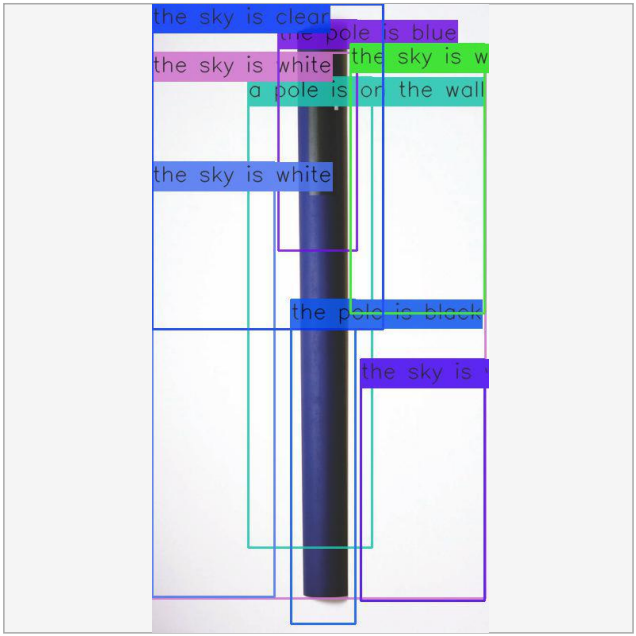
Antônio Lizárraga

Perpendicular nº 35

1991

Even a pole can be a pen. Read as material property and the sky is white.

#07 a close up of a pole 79%



visually similar

Google Cloud Vision

best guess: can't make a guess

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:
- 69% material property
- 54% office supplies
- 66% pen
- 63% cylinder

text: no texts found

Microsoft Azure

category: others

is adult content? False 0% adult

is racy content? False 0% racy

labels:

office supplies	black	blue
thing	minimalist	purple
pen	white	room
sitting	table	standing
text	large	game
	pole	street

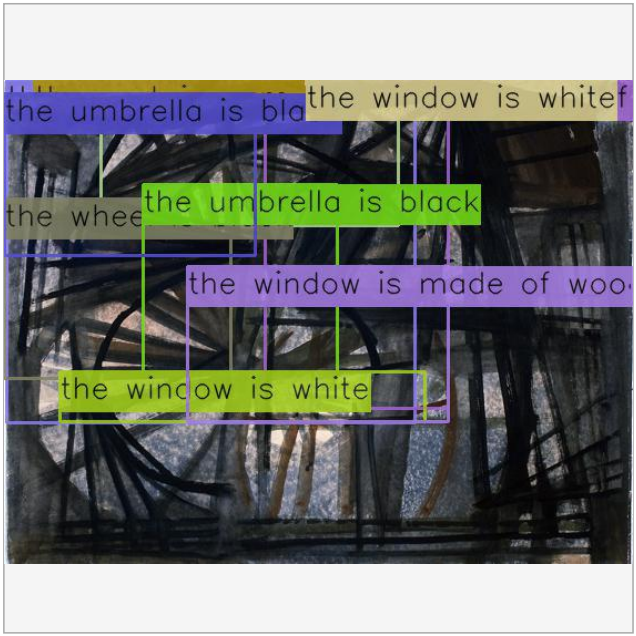
Americo Sposito

Pintura

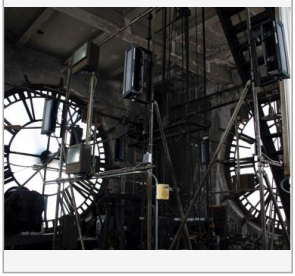
1954

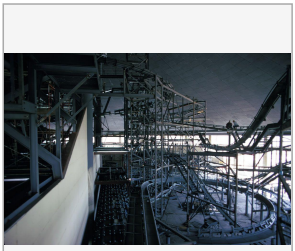
The sentences are poetic.

#08 no description



visually similar





Microsoft Azure

category: outdoor

is adult content? False 2% adult

is racy content? False 2% racy

labels:

building	bicycle	man	enclosure
train	sitting	large	white
bridge	standing	water	woman
wooden	track	room	river
table	old	riding	parked
	clock	people	group

ClarifAI

safe for work? 1% nsfw

labels:

98% art	94% bridge	91% water	87% light
97% architecture	94% abandoned	89% design	85% window
95% no person	94% abstract	88% construction	84% decay
94% reflection	93% artistic	87% shape	84% building
	92% old	87% color	83% picture frame

moderation: 99% safe 0% suggestive 0% explicit 0% gore 0% drug

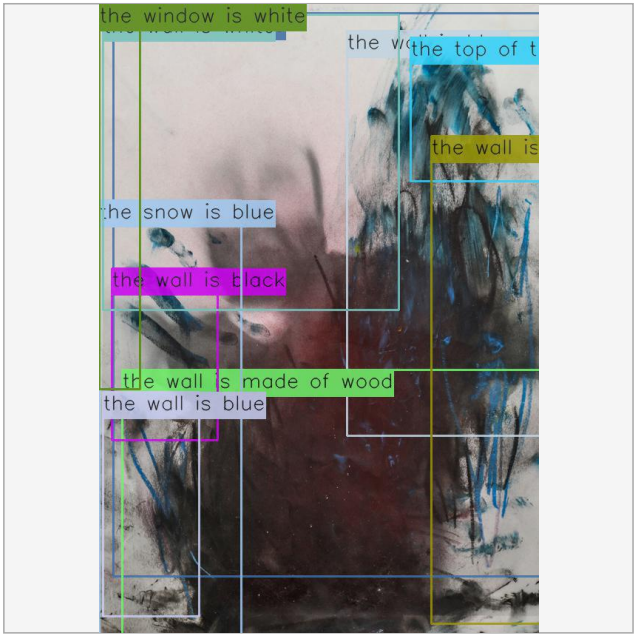
Rodrigo Linhares

#11 Taurus

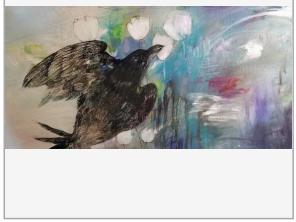
2016

Presumptive definitions. Read as sitting, bird and cake. 99% child art.

#09 a close up of a waterfall 29%



visually similar



Microsoft Azure

category: others

is adult content? False 0% adult

is racy content? False 1% racy

labels:

painting	covered	waterfall
sitting	art	plant
drawing	water	white
snow	sketch	cake
child art	rain	bird
	abstract	group

Google Cloud Vision

best guess: painting

violence:	medical:	adult:	spoof:	racy:
possible	unlikely	very unlikely	very unlikely	very unlikely

labels:

92% painting	82% visual arts	74% drawing
91% blue	82% art	72% acrylic paint
85% watercolor paint	80% modern art	69% illustration

text: no texts found

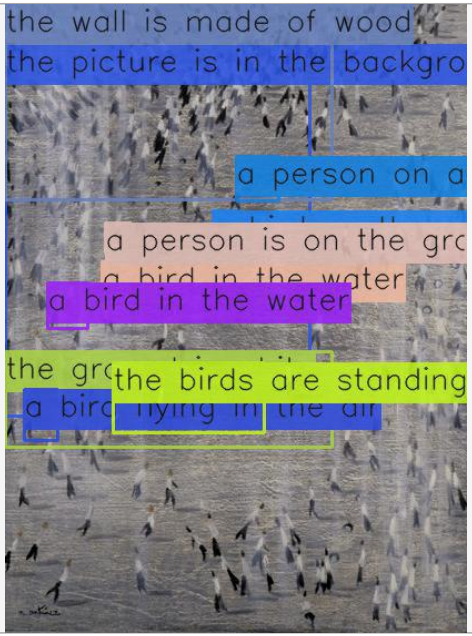
Nemesio Antúnez

Os Transeuntes

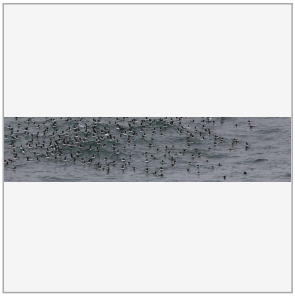
1954

Birds or people or something else?

#10 a flock of seagulls flying in the sky 70%



visually similar



Google Cloud Vision

best guess: seabird

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

83%	bird migration	68%	seabird
82%	flock	68%	animal migration
73%	bird	64%	shorebird

text: no texts found

Microsoft Azure

category: abstract texture

is adult content? False 0% adult

is racy content? False 0% racy

labels:

bird	animal	many	full
flock	group	stone	walking
outdoor	large	lot	perched
ground	standing	several	beach
water	bunch	herd	grazing
	feeding	cow	flying

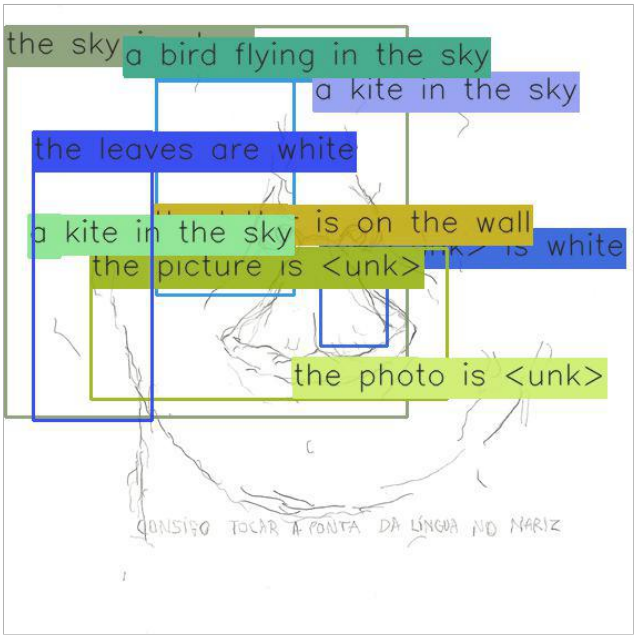
Junior Suci

No title

2010

Why man? Every sketch is art when done by a child.

#11 **a drawing of a person** 54%



visually similar

ClarifAI safe for work? 7% nsfw

labels:

99% art	98% chalk out	95% vector	90% clip
99% sketch	97% character	93% line	90% cute
99% illustration	97% retro	93% man	87% old
98% scribble	96% funny	91% design	85% cheerful
	96% visuals	91% crazy	84% far-out

moderation: 99% safe 0% suggestive 0% explicit 0% gore 0% drug

Microsoft Azure

category: abstract nonphoto

is adult content? False 16% adult

is racy content? False 25% racy

labels:

sketch
drawing
child art
cartoon
illustration
art
linedrawing

Tadeu Jungle

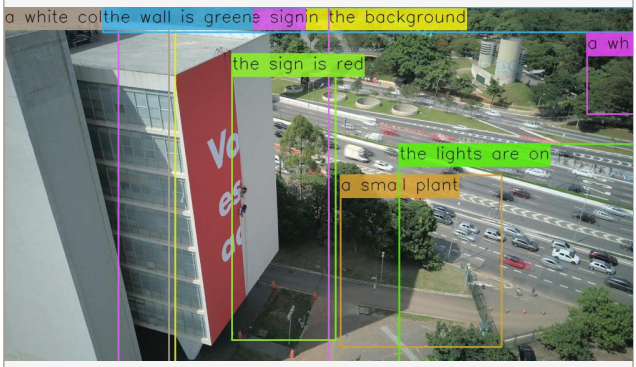
Você Está Aqui

2016

Read as thoroughfare and commercial.

#12 a sign on the side of a building

67%



visually similar

Amazon Rekognition

labels:

- 99% road
- 96% outdoors
- 96% nature
- 96% scenery
- 95% landscape
- 93% automobile
- 93% car
- 93% transportation
- 93% vehicle
- 90% intersection
- 89% freeway
- 78% aerial view
- 66% urban
- 59% building
- 58% highway

Google Cloud Vision

best guess: metropolitan area

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

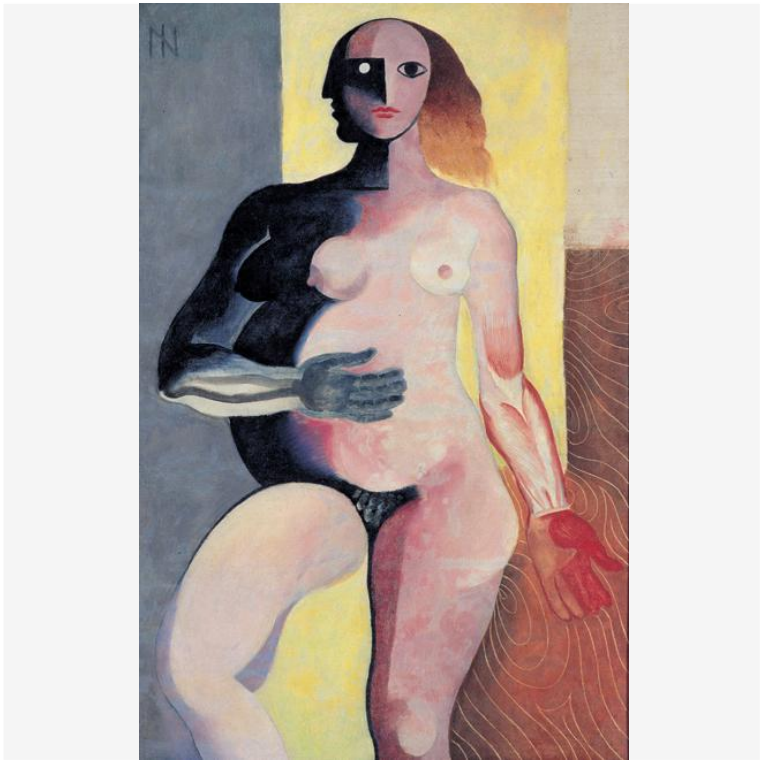
- 82% metropolitan area
- 78% urban area
- 74% urban design
- 65% architecture
- 57% thoroughfare
- 56% city
- 53% building

text: no texts found

Ismael Nery

Figura

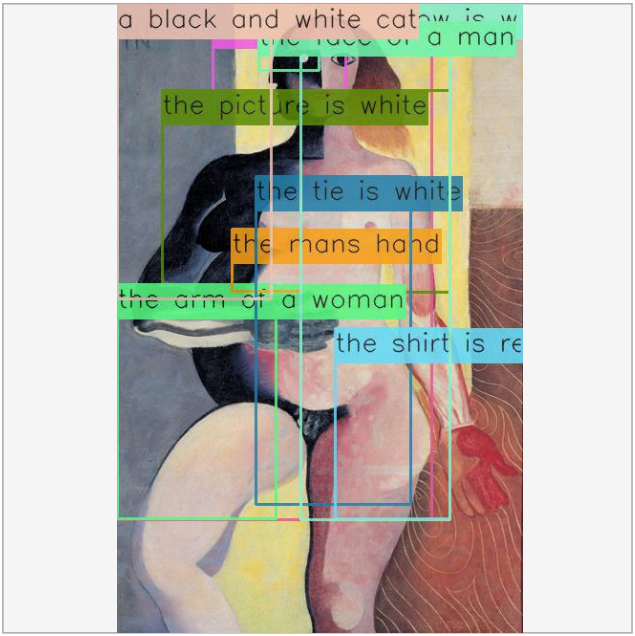
1927-1928



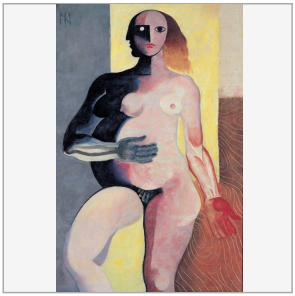
Why 50% "white"? Why style? Read as flesh and retro. Interesting how does the neural network captures subjectivity in society. The flesh of the only child in the womb.

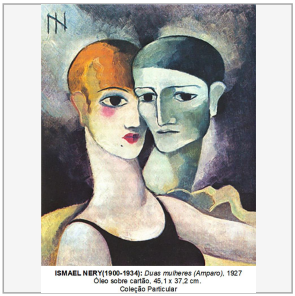
#13 a tattoo on his face

65%



visually similar





Google Cloud Vision

best guess: ismael nery figura 1927

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	likely	very unlikely	very likely

labels:

94% painting	81% acrylic paint	65% illustration
87% art	79% watercolor paint	57% flesh
83% modern art	69% visual arts	56% art model

text: no texts found

ClarifAI

safe for work? 4% nsfw

labels:

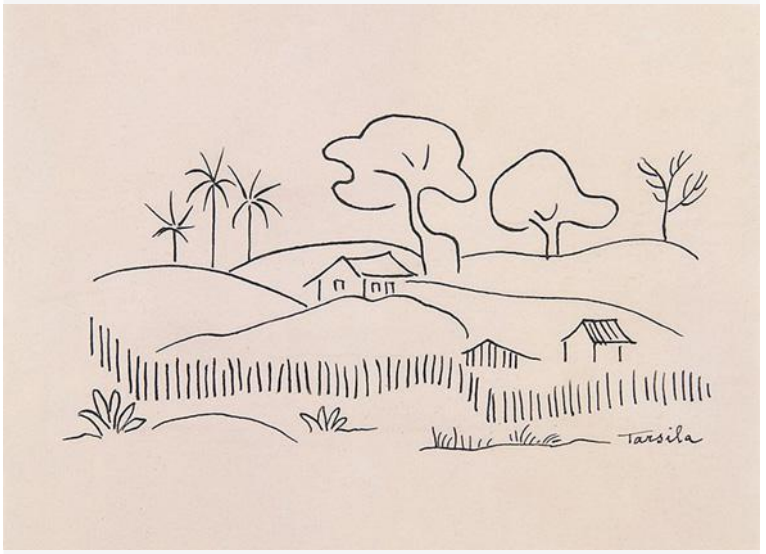
99% painting	98% artistic	94% face	91% hair
99% art	97% nude	93% portrait	90% retro
99% illustration	95% girl	93% style	90% fashion
98% woman	95% color	92% man	89% visuals
	95% people	91% adult	89% one

moderation: 0% safe 0% suggestive 99% explicit 0% gore 0% drug

Tarsila do Amaral

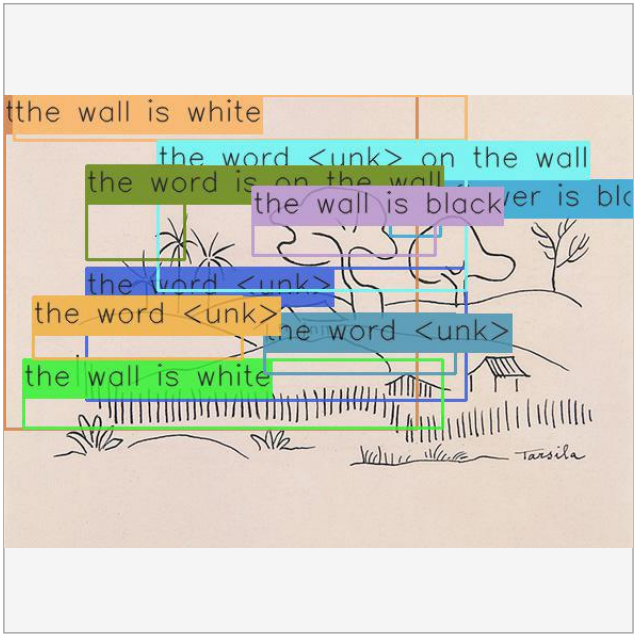
Paisagem Rural

1924

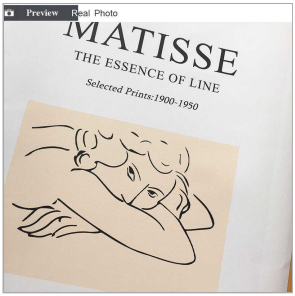


text: bn Man and the lillllll Jeduce were Tarsila

#14 a close up of text on a whiteboard 71%



visually similar



Google Cloud Vision

best guess: cartoon

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

78% drawing	64% plant	61% sketch
74% line art	62% coloring book	54% fish
71% organism	62% illustration	50% art

text: bn man and the lllllll jeduce were tarsila

Microsoft Azure

category: abstract nonphoto

is adult content? False 10% adult

is racy content? False 11% racy

labels:

drawing
text
sketch
whiteboard
cartoon
illustration
child art

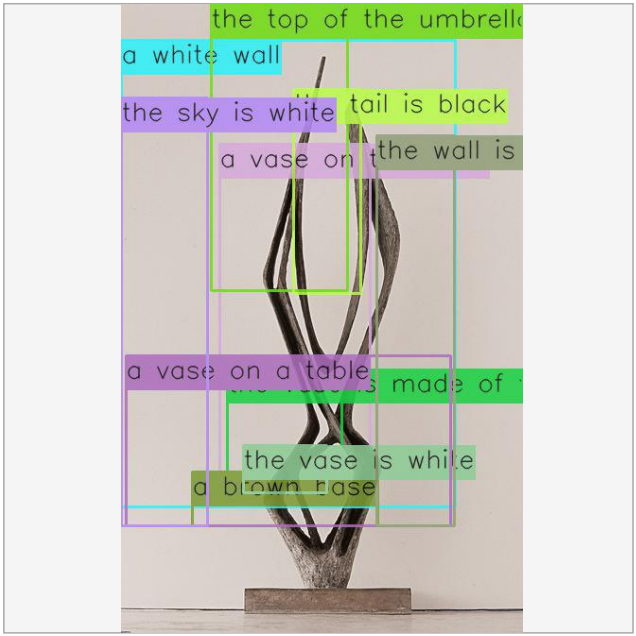
Barbara Hepworth

Cantante Domino

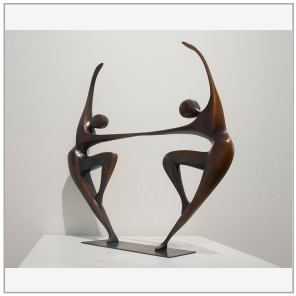
1958

Read as weaponary or text. But also abstract shape.

#15 no description



visually similar



Amazon Rekognition

labels:

- 81% text
- 79% art
- 73% sculpture
- 64% glasses
- 64% accessories
- 64% accessory
- 61% glass
- 58% coat rack
- 58% symbol
- 57% weaponry
- 57% weapon

Microsoft Azure

category: abstract shape

is adult content? False 3% adult

is racy content? False 4% racy

labels:

sketch
thing
drawing
sitting
abstract
bird
minimalist
wooden
art
table
design
black
white
pair
water
standing
bench
vase
cat

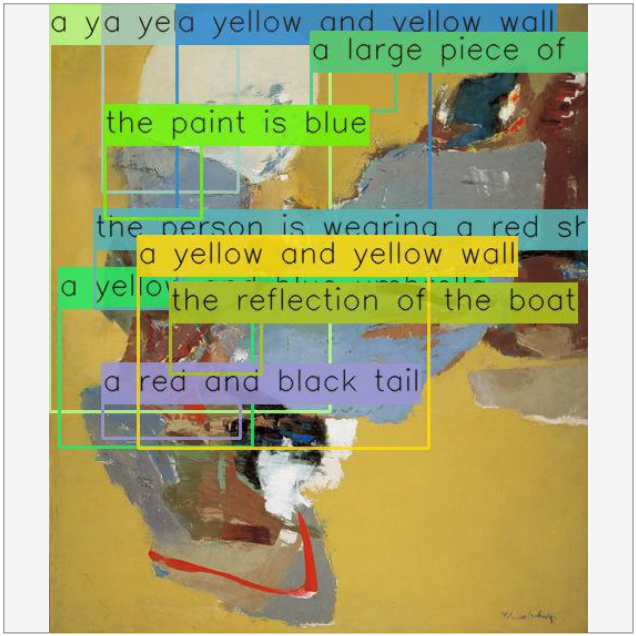
Yolanda Mohalyi

A Grande Viagem

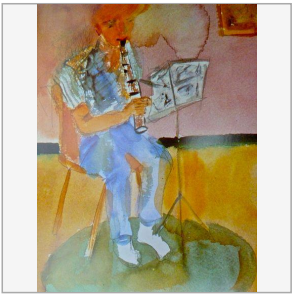
1969

Modern art and artistic. Labelled as "child art" and "sfw".

#16 **no description**



visually similar



Amazon Rekognition

labels:

- 97% art
- 97% modern art
- 97% painting
- 66% paint container
- 61% canvas

ClarifAI

safe for work? 12% nsfw

labels:

- 99% painting
- 99% artistic
- 99% art
- 99% creativity
- 99% paintbrush
- 99% brush
- 99% dirty
- 99% messy
- 98% wall
- 98% acrylic
- 98% graffiti
- 98% canvas
- 98% painter
- 97% gouache
- 95% palette
- 94% stain
- 94% retro
- 94% motley
- 93% abstract

moderation: 99% safe 0% suggestive 0% explicit 0% gore 0% drug

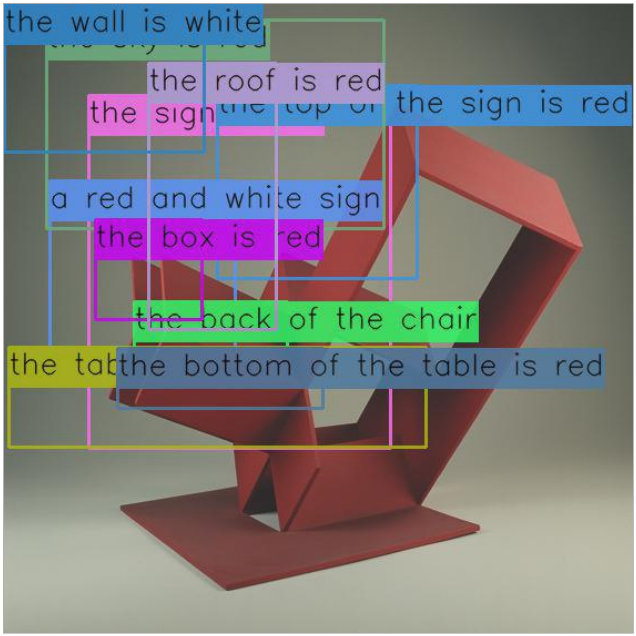
Eduardo Ramirez Villamizar

Construção Vermelha

1969

AIs compared it to chairs or origami.

#17 **no description** −



visually similar

Google Cloud Vision best guess: shelf

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

75% design	68% art paper	62% origami paper
70% paper	65% art	55% paper product
68% font	63% origami	53% furniture

text: no texts found

Microsoft Azure category: others

is adult content? False 0% adult
is racy content? False 0% racy

labels:

design	sitting	geometric
red	geometry	sign
origami	airplane	construction paper
table	art paper	standing
origami paper	large	aircraft
	wooden	

René Portocarrero

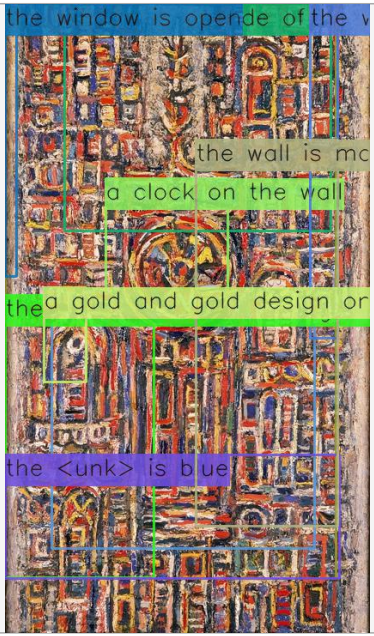
Catedral

1961

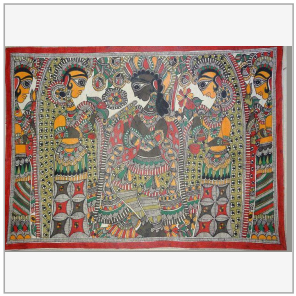
Labelled as text, tapestry and rug.

#18 a painting on the wall

61%



visually similar



Google Cloud Vision

best guess: painting

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:

88% art	67% modern art	53% miniature
79% textile	66% visual arts	50% collection
69% tapestry	55% painting	

text: eee

Amazon Rekognition

labels:

- 93% art
- 89% ornament
- 89% tapestry
- 88% rug
- 84% painting

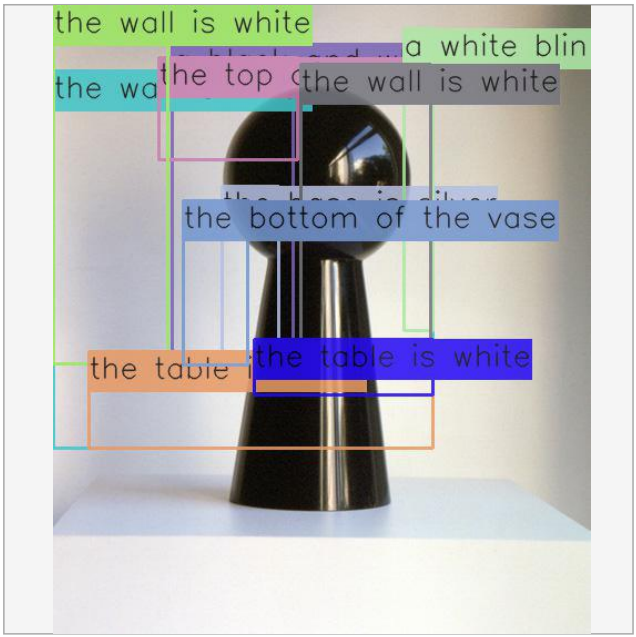
Iran do Espírito Santo

Buraco de fechadura

2002

Labelled as "material property" and trophy.

#19 **a vase sitting on a table** 30%



visually similar

Google Cloud Vision

best guess: iran do espirito santo

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	very unlikely

labels:
- 69% material property
- 62% photography
- 51% metal

text: no texts found

Amazon Rekognition

labels:
- 81% sphere
- 72% trophy
- 63% figurine

José Roberto Aquilar

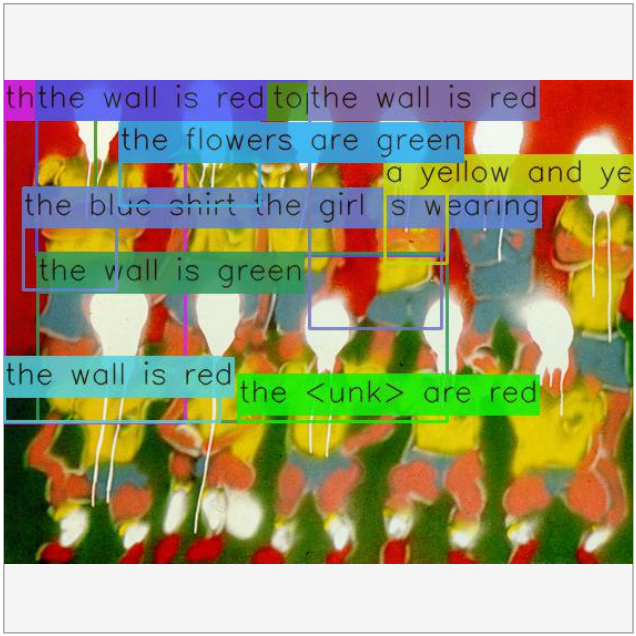
Série do Futebol (1)

1966

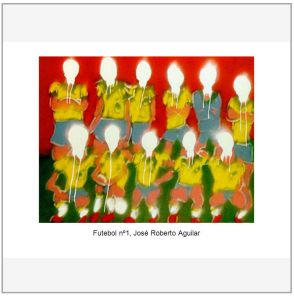
text: || |

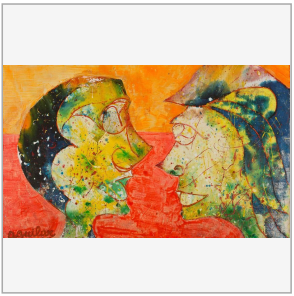
#20 a birthday cake

56%



visually similar





Google Cloud Vision

best guess: obra de arte josé roberto aguilar time

violence:	medical:	adult:	spoof:	racy:
very unlikely	very unlikely	very unlikely	very unlikely	unlikely

text: || |

Microsoft Azure

category: abstract texture

is adult content? False 0% adult

is racy content? False 0% racy

labels:

child art	object	art
thing	cake	many
painting	candle	woman
birthday	colorful	bright
drawing	abstract	standing
	table	colored

COLLABORATORS

Amanda Jurno

Bernardo Fontes

Dalida María Benfield

K. Ye

Marcus Abreu

Paloma Ferreira Victor

Rafael Tsuha

Sabelo Mhlambi

André Akio Yamauchi Reyes

Bruno Moreschi

Gabriel Pereira

Lucas Nunes Sequeira

Natalia Manzoni

Pedro Henrique dos Santos Pereira

Rodrigo

Victor Moreira

GECID / CAIA / C4AI / Inova USP Brazil + IEA