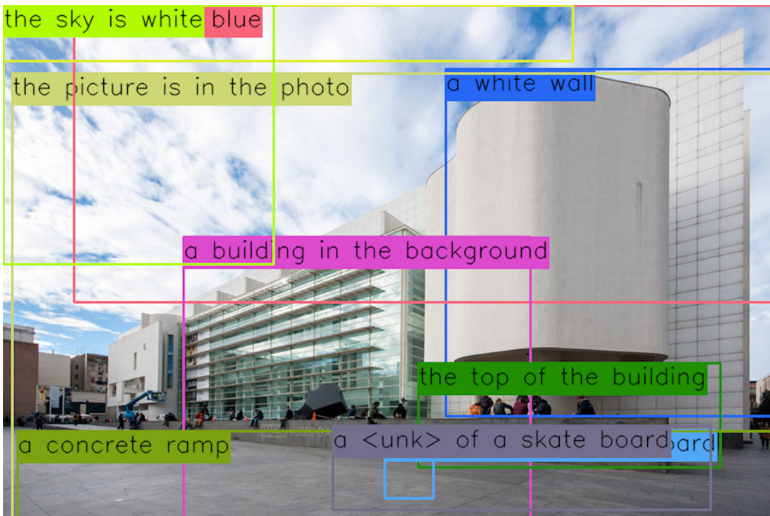


A Crack within the museum

MACBA

Problematizing Computer Vision of Commercial AIs



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 d'Art Contemporani de Barcelona (MACBA), being concerned 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 CtrlZ.AI organization 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 January 30, 2020, at CtrlZ.AI, Barcelona.

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), an activist 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.

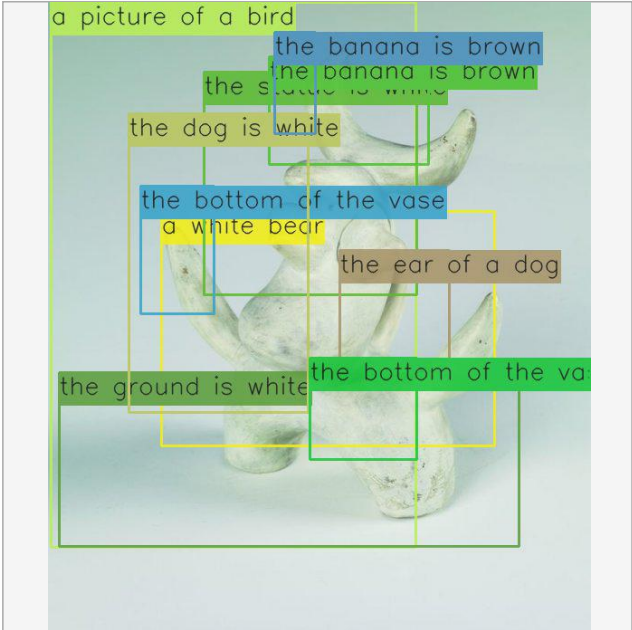
Joan Miró

Oiseau

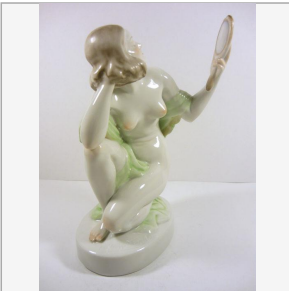
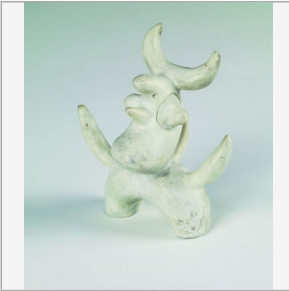
1946-1949



Related to nature, water, flower and garden.



visually similar



Microsoft Azure

category:
abstract nonphoto

is adult content? False 32% adult

is racy content? False 33% racy

labels:

statue

indoor

sculpture

table

cartoon

holding

animal figure

white

vegetable

small

sitting

board

green

water

apple

vase

blue

ClarifAI

safe for work? 0% nsfw

labels:

99% art

97% sculpture

96% desktop

96% nature

93% flower

92% illustration

92% decoration

92% no person

91% statue

91% shape

91% color

89% flora

88% beautiful

87% food

87% water

87% closeup

86% abstract

85% figurine

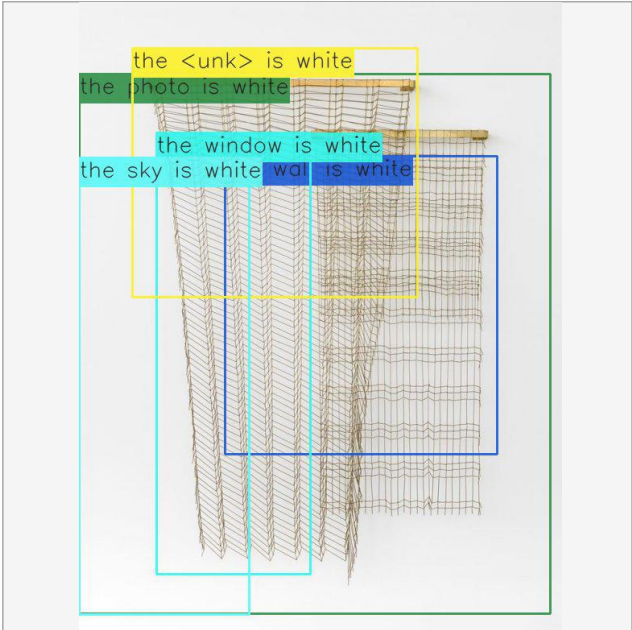
85% garden

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

Leonor Antunes
Anni #18 Fragment 13
2015



Tagged as a cage.



visually similar



ClarifAI

safe for work? 0% nsfw

labels:

94% no person

94% empty

94% design

94% weaving

92% desktop

90% paper

89% stripe

87% retro

86% texture

86% disjunct

86% wood

86% rough

83% illustration

81% net

81% cotton

81% vertical

81% storage

80% business

79% fabric

moderation:

99% safe

0% suggestive

0% explicit

0% gore

0% drug

Microsoft Azure

category:

others

textile

labels:

cage

text

white

fabric

pattern

is adult content?

False

0% adult

is racy content?

False

0% racy

Ferran Garcia Sevilla

Déu amb el cos de metall i molt de braços o God beside a litte fire. Sèrie
Déus núm. 24

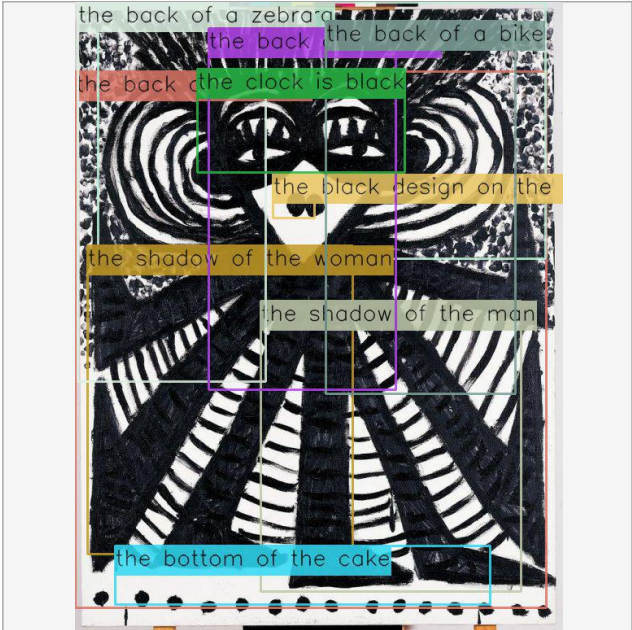
1981



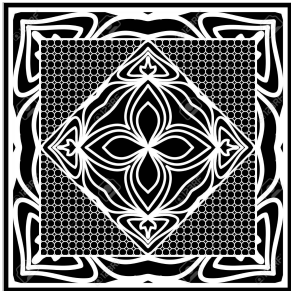
Despite causing discomfort, it is 100% sfw.

#03 a close up of a logo

83%



visually similar



ClarifAI

safe for work? 0% nsfw

labels:

96% pattern

95% illustration

94% design

94% art

92% no person

91% graphic

91% Halloween

91% abstract

91% vector

90% retro

90% stripe

87% desktop

87% line

87% decoration

87% artistic

86% symbol

85% wear

84% fashion

83% print

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

Google Cloud Vision

best guess: monochrome photography

violence:

very unlikely

medical:

very unlikely

adult:

very unlikely

spoof:

very unlikely

racy:

very unlikely

labels:

68% black-and-white

66% illustration

65% art

62% visual arts

56% printmaking

56% pattern

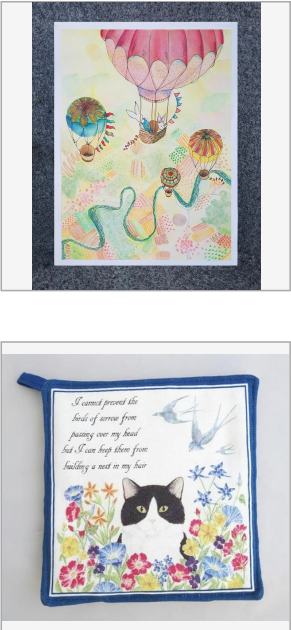
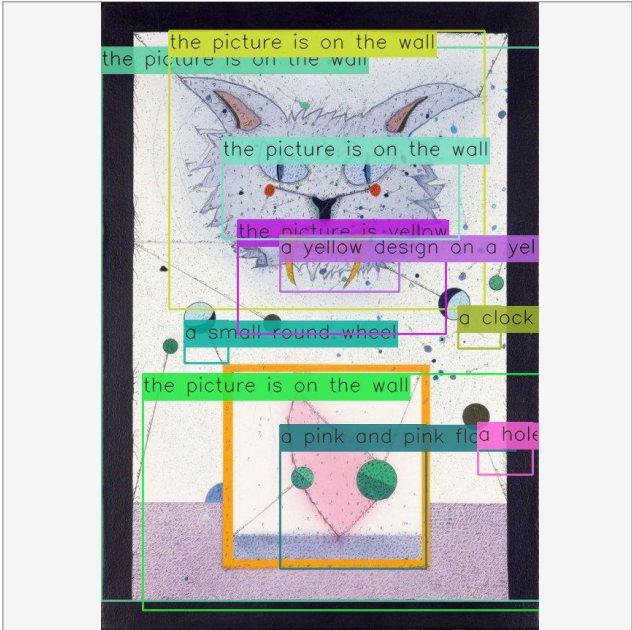
54% monochrome

text: 22 ////////////// • 2222 • ,222222

Zush
Gorphino
1973



Read as 100% child art and tagged as man.



visually similar

Microsoft Azure

category:

abstract rect

is adult content? False 1% adult

is racy content? False 1% racy

labels:

child art

text

cartoon

graffiti

drawing

sign

man

art

cat

illustration

abstract

painting

handwriting

map

picture frame

Google Cloud Vision

best guess: cat

violence: very unlikely

medical: very unlikely

adult: very unlikely

spoof: unlikely

racy: very unlikely

labels:

79% line

77% illustration

70% art

70% cat

66% visual arts

66% rectangle

62% whiskers

59% paper

53% paper product

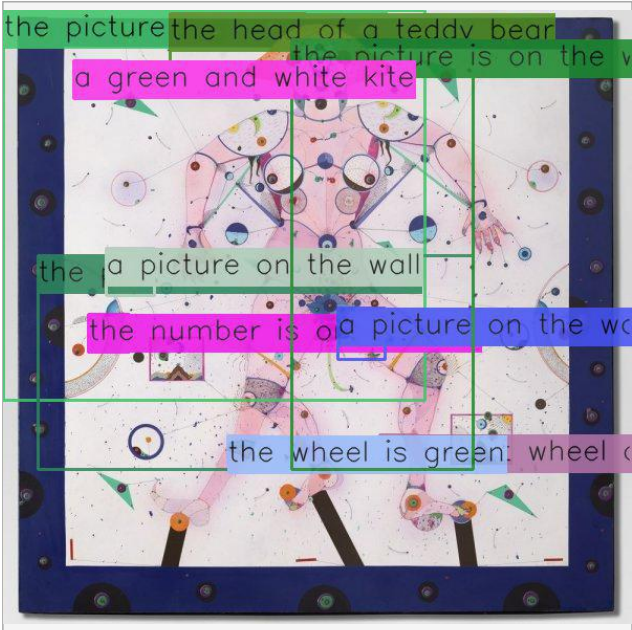
text:

no texts found

Zush
Kaenia II
1972



Read as monitor, computer, laptop and holding.



visually similar

Microsoft Azure

category: others

is adult content? False 2% adult

is racy content? False 2% racy

labels:	thing	clock	open
text	photo	map	small
computer	monitor	different	sitting
child art	drawing	laptop	desk
indoor	table	colored	various
cartoon	art	white	holding

ClarifAI

safe for work? 0% nsfw

labels:	93% graphic	90% sketch	87% child
97% illustration	93% design	89% card	86% image
96% desktop	92% art	88% decoration	85% celebration
94% vector	91% old	88% fun	84% toy
94% picture frame	91% retro	88% vintage	83% cute

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

Xavier Basiana, Jaume Orpinell

Catalana de Gas

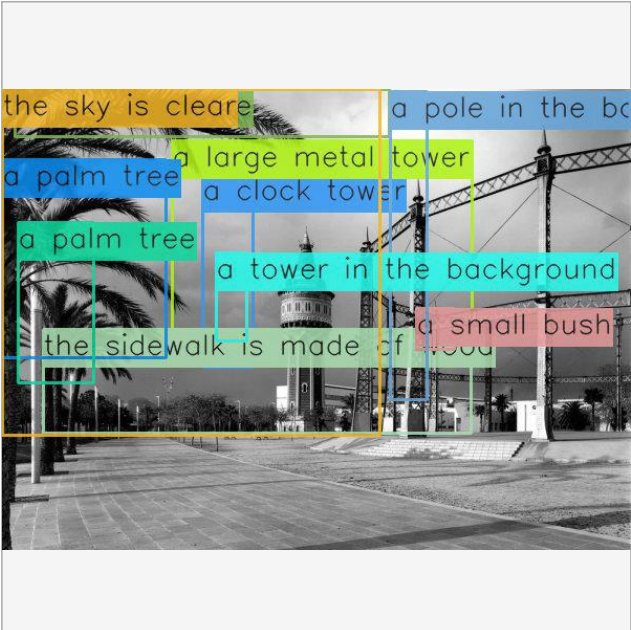
1997-1998



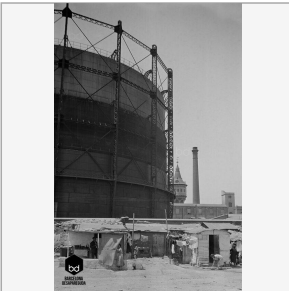
Person and no person conflict.

#06 a large white building surrounded by palm trees

92%



visually similar



ClarifAI

safe for work? 3% nsfw

labels:

95%	outdoors	88%	water	86%	urban
98%	no person	88%	tourism	85%	tree
98%	architecture	86%	road	84%	people
98%	travel	86%	light	83%	tower
96%	street	86%	vehicle	83%	vacation

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

Amazon Rekognition

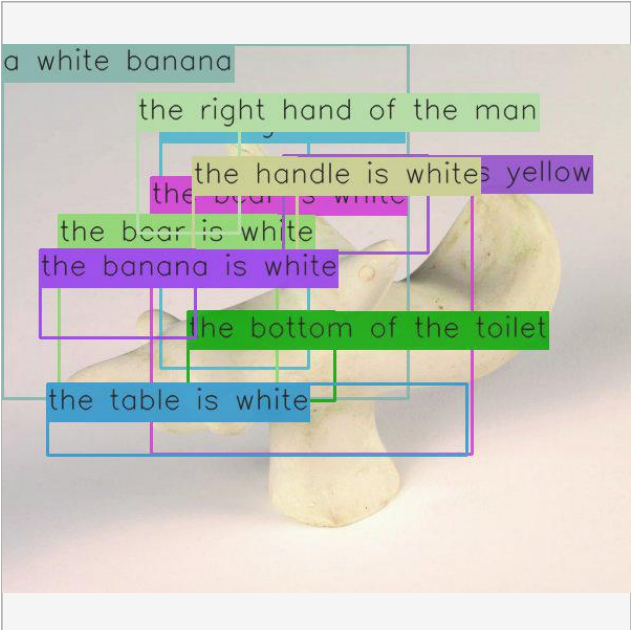
labels:

76%	person
76%	human
74%	tree
74%	plant
68%	construction
66%	road
55%	downtown
93%	building
84%	architecture
77%	city
77%	urban
77%	town

Joan Miró
Oiseau (Solaire)
ca. 1946



Tagged as nature, still life, food and water.



visually similar

ClarifAI

safe for work? 0% nsfw

labels:

99% no person

97% one

96% nature

93% two

92% isolated

90% food

89% simplicity

88% cutout

85% sculpture

83% disjunct

83% still life

80% health

79% water

79% wildlife

79% three

78% shape

78% desktop

77% winter

77% fungus

moderation:

99% safe

0% suggestive

0% explicit

0% gore

0% drug

Amazon Rekognition

labels:

99% figurine

60% art

60% sculpture

55% torso

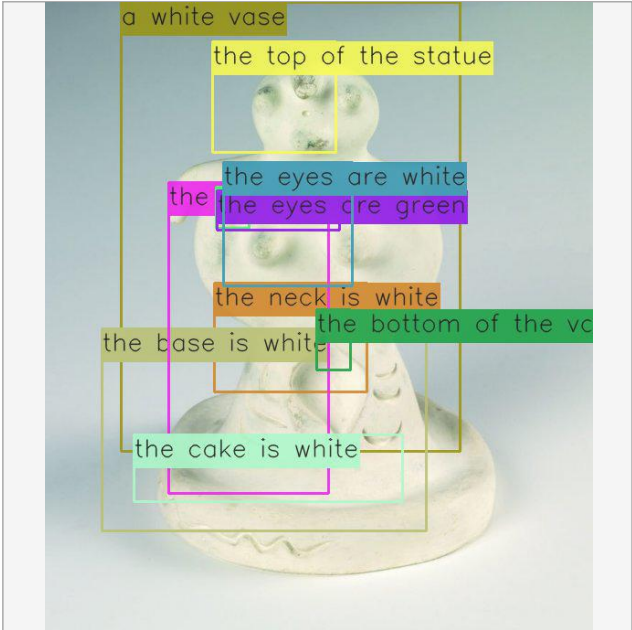
Joan Miró

Femme

1949



1% suggestive and 89% Buddha.



visually similar

ClarifAI

safe for work? 0% nsfw

labels: 98% art 92% cutout 89% Buddha
99% sculpture 97% figure 92% people 88% religion
98% figurine 97% one 92% still life 88% pottery
98% no person 96% toy 91% chess 87% conceptual
98% statue 95% doll 89% man 86% travel

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

Google Cloud Vision

best guess: figurine

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

labels: 96% figurine 72% toy 50% art
78% porcelain 72% sculpture
76% ceramic 54% statue

text: no texts found

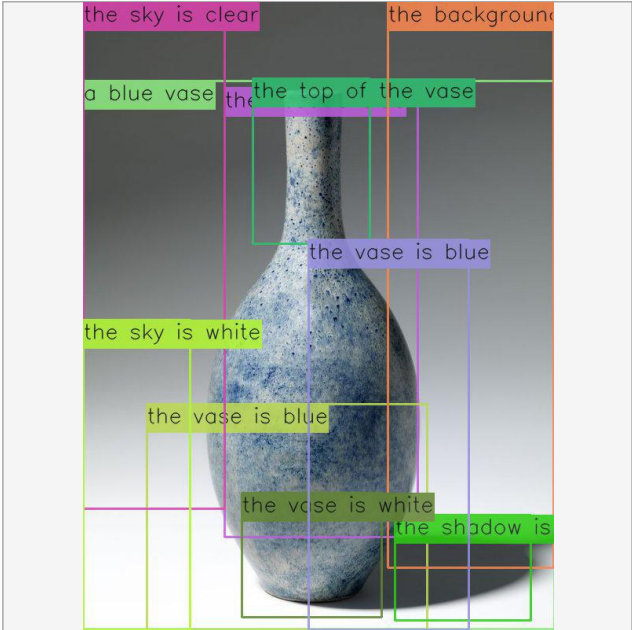
Antoni Cumella

No title

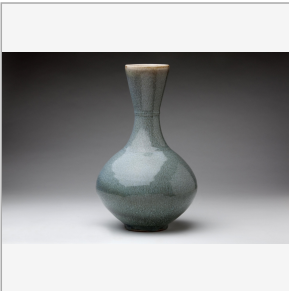
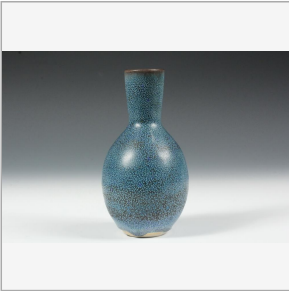
1951



36% drug.



visually similar



ClarifAI

safe for work? 0% nsfw

labels:

99% no person	95% tableware	87% cutout	79% food
97% one	94% still life	85% art	79% grow
95% pottery	93% vase	84% desktop	76% medicine
95% container	90% kitchenware	82% retro	76% reflection
	88% simplicity	81% drink	75% vintage

moderation: 63% safe 0% suggestive 0% explicit 0% gore 36% drug

Microsoft Azure

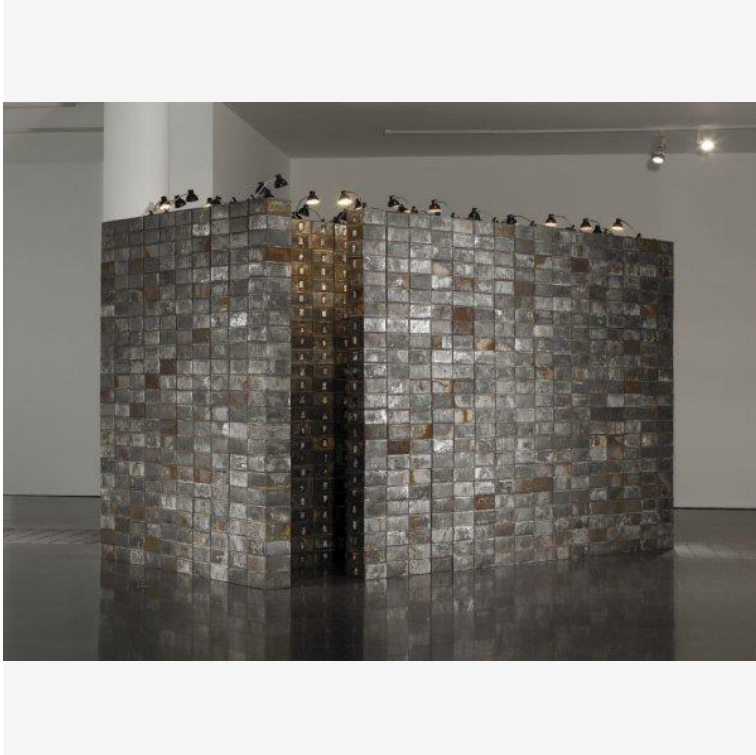
category:
object sculpture

is adult content? False 3% adult

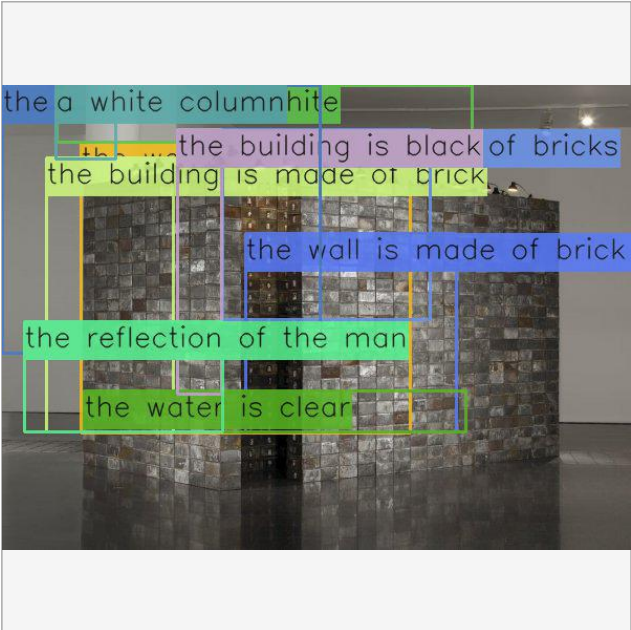
is racy content? False 3% racy

labels:	black	plant	flower
bottle	utensil	single	ledge
vase	white	small	background
indoor	sitting	ceramic	surface
thing	vessel	porcelain	blue
ceramic ware	table	stoneware	holding

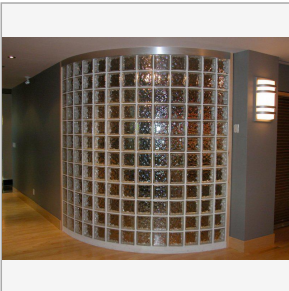
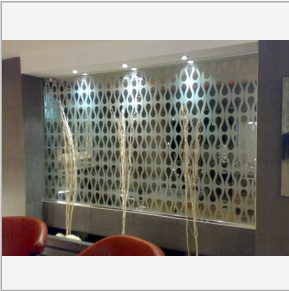
Christian Boltanski
Réserve de Suisses morts
1991



Tagged as 100% safe. A reflection of the man? Who is the man? And 79% bird.



visually similar



ClarifAI

safe for work? 1% nsfw

labels:

95% wall	91% light	84% window	81% old
95% no person	90% house	82% daylight	80% bathroom
94% architecture	87% room	81% mirror	79% door
94% building	86% travel	81% city	79% desktop
	85% reflection	81% home	78% museum

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

Amazon Rekognition

labels:

99% room	79% bird
99% indoors	73% floor
93% lobby	72% shower
87% bathroom	65% wall
79% animal	62% person
	62% human
	55% lighting

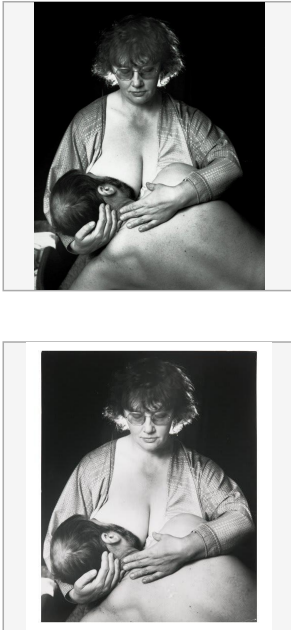
Jo Spence, Terry Dennett
Remodelling Photo History
1982



Woman head read as man's head and man, in a typically child position, identified as a baby.



visually similar



ClarifAI

safe for work? 27% nsfw

labels:

99% people	98% maternity	96% child	93% birth
99% baby	97% one	96% monochrome	92% man
98% portrait	97% woman	96% love	89% ma
98% adult	97% son	95% nude	87% girl
	97% two	95% newborn	86% affection

moderation: 1% safe 97% suggestive 0% explicit 0% gore 0% drug

Google Cloud Vision

best guess: Jo Spence

violence:

very unlikely

medical:

very unlikely

adult:

unlikely

spoof:

very unlikely

racy:

very likely

95% photograph	82% black-and-white	77% joint
83% arm	81% mother	75% shoulder
83% child	78% human	74% photography

text: no texts found

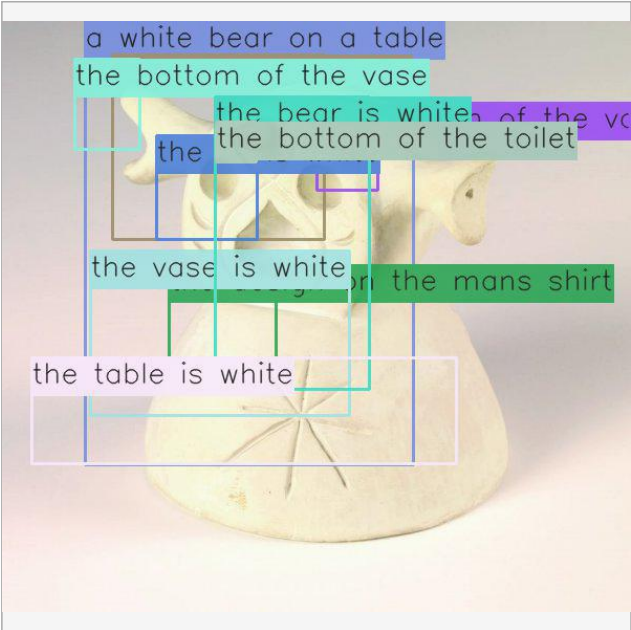
Joan Miró

Tête

1946-1949



Tagged as plate, large, birthday, holding, playing, bed and woman.



visually similar



Microsoft Azure

category:
others

is adult content? False 0% adult

is racy content? False 0% racy

labels:

cartoon

indoor

table

toy

cake

statue

sitting

animal figure

white

sculpture

made

decorated

looking

ceramic ware

small

plate

large

birthday

holding

playing

bed

woman

cat

ClarifAI

safe for work? 0% nsfw

labels:

98% toy

98% figurine

97% desktop

96% decoration

95% cutout

93% ceramic

92% food

92% symbol

91% sculpture

91% traditional

91% isolate

91% one

90% no person

90% pottery

89% shape

89% doll

89% celebration

89% souvenir

88% handmade

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

Alexander Calder

No title

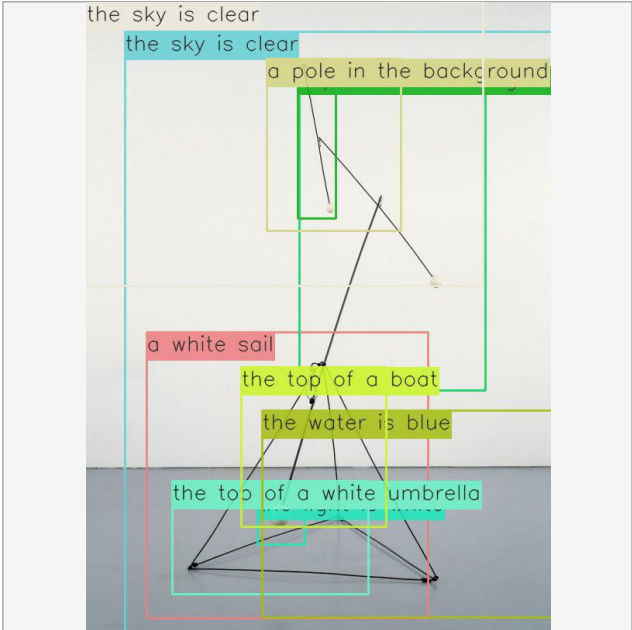
1931



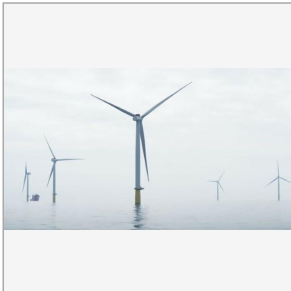
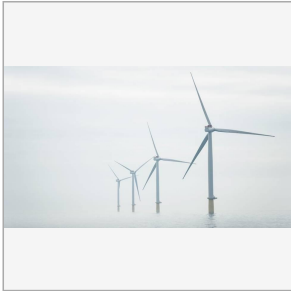
Visually similar to windmill.

#13 a small boat in a body of water

67%



visually similar



Google Cloud Vision

best guess: triangle

violence:
very unlikely

medical:
very unlikely

adult:
very unlikely

spoof:
very unlikely

racy:
very unlikely

73% design

67% triangle

labels: 72% triangle

72% line

text: no texts found

ClarifAI

safe for work? 0% nsfw

labels:

94% no person

93% technology

91% balance

88% energy

87% business

84% one

81% water

80% people

79% science

78% construction

76% connection

75% sky

72% environment

72% image

71% industry

70% physics

68% electricity

68% stand

67% antenna

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

Anonymous work

Pop Quiz

1990

GUERRILLA GIRLS' POP QUIZ.

Q. If February is Black History Month and March is Women's History Month, what happens the rest of the year?

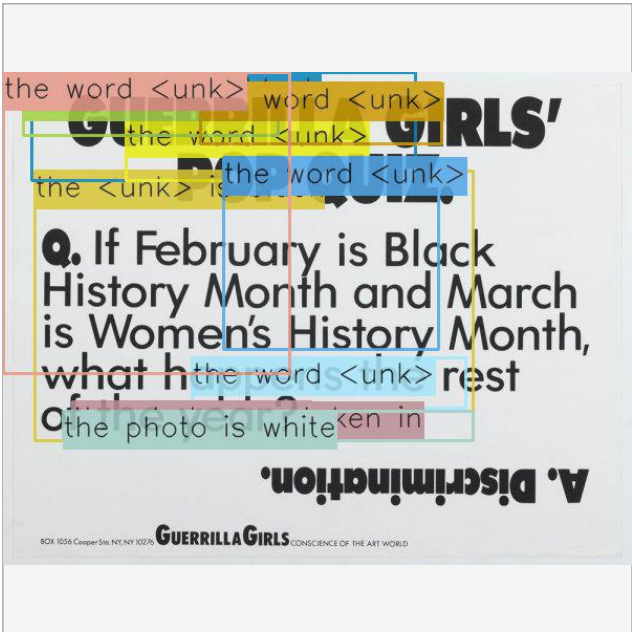
A. Discrimination.

BOX 1056 Cooper St. NY, NY 10276

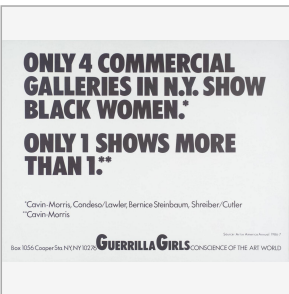
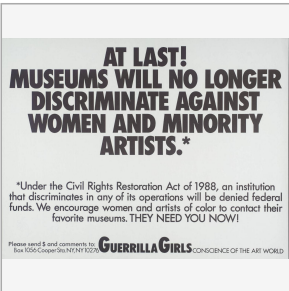
GUERRILLA GIRLS

CONSCIENCE OF THE ART WORLD

Read as possibly spoof.



visually similar



Google Cloud Vision

best guess: guerilla girls poster

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

98% text
98% font

text: guerrilla girls' pop quiz. q. if february, is black history month and ...

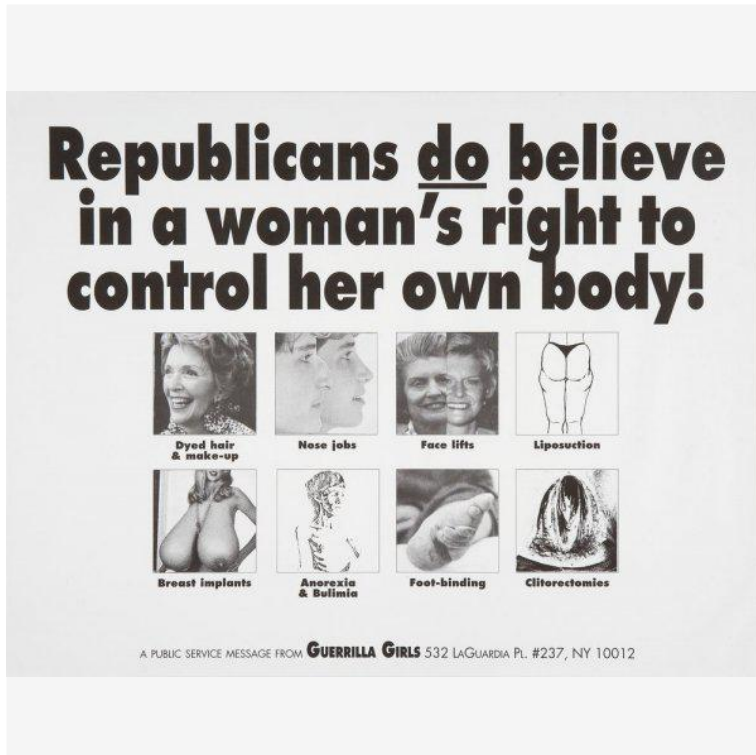
Amazon Rekognition

labels:
99% text
87% paper
73% face
65% word
55% document
55% license
55% driving license

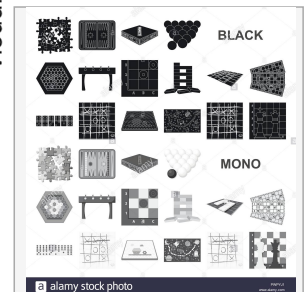
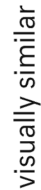
Anonymous work

Republicans Do Believe in a Woman's Right to Control Her Own Body!

1992



Political ad as non-adult and non-racy.



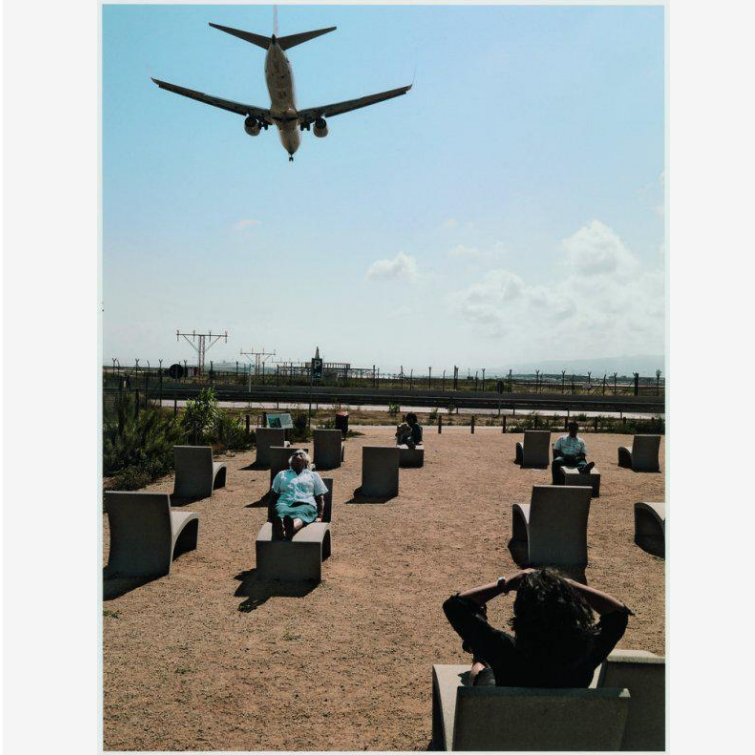
text: republicans do believe in a woman's right to control her own body! nos...

labels:	drawing
text	black
human face	person
newspaper	white
sketch	man
photo	

David Goldblatt

Watching Planes Come in, el Mirador del Prat, El Prat del Llobregat. Sèrie:
"Connexions globals"

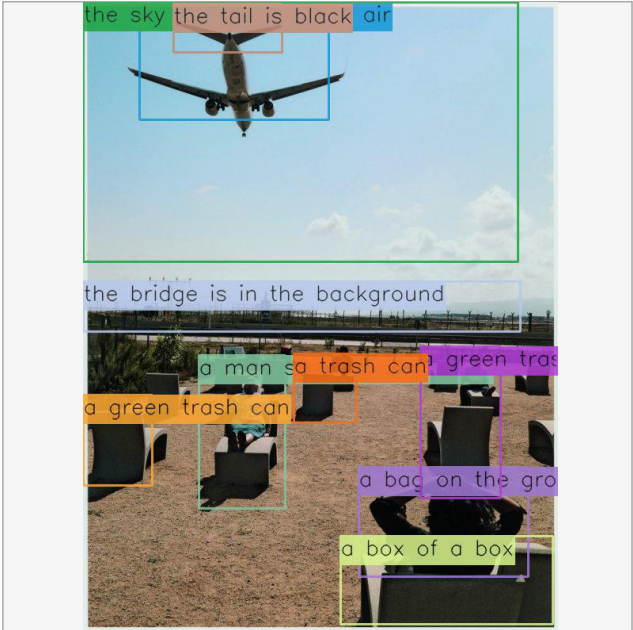
2008



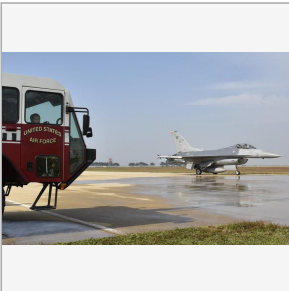
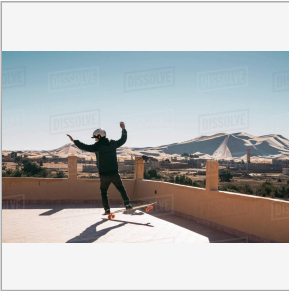
Read as a war, but 100% safe. Plane+people read as shooting range.

#16 a airplane that is flying in the sky

52%



visually similar



ClarifAI

safe for work? 0% nsfw

labels:	96%	people	90%	business	88%	technology	
99%	military	96%	war	90%	no person	88%	battle
99%	airplane	95%	vehicle	90%	daylight	87%	outdoors
98%	airport	94%	travel	89%	flight	86%	helicopter
98%	aircraft	90%	air force	88%	navy	84%	air

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

Amazon Rekognition

labels:	69%	soil
97% person	66%	play area
97% human	66%	playground
97% vehicle	61%	airport
97% aircraft	60%	airfield
97% airplane	55%	shooting range

Sture Johannesson
Welcome back! For Ann-Charlotte
1967



Drawing of a person's backside read as child art - Should that be a class?



visually similar

Microsoft Azure

category:
text sign

is adult content? False1% adult

is racy content? False8% racy

labels:

child art

map

text

food

drawing

cartoon

painting

ClarifAI

safe for work?0% nsfw

labels:

90% desktop

87% symbol

82% decoration

94% illustration

90% flag

86% patriotism

82% sketch

93% no person

89% art

85% retro

81% color

92% vector

88% celebration

84% paper

80% bill

90% design

88% banner

84% graphic

79% image

moderation:

79% safe

20% suggestive

0% explicit

0% gore

0% drug

Herminio Molero
Chill Rooms. Sèrie: "Blues"
1968



Bookcover tagged as "hanging white people" and high adult content percentage.



visually similar



Microsoft Azure

category:
text sign

is adult content? False 52% adult
is racy content? True 53% racy

labels:
hanging
white
people
text
typography
poster
font
graphic
design

ClarifAI

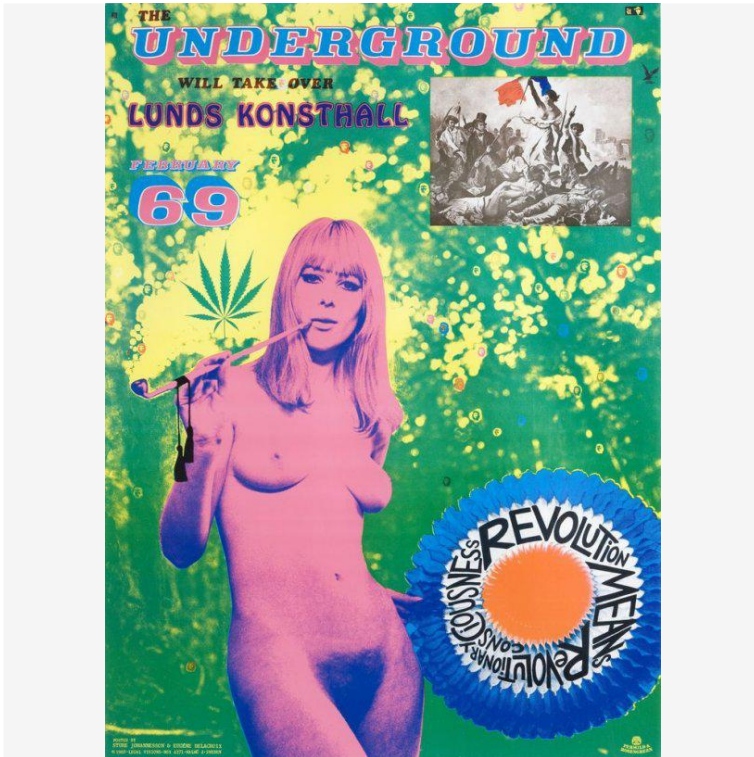
safe for work? 2% nsfw

labels: 99% text 98% alphabet 97% baptismal font 96% type 96% typography 95% rudiment 94% business 93% education 93% typescript 93% paper 93% facts 92% no person 91% symbol 90% bill 89% print 88% desktop 88% abstract 85% creativity 84% language
moderation: 99% safe 0% suggestive 0% explicit 0% gore 0% drug

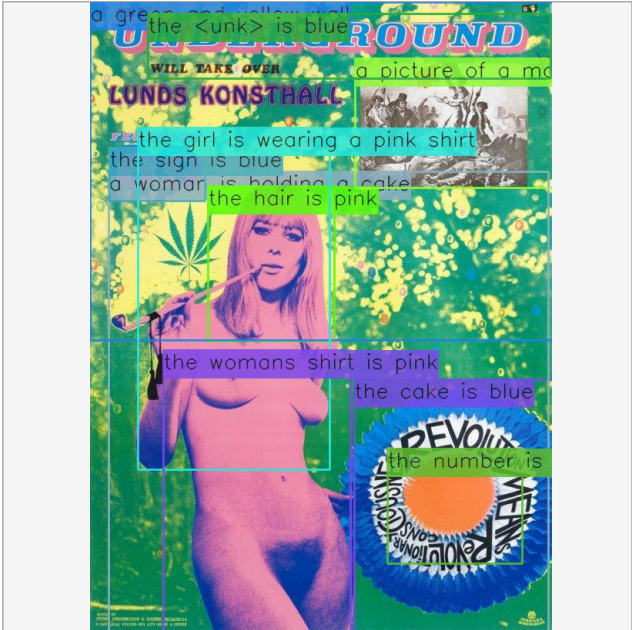
Sture Johannesson

Revolution Means Revolutionary Consciousness!

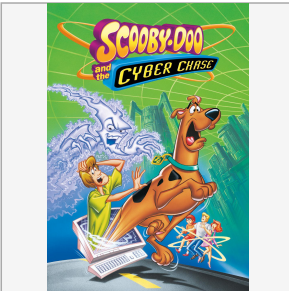
1968



Naked body read as pink shirt with blue cake, also 6% Lady Gaga.



visually similar



ClarifAI

safe for work? 8% nsfw

labels:

Labels:	87%	retro	77%	creativity	74%	vertical	
93%	woman	82%	adult	77%	paper	74%	portrait
92%	people	80%	art	77%	business	72%	girl
92%	illustration	79%	man	75%	fun	72%	text
87%	fashion	78%	desktop	74%	young	6%	Lady Gaga

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

Google Cloud Vision

best guess: poster

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

68% poster
labels: 52% book cover
50% illustration

text: the underground will take over lunds konsthall february devos mean. no...

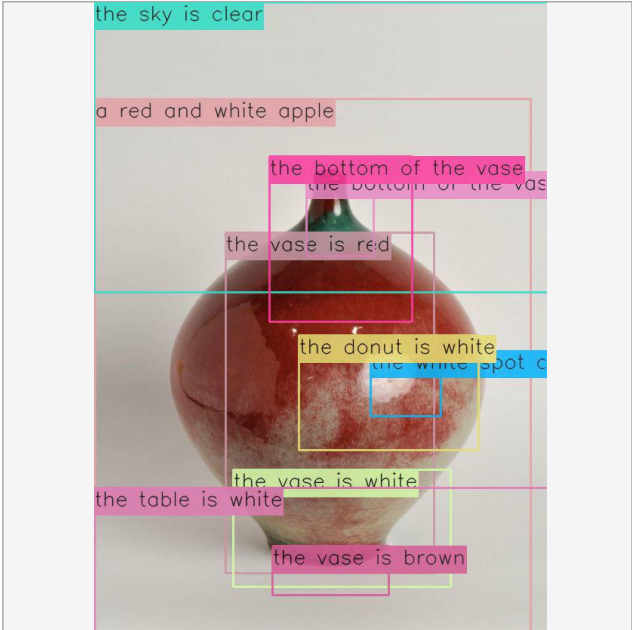
Antoni Cumella

No title

1955



The donut is white. A red and white apple.



visually similar

ClarifAI

safe for work? 0% nsfw

labels:

99% no person

98% one

98% grow

98% still life

96% food

94% fruit

93% cutout

93% container

89% tableware

85% three

84% two

82% medicine

78% pottery

78% art

78% color

77% ingredients

77% bowl

77% people

74% round out

moderation:

99% safe

0% suggestive

0% explicit

0% gore

0% drug

Microsoft Azure

category:

others

is adult content? False 3% adult

is racy content? False 3% racy

labels:

plant

background

fruit

red

ceramic ware

white

porcelain

green

surface

brown

black

orange

bottle

bowl

close

large

food

COLLABORATORS

Alex Hanna

Bobi Rakova

Daniel Nanas

Geneviere

Liz O'Sullivan

Mojohnson

Stuart

Varoon Mathur

Alison

Bruno Moreschi

Fatima Koli

Linnet

Lucas Nunes Sequeira

Rafael Tsuha

Timnit Gebru

X. Eyeé

