ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

The Double Hermeneutic

Robot Aesthetics & Cultural Imperialism

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Image and Visual Representation Lab
EPFL

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I. Image Quality and Computational Photography

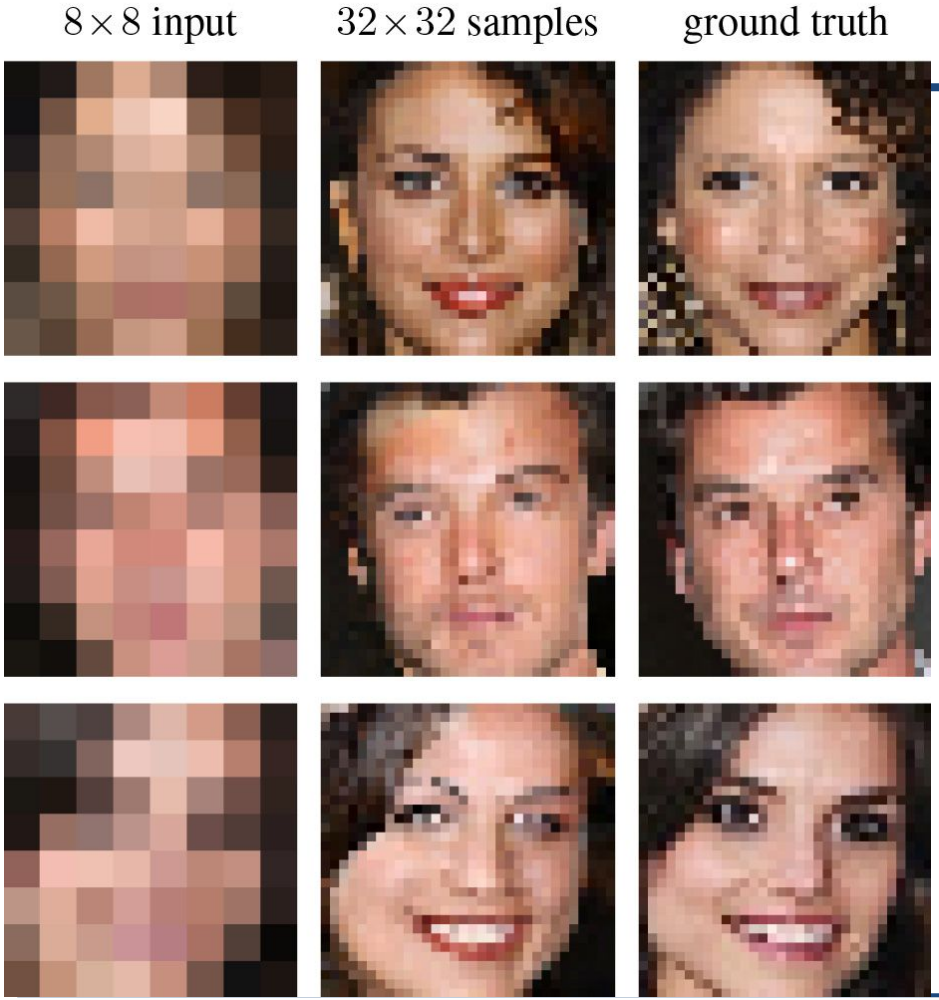


Image: Google Superresolution, Ars Technica

Aesthetic Quality

Studying Aesthetics in Photographic Images Using a Computational Approach. Datta, Joshi, Li & Wang. ECCV 2006. My emphasis.

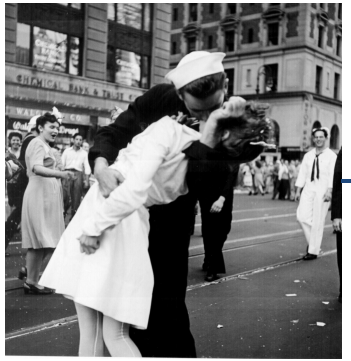
"The broad idea is that photographic images that are **pleasing to the eyes** are considered to be higher in terms of their aesthetic beauty.

[...]

Potential applications include content-based image retrieval and digital photography"

Datta et al. continued

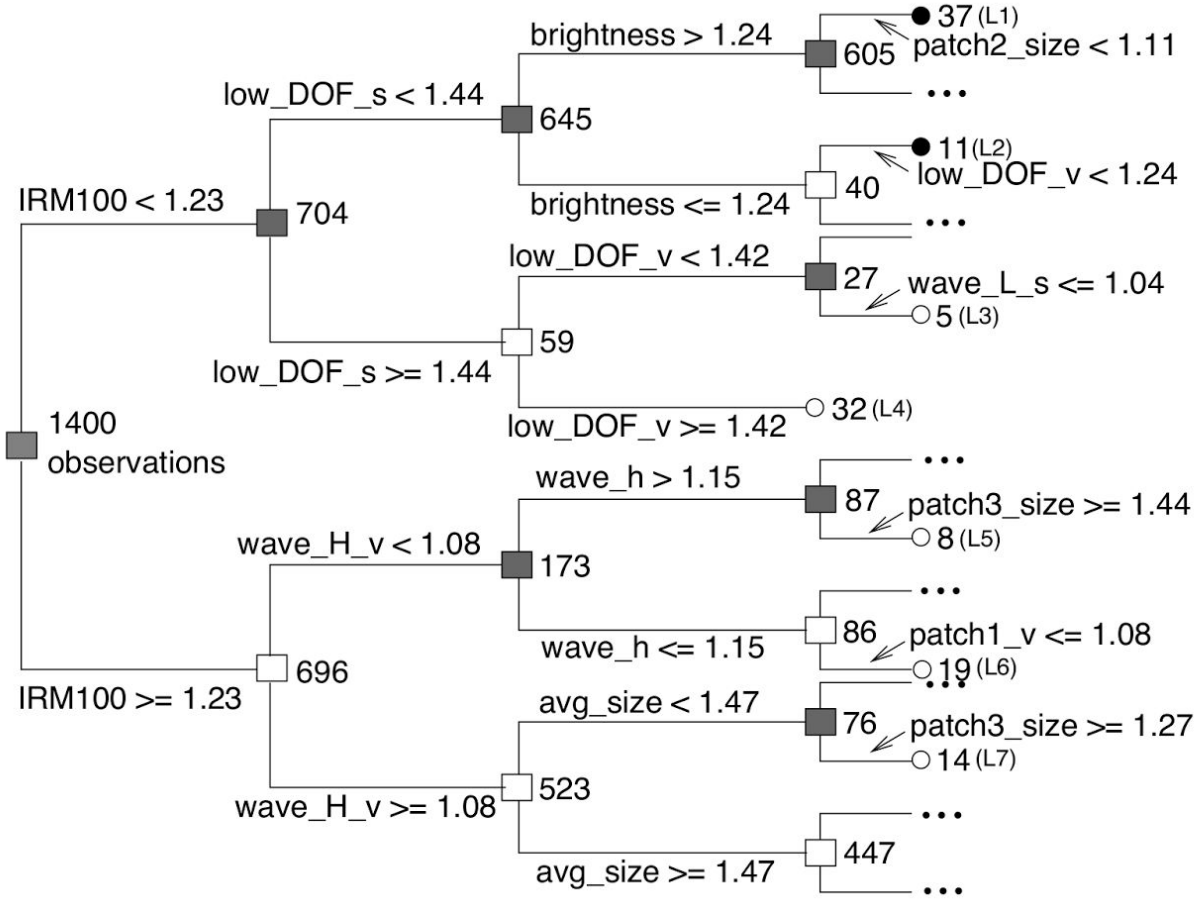
"While the **average individual may simply be interested in how soothing a picture is to the eyes**, a photographic artist may be looking at the composition of the picture, the use of colors and light, and any additional meanings conveyed by the picture"



Decision Engine

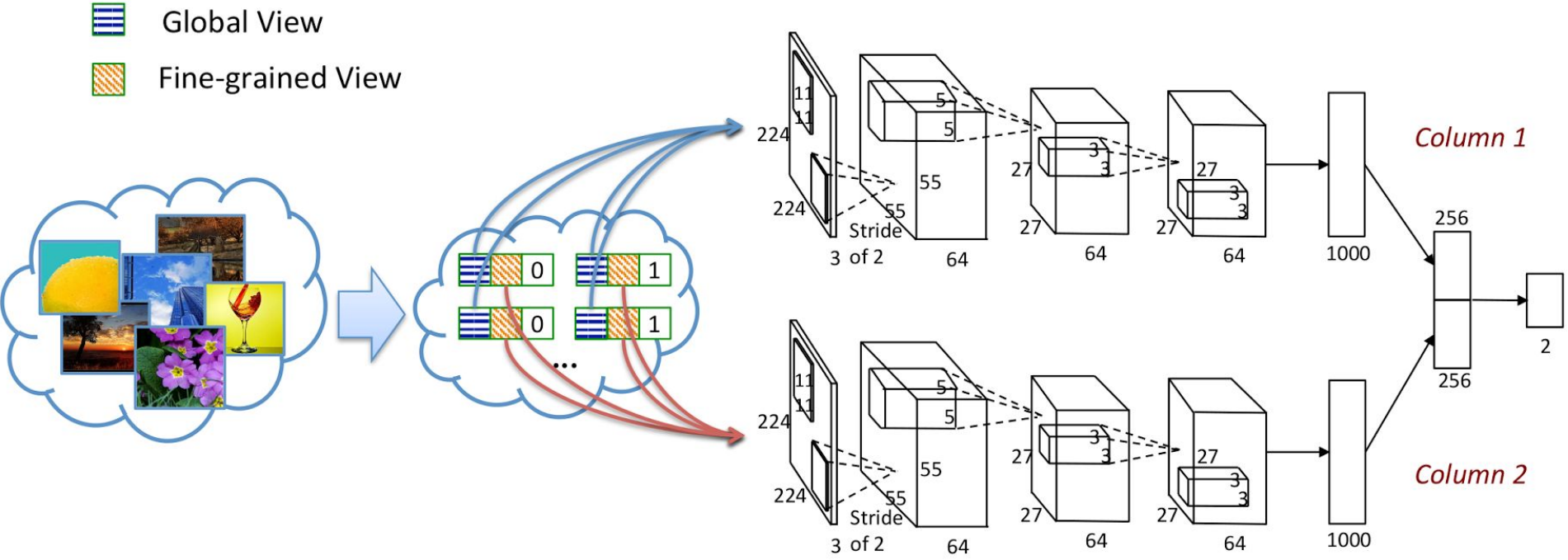
Good

Bad

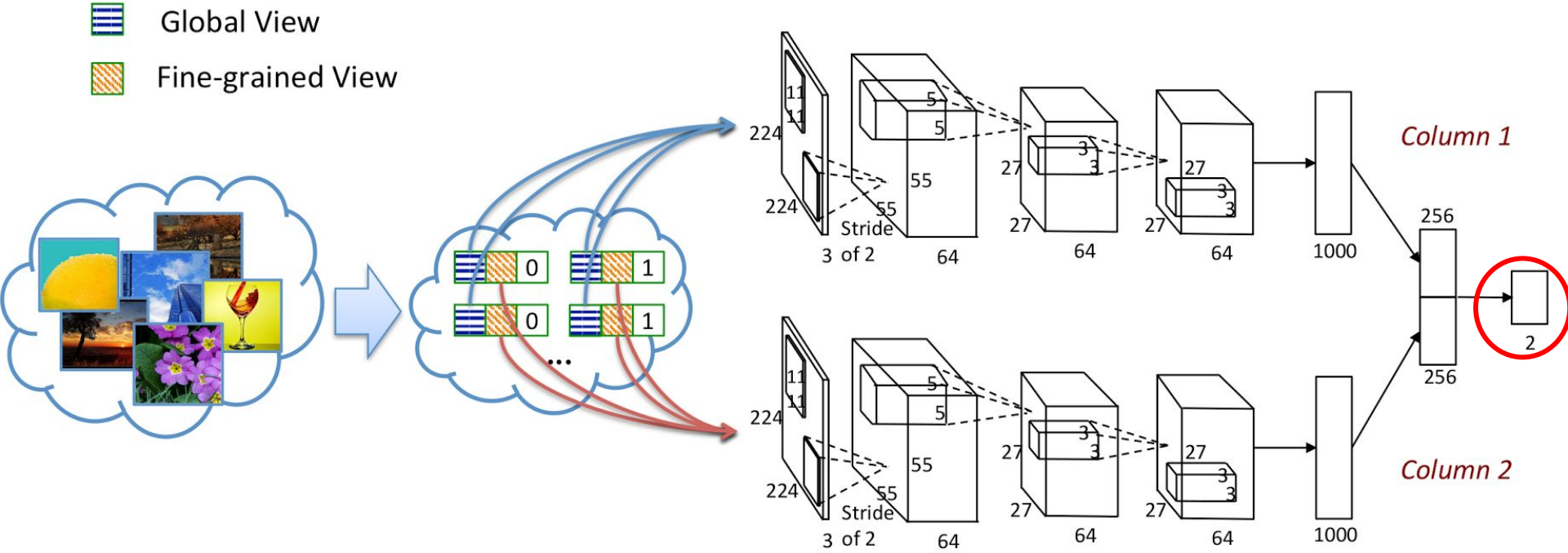


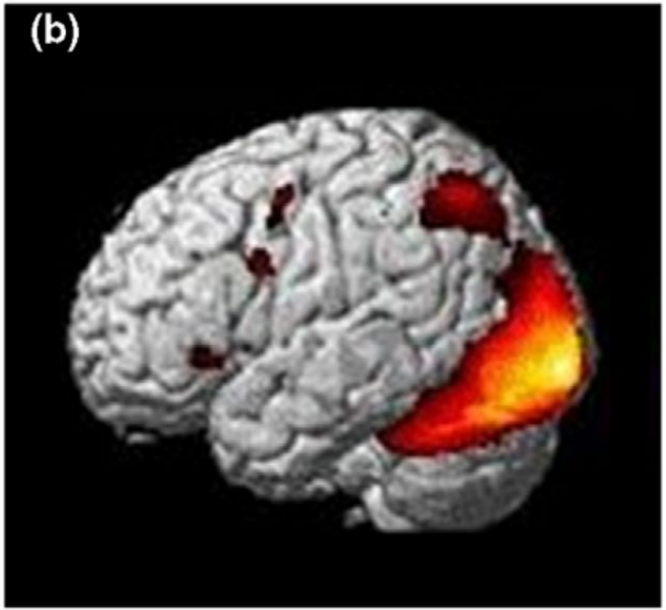
Datta et al. continued

Rating image aesthetics using deep learning, Lu et al., *IEEE Multimedia* 2015



Rating image aesthetics using deep learning, Lu et al., *IEEE Multimedia* 2015

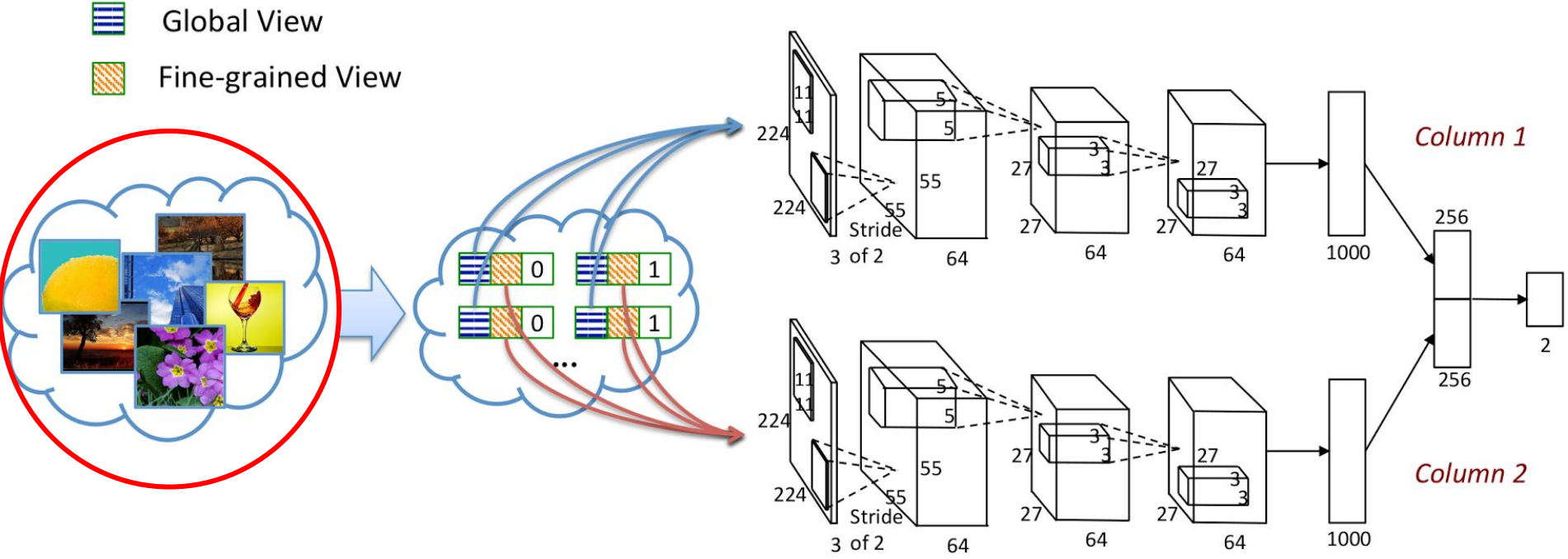




Current Opinion in Neurobiology

Neuroaesthetics: a review. Cinzia di Dio & Vittorio Gallese. *Current Opinion in Neurobiology* 2009

Training Dataset



Aesthetic Visual Analysis

AVA: A Large-Scale Database for Aesthetic Visual Analysis, Murray & Marchesotti, 2012:

"Collecting ground truth data in this manner is advantageous primarily because it is an inexpensive and expedient way to obtain aesthetic judgments from multiple individuals who are **generally "prosumers" of data**: they produce images and they also score them on dedicated social networks."

www.dpchallenge.com

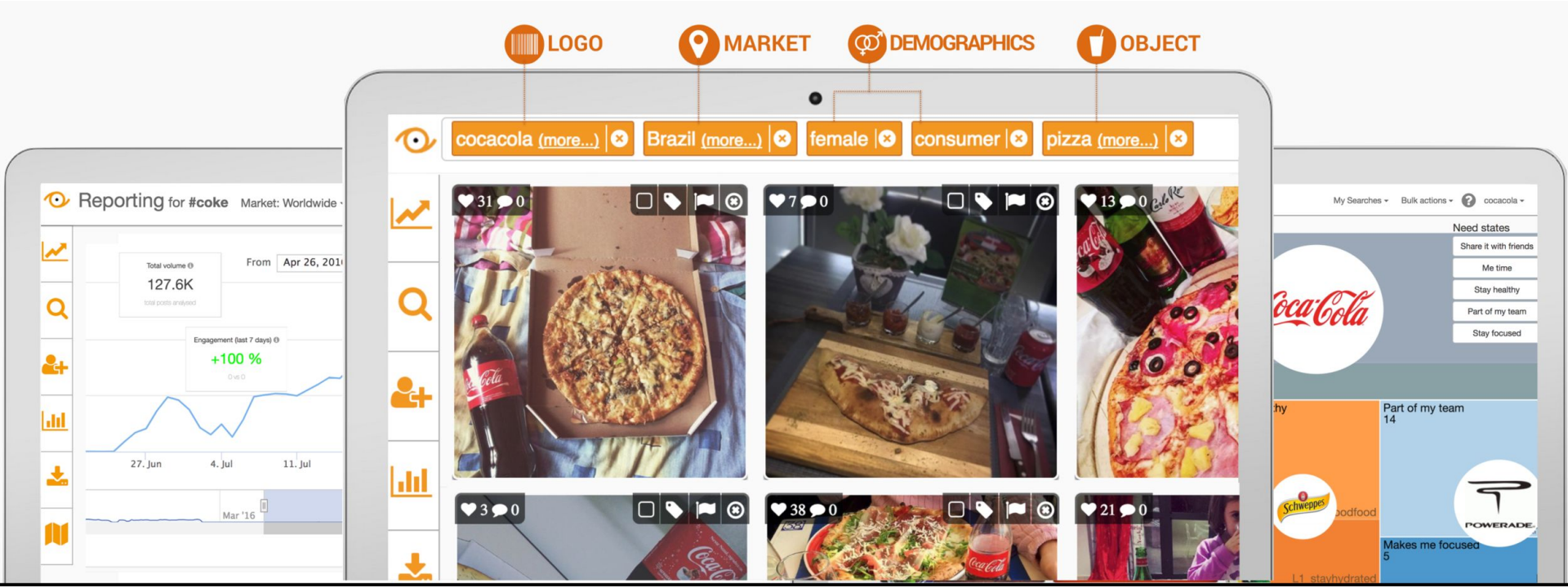


Image: Beautifeye, Online platform for Qualitative Market Research

Prosumer?

Statistics

Place: 1 out of 60
Avg (all users): 6.7857
Avg (commenters): 8.2857
Avg (participants): 6.6667
Avg (non-participants): 6.9565
Views since voting: 498
Views during voting: 99
Votes: 56
Comments: 27
Favorites: 2

20171105_160200_DPC

I didn't expect to win a blue with this score but I will take it! Thank you all :)

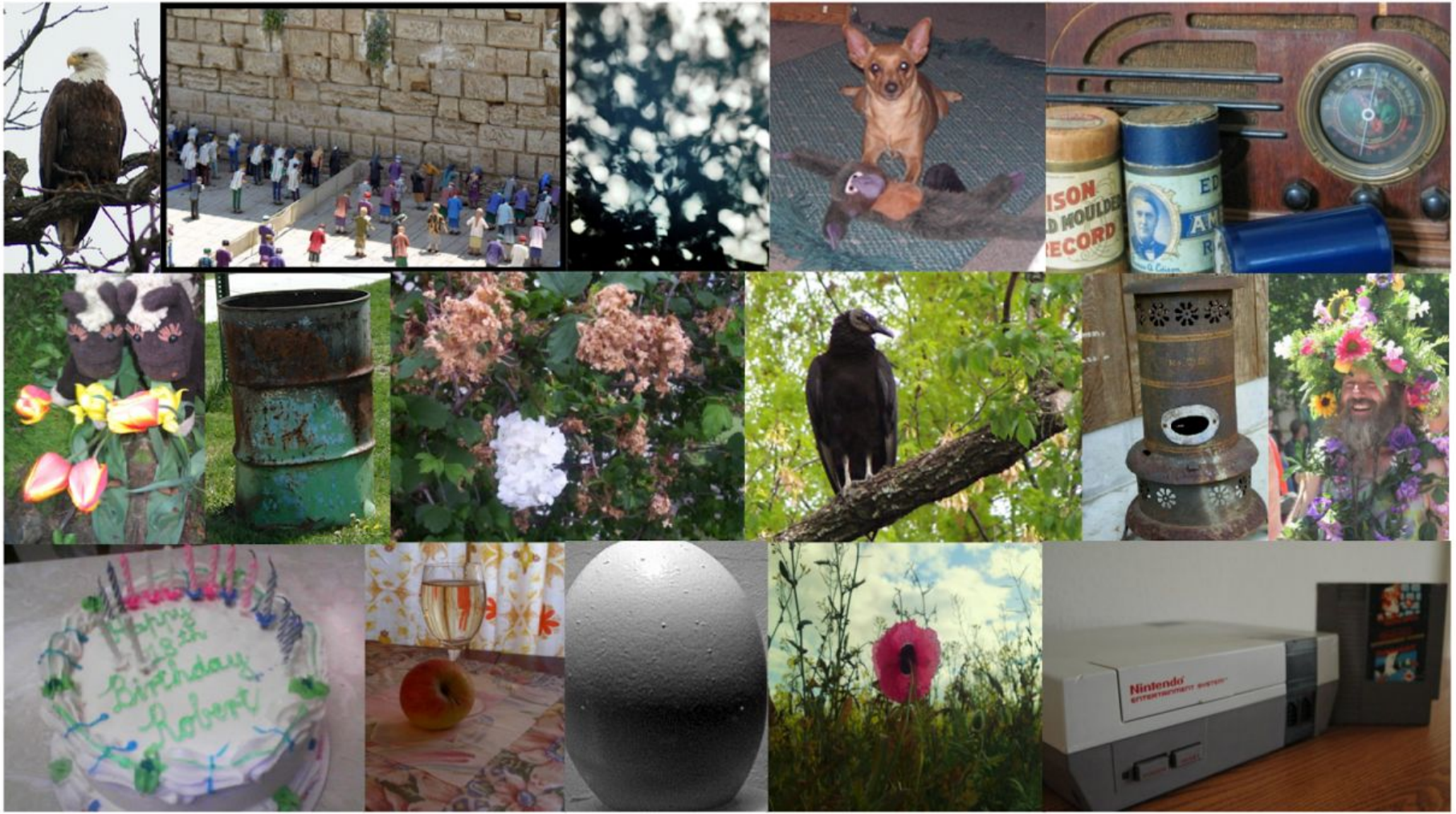
This is our new beagle Daisy and Mr. Kitty. The cat always tries to dodge the camera but this time he looked at me for some reason. And it was perfect.

How I took it. I used my cell phone. Placed it against the door, camera side down. I need it to balance myself because I basically stepped back and leaned forward to get my feet out of the shot :)

Age: 49
Location: Ohio
Cameras:
Olympus OM-D E-M1
Olympus E-500 EVOLT
Olympus E-520
Olympus OM-D E-M5
Panasonic Lumix DMC-FH1
Samsung Galaxy S4

Lenses:
Olympus 45mm f1.8 M.Zuiko Digital Micro Four Thirds
Lensbaby Composer
Olympus 12-40mm f/2.8 Pro
Olympus 12-60mm f/2.8-4.0 Zuiko
Olympus 14-42mm f3.5-5.6 M.Zuiko Digital
Olympus 14-45mm f/3.5-5.6 Zuiko Digital ED
Olympus 14-54mm f/2.8-3.5 Zuiko Digital Zoom
Olympus 40-150mm f/3.5-4.5 Zuiko Digital
Olympus 50-200mm f/2.8-3.5 ED Zuiko Digital
Olympus 50mm f/1.8 MF Normal Zuiko
Olympus 70-300mm F/4.0-5.6
Olympus 75-300mm f/4.8-6.7 M.Zuiko

(a) Images ranked the highest in aesthetics by DCNN



(b) Images ranked the lowest in aesthetics by DCNN

Kodachrome
DIAPOSITIV
ENTWICKELT
VON KODAK
Kodak

II. Current Applications of Computational Aesthetic Estimation

Photo selection: album covers

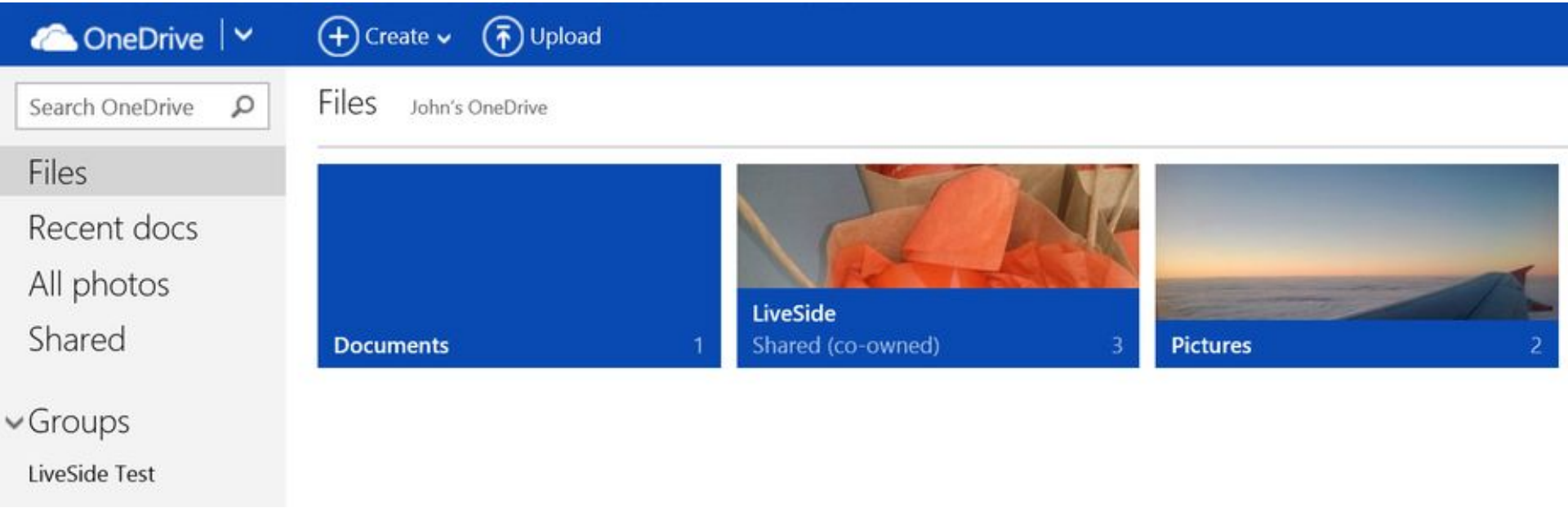


Image: Windows Central

Social Albums

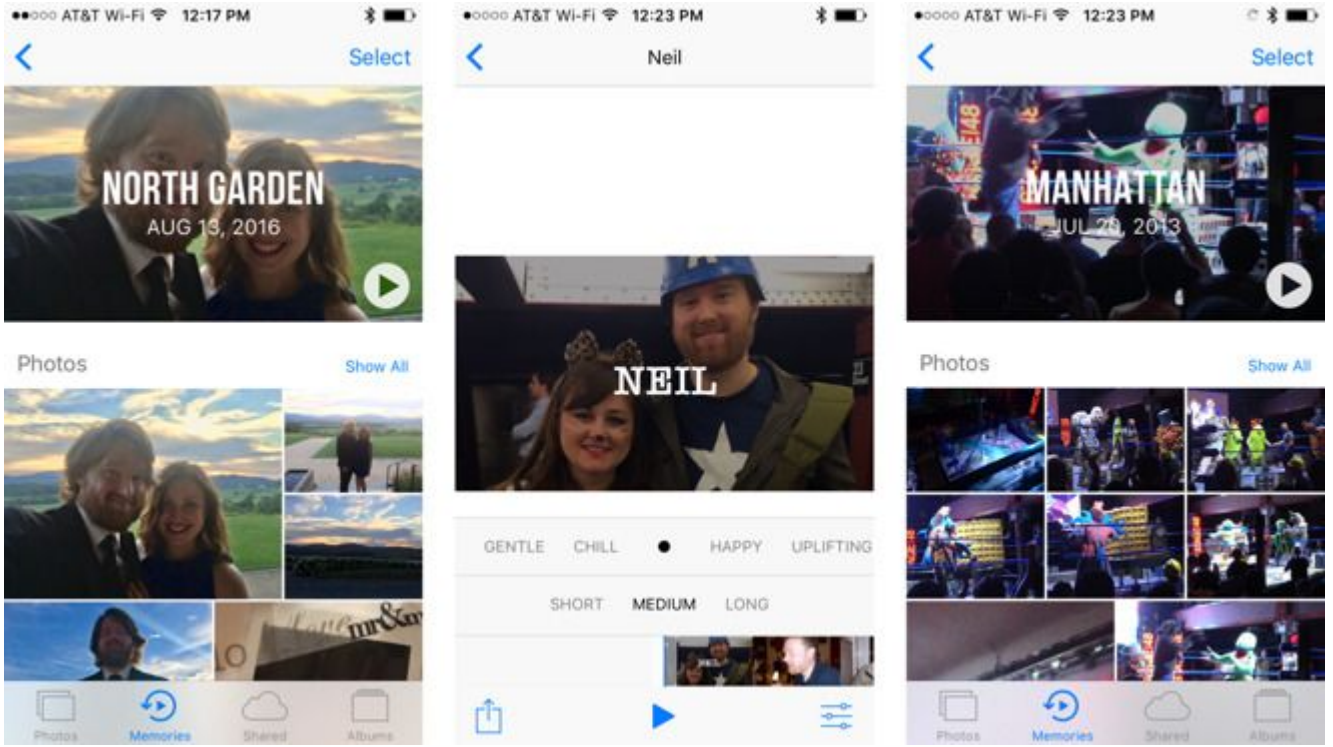


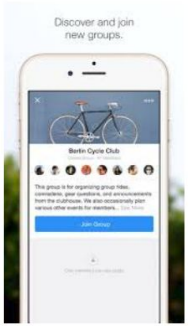
Image: Apple Insider

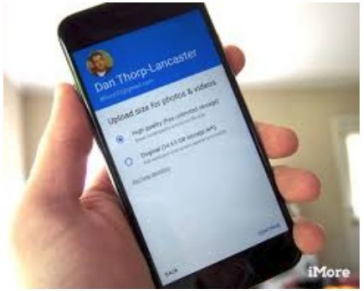
Google

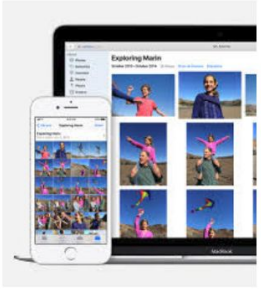
iphone album sort by event

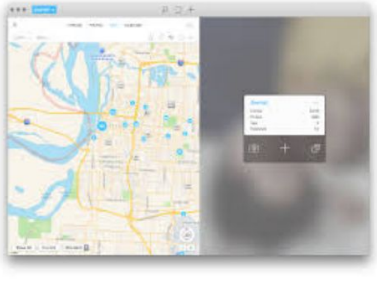
All News Shopping **Images** Videos More Settings Tools

during | manager | facebook | groups | bono | tap | iphoto | import | itunes | google | app | apple | android | mac | u2 a









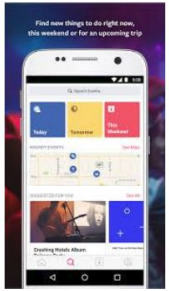


Image Modification

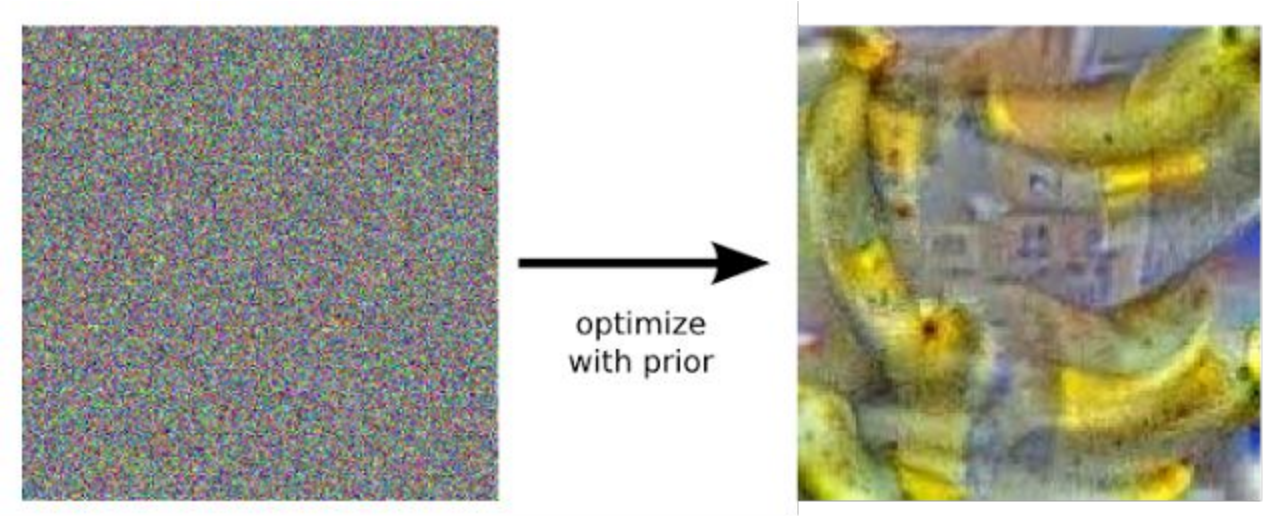
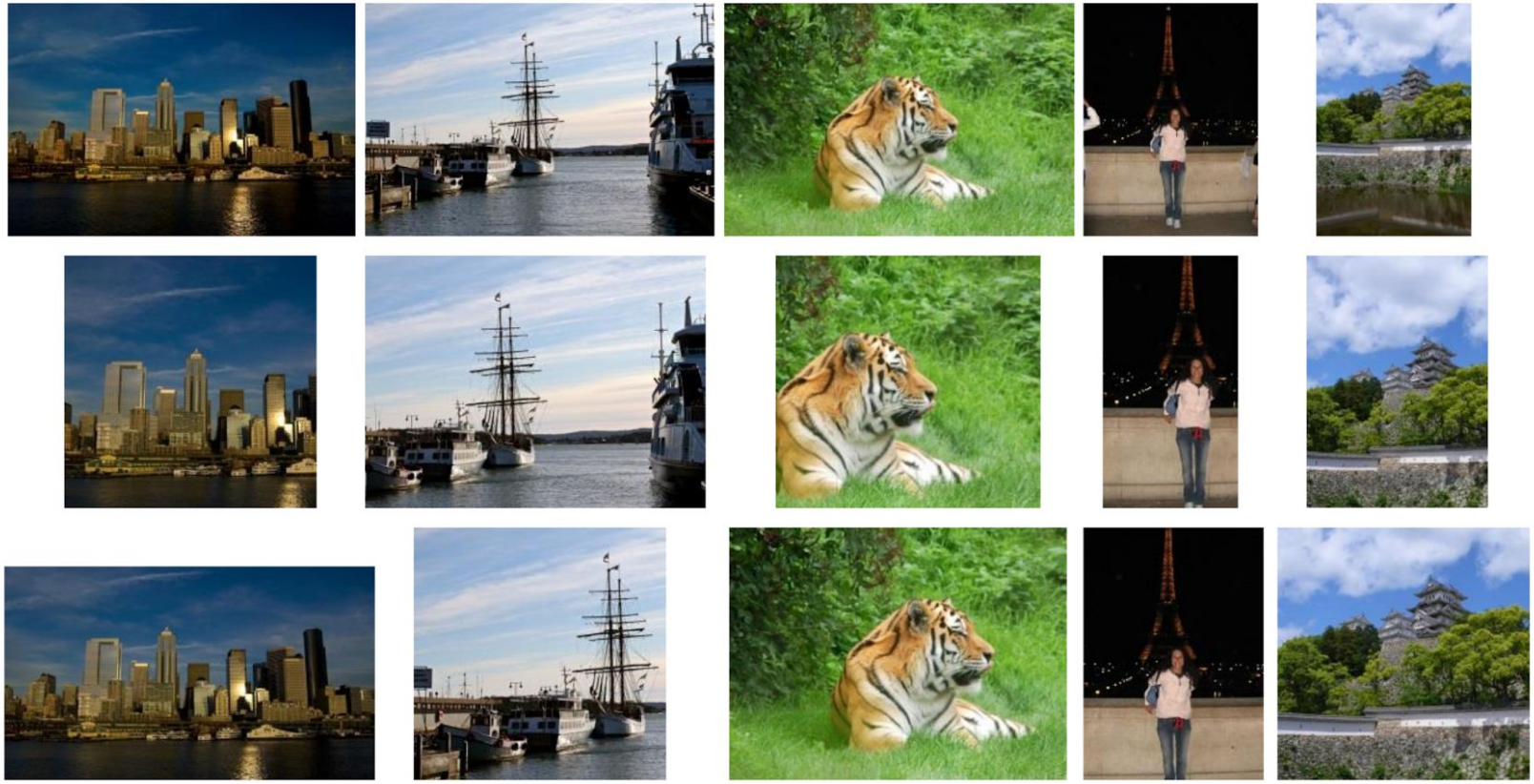


Image: Google Research Blog

8-08

8-08



Automatic Image Cropping with Aesthetic Map, Kao et al, ICASSP 2017

III. *IRL*

Conventional Publishing

BBC | Sign in | Home | News | Sport | Weather | Shop | Earth

NEWS

Home | Video | World | UK | Business | Tech | Science | Stories | Entertainment & Arts | Health | Wo

Mugabe 'resisting calls to stand down'

The military says it is "engaging" with the president and had made progress in targeting "criminals".

1h | Africa

- Any change will do for Zimbabwe
- 'Enormous sense of anticipation'
- Debunking false rumours

Russia vetoes Syria chemical attacks probe

Moscow uses its 10th UN veto since the Syria conflict began to block investigative body.

3h | Middle East

Tesla unveils first electric truck

The launch of the new vehicle was accompanied by a surprise - a fast new Roadster.

29m | Technology | 18

Serena Williams marries Alexis Ohanian

Beyonce, Kim Kardashian and Eva Longoria were among the A-list guests in New Orleans.

1h | Newsbeat

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headlines
Friday
17 November 2017

Zimbabwe / Amid relief over Mugabe downfall, doubts over his likely successor

After so long under one man's rule, even limited reform introduced by Emmerson Mnangagwa would be welcomed by many

Vast wealth / Robert Mugabe's decadent ways

Analysis / Was Mugabe's fall linked to China?

Grace Mugabe / Where is Zimbabwe's first lady?

'Where do his hands go?' / Trump tweets about Al Franken sexual harassment

Jacinda Ardern to Trump / 'No one marched when I was elected'

Sarah Silverman on Louis CK / 'Can you love someone who did bad things?'

Japan / Rail company apologises after train leaves 20 seconds early

Germany / Questions over ministerial hopeful's 'links to Russian pipeline'

China / Anger as bike sharing firm shuts up office with riders' deposits

Indonesia / Politician who disappeared in corruption scandal found in hospital

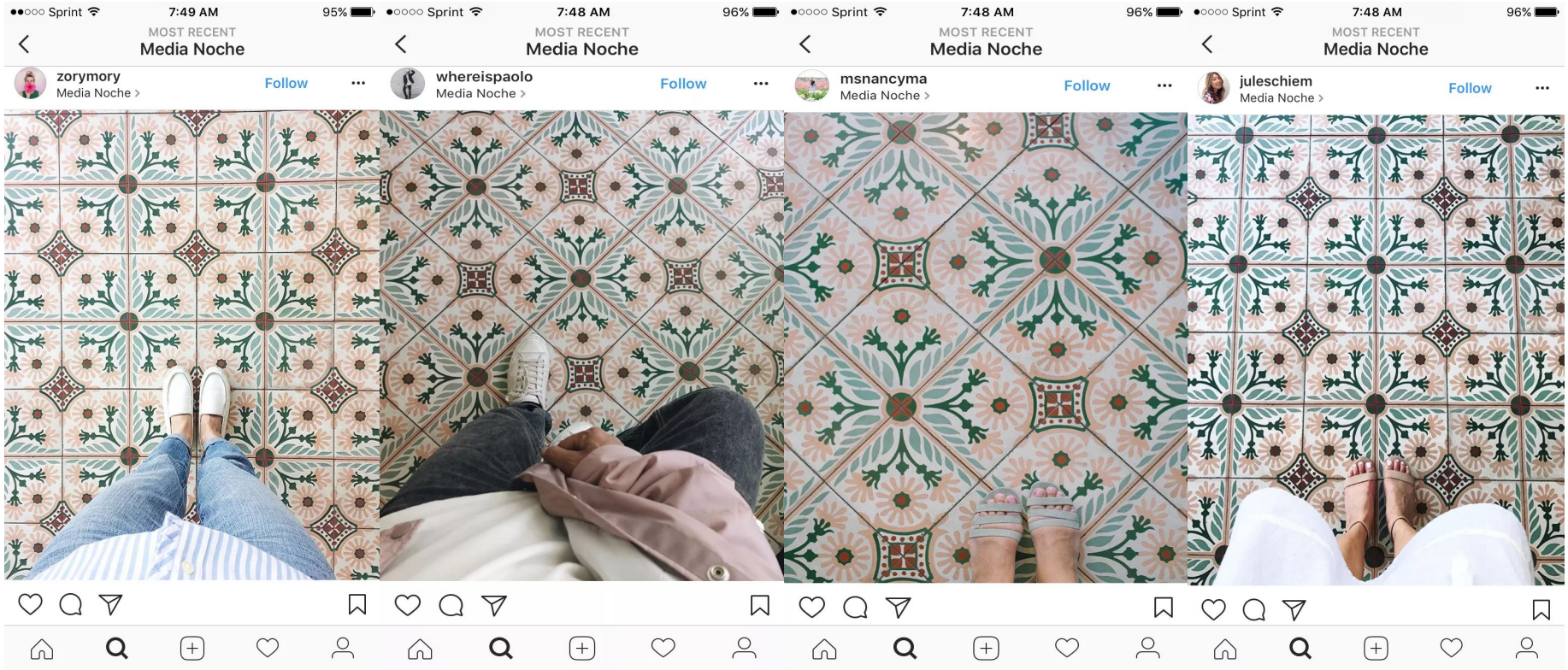
Middle East / Israeli military chief wants closer Saudi ties as Iran tensions rise

Toxic air chokes Pakistan and India / 'Maybe the smog can bring us together'

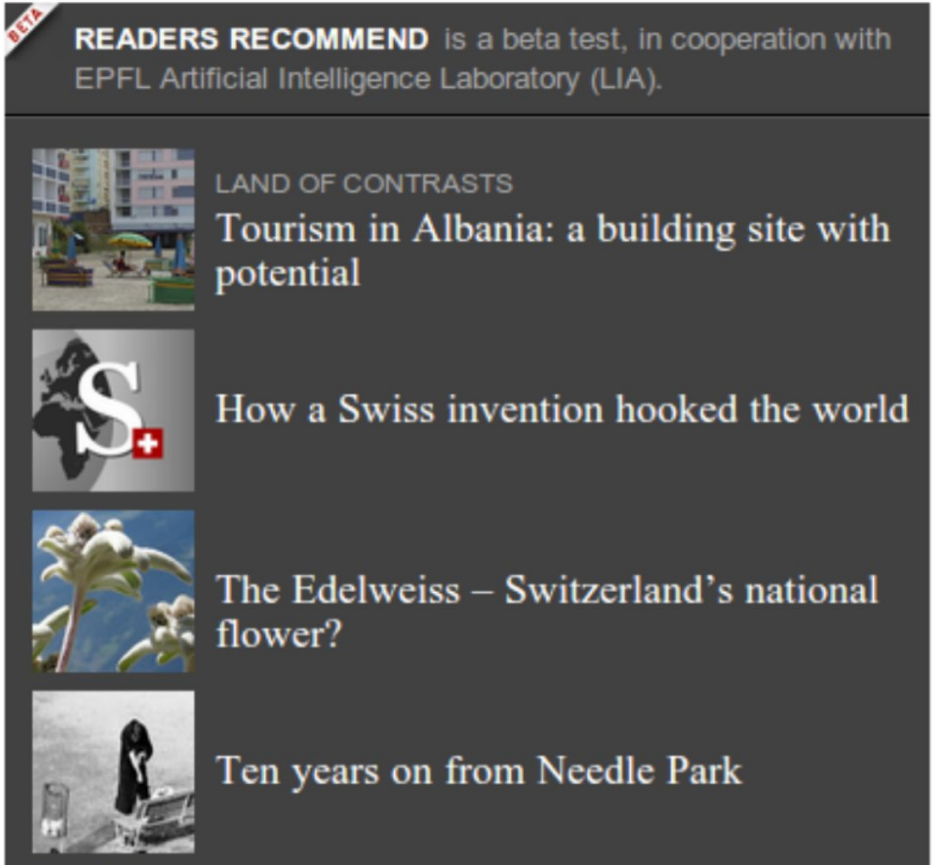
16

Jared Kushner / Trump son-in-law failed to disclose emails about WikiLeaks and

Instagram is pushing restaurants to be kitchy, Casey Newton, The Verge, 20/07/17

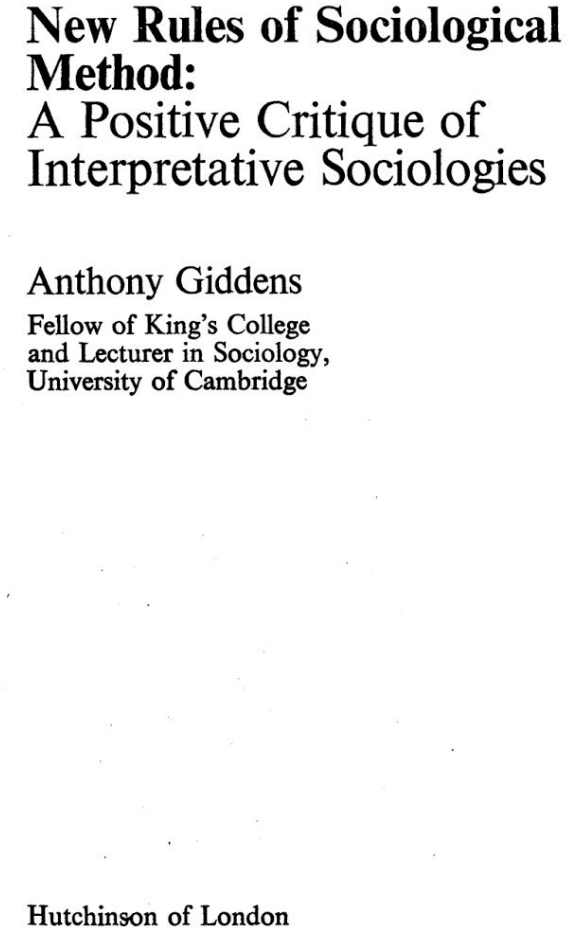


IV. Double Hermeneutic



Online Machine Learning

Offline and Online Evaluation of News Recommender Systems at swissinfo.ch, Garcim et al, ACM Recommender Systems 2014



Double Hermeneutic

“~~Sociology~~ **Machine Learning** is not about a 'pre-given' universe of objects, the universe is being constituted — or produced by — the active doings of subjects.”

"The realm of human agency is bounded. Individuals produce society, but they do so as ~~historically~~ **algorithmically** located actors, and not under conditions of their own choosing."

"Immersion in a form of life is the ~~necessary and only~~ **most profitable** means whereby an ~~observer~~ **algorithm** is able to generate such characterisations"

“~~Sociological concepts~~ **online machine learning systems** thus obey a double hermeneutic”

Feedback

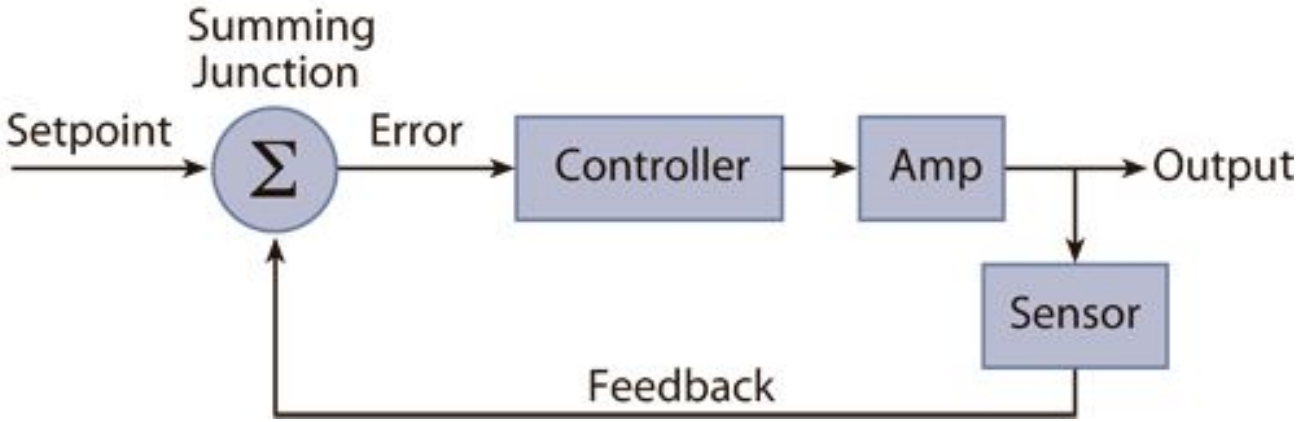
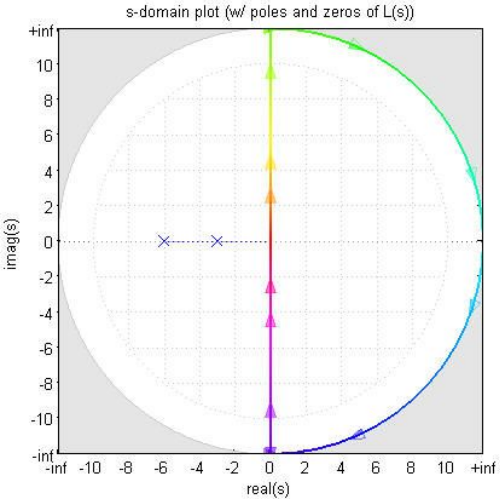


Image: instrumart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imag(s)
real(s)
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-inf
10
8
6
4
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0
-2
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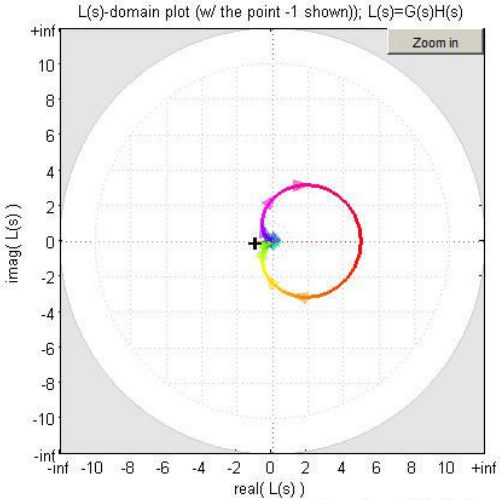
-6
-8
-10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Zoom in
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-inf
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-6
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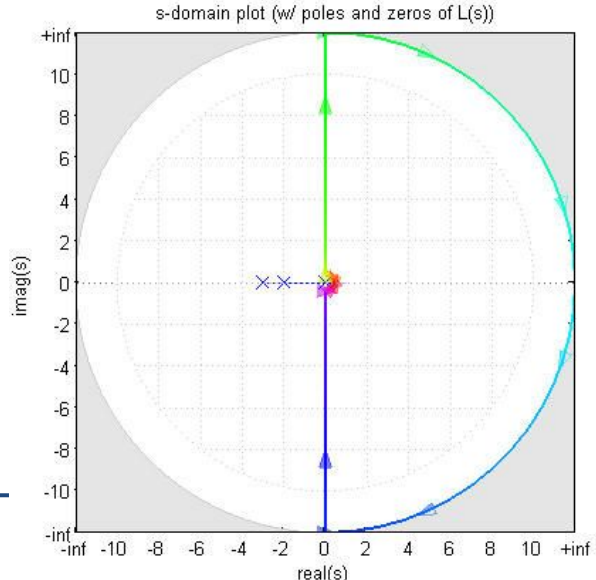
-10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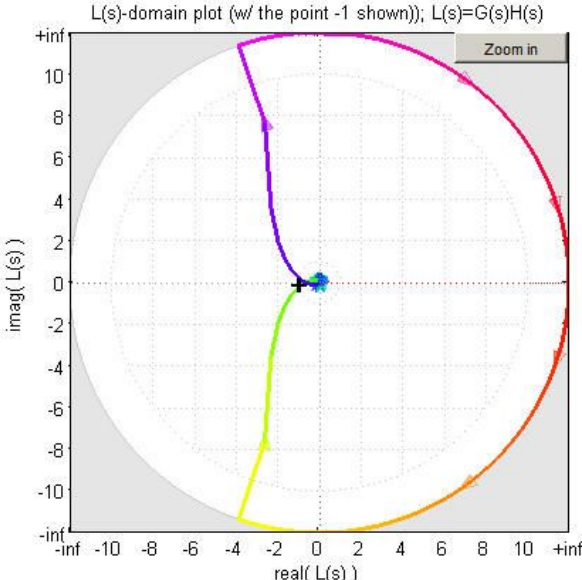
L(s)-domain plot (w/ the point -1 shown)); L(s)=G(s)H(s)
Zoom in
imag(L(s))
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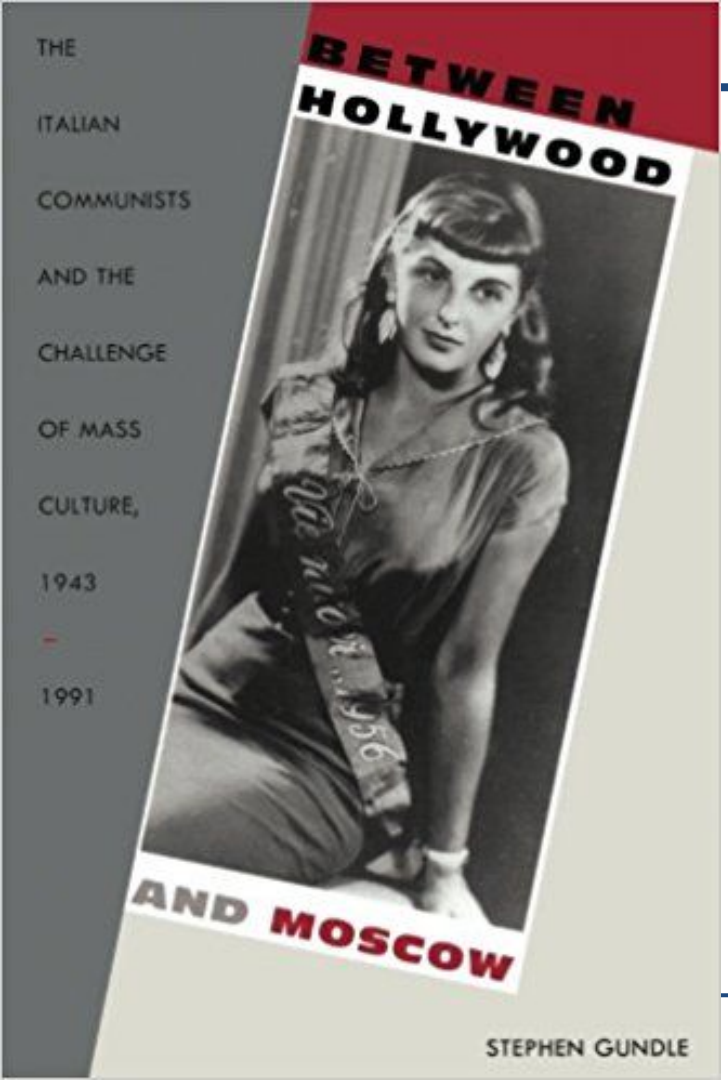
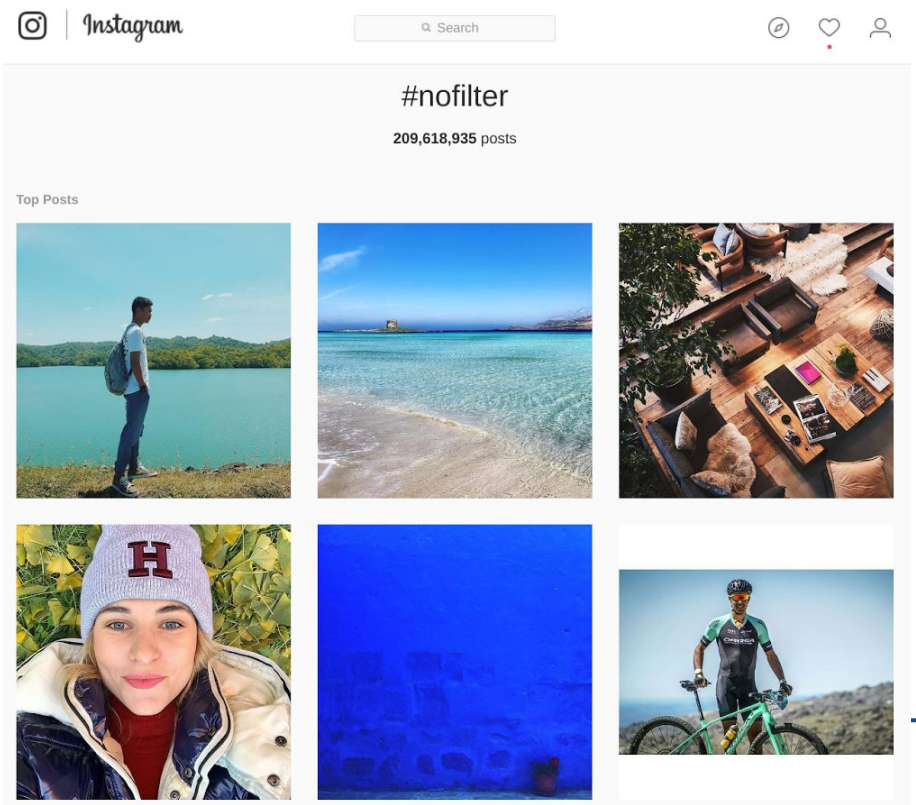
V. Questions for the Future



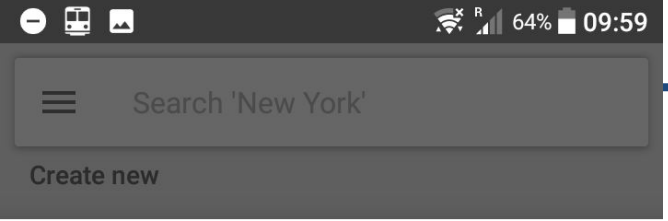
Visual-Aesthetic Hegemony

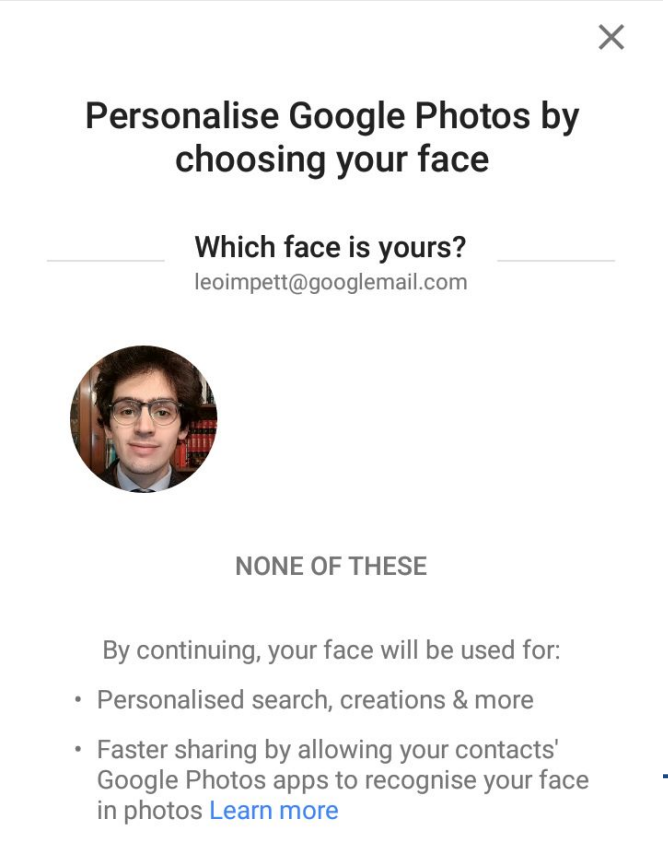
Platform Divergence?

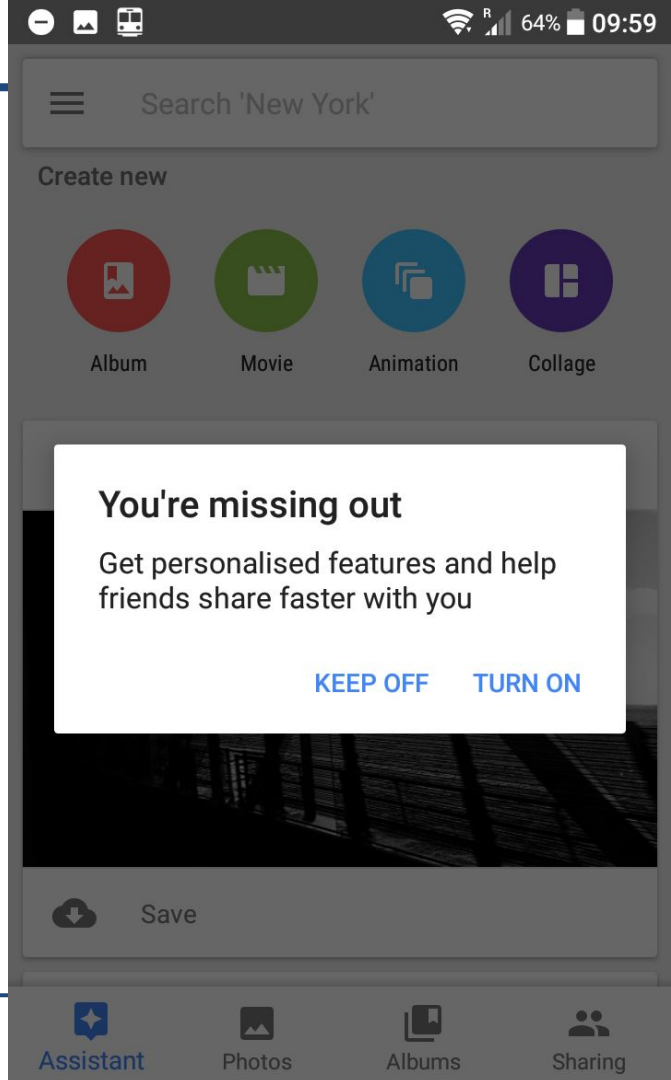
Popular Reaction?



Personalisation?







The end

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