Subjects and Styles in Instagram Photography (Part 2)

Lev Manovich

PDF of "Subjects and Styles in Instagram Photography (Part 1)":
http://manovich.net/index.php/projects/subjects-and-styles-in-instagram-photography-part-1

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Abstract for "Subjects and Styles in Instagram Photography"

What are some of the types of Instagram photos today and how they relate to the 20th century photo culture? I analyze three common types of Instagram photos. We call these types "casual," "professional," and "designed." "Casual" photos are similar in function to personal photographers of the 20th century: they are created for friends; they privilege content of photos and ignore the aesthetics. Both "professional" and "designed" photo type are examples of what Alise Tifentale calls competitive photography. The difference is whom the authors compete with for likes and followers. The authors of professional photos aim for "good photo" aesthetics established in the second part of the 20th century, so they compete with other authors and lovers of such "classic" aesthetics including many commercial photographers. The authors of "designed" photos associate themselves with more "contemporary," hip," "cool" and "urban" lifestyle choices and corresponding aesthetics, so this is their peer group on Instagram.

The first part of "Subjects and Styles in Instagram Photography" discussed *casual* type. This second part discussed *professional* and *designed* types.

My text is an experiment to see how we can combine traditional "qualitative" approach of media theory and art history and newer quantitative analysis that uses "big cultural data" and computational methods. I draw on the analysis of 15 million images shared on Instagram in 16 global cities during 2012-2015 carried out in our lab (softwarestudies.com); results from other labs; my own informal observations from using Instagram for 3 years; and histories of photography, art and design.

The following are the illustrations that appear in the first part of the text:

Figure 1.
Color prints and slides from 1956-1976. Millions of such images were captured with mass market point and shoot cameras and Polaroid cameras. In the former case, the film cartridges were developed by photo labs using standard equipment made by companies such Kodak. Depending on the film type used, the labs returned to consumers prints or slides. The images are arranged chronologically left to right and top down. All images were scaled to the same height. Keep in mind that that colors frequently faded over time; early digital scanners used to digitize these photos could have also changed colors, contrast, and lose details. Sources:
http://look-at-me.tumblr.com/ (submitted vintage personal photos).
https://www.flickr.com (only photos with Creative License are used).
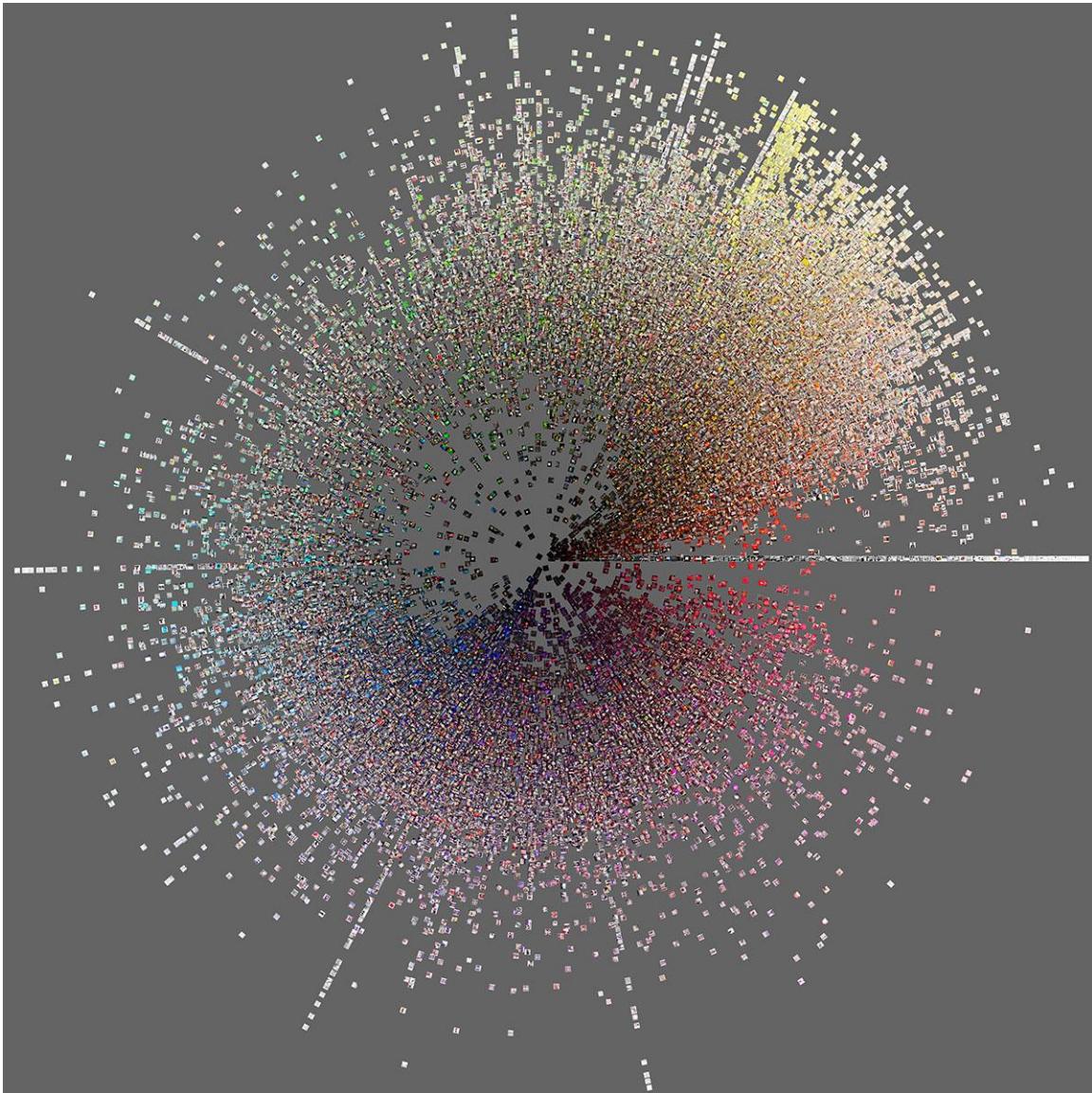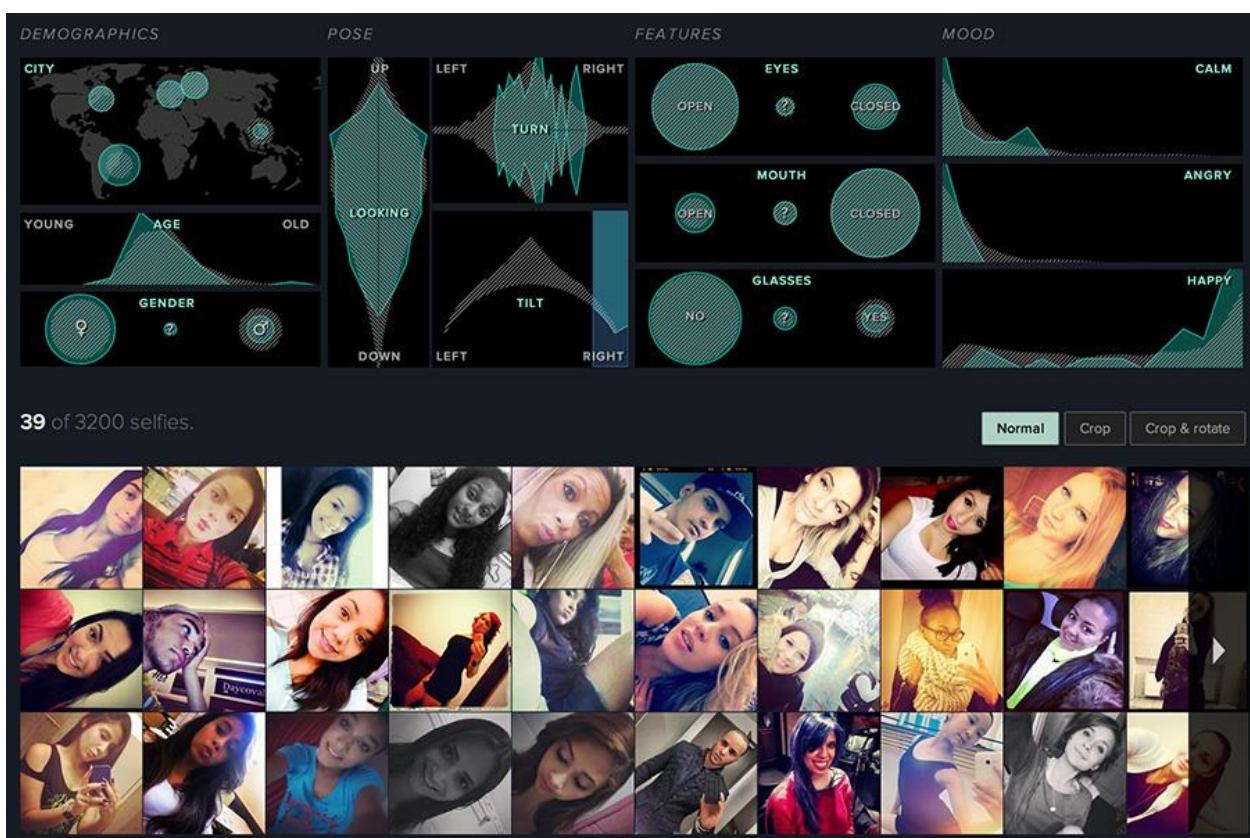
Figure 2.
One of many visualizations created for our phototrails.net project that compared 2.3 million Instagram images from 13 global cities shared in 2012. This visualization compares 50,000 images shared in center of Bangkok (left) and 50,000 images shared in the center of Tokyo (right). Images were shared in Spring 2012. In the visualization they are organized by average brightness (distance to center) and average hue (angle). The high resolution versions are available here:
https://www.flickr.com/photos/culturevis/8628507293/sizes/c/.
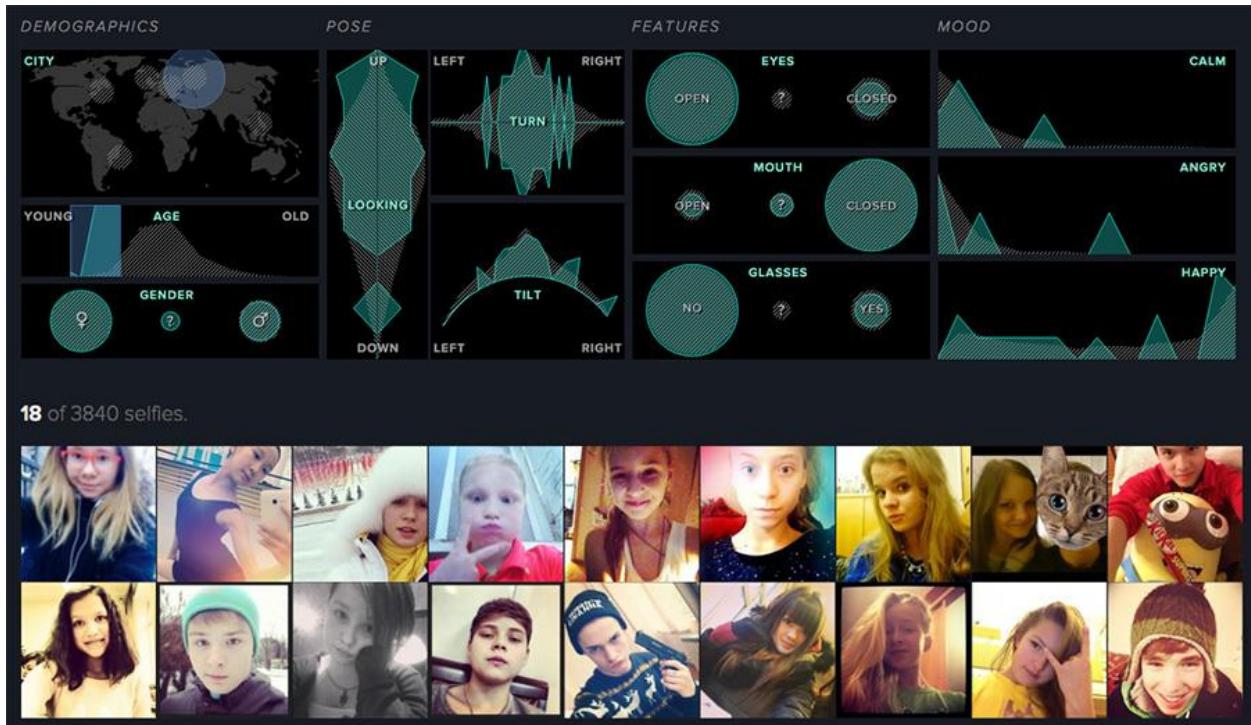
Figure 3.
Screenshots from selfiexploratory, an interactive web application from our projects selfiecity.net (2014) and selfiecity.net/london (2015). The application allows web visitors to explore patterns in a dataset of 3,840 Instagram selfie images from six cities. The application is available at: http://selfiecity.net/selfiexploratory/

3a: Female selfies from Sao Paolo; strong head tilt to the right. We have used face analysis software ReKognition that measured over 20 different characteristics of faces in the photos, including face

size and orientation. The software also estimated age, gender, and six emotional states on 0-100 scale.
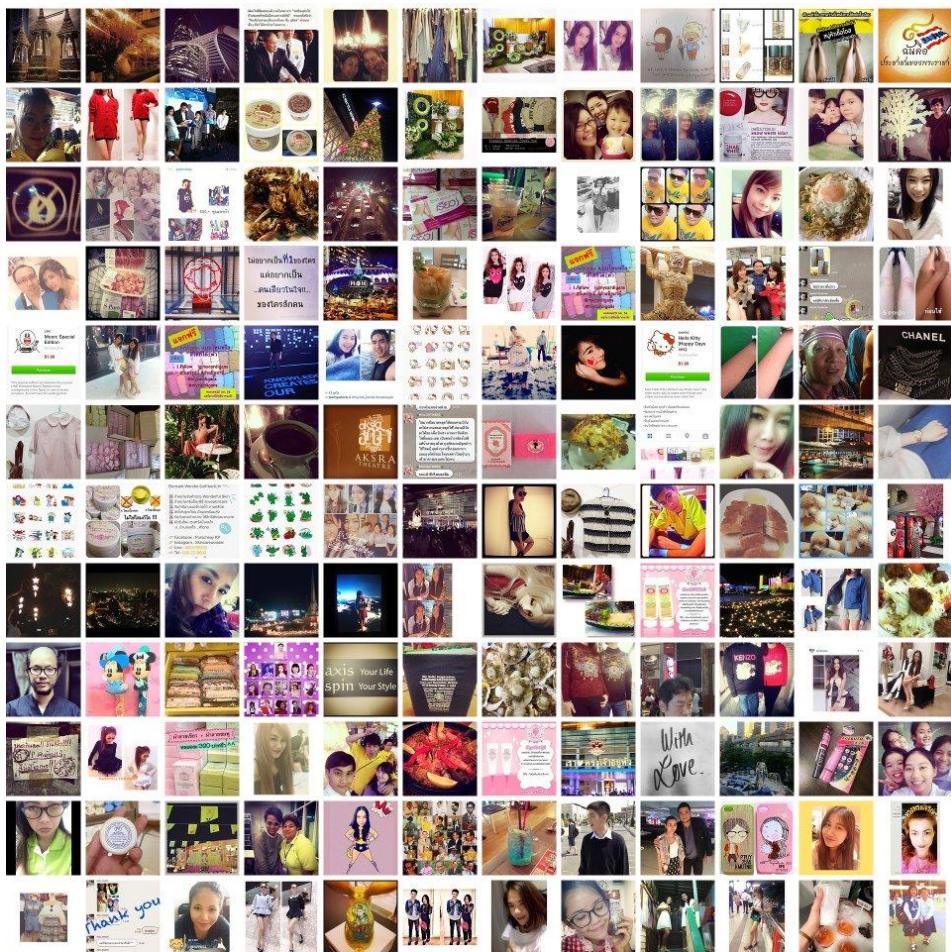
3b: Selfies from Moscow.; age < 17. To identify age of people in selfies, we used the average estimate of three Amazon Mechanical Turk workers. We also obtained age estimate from face analysis software ReKognition.
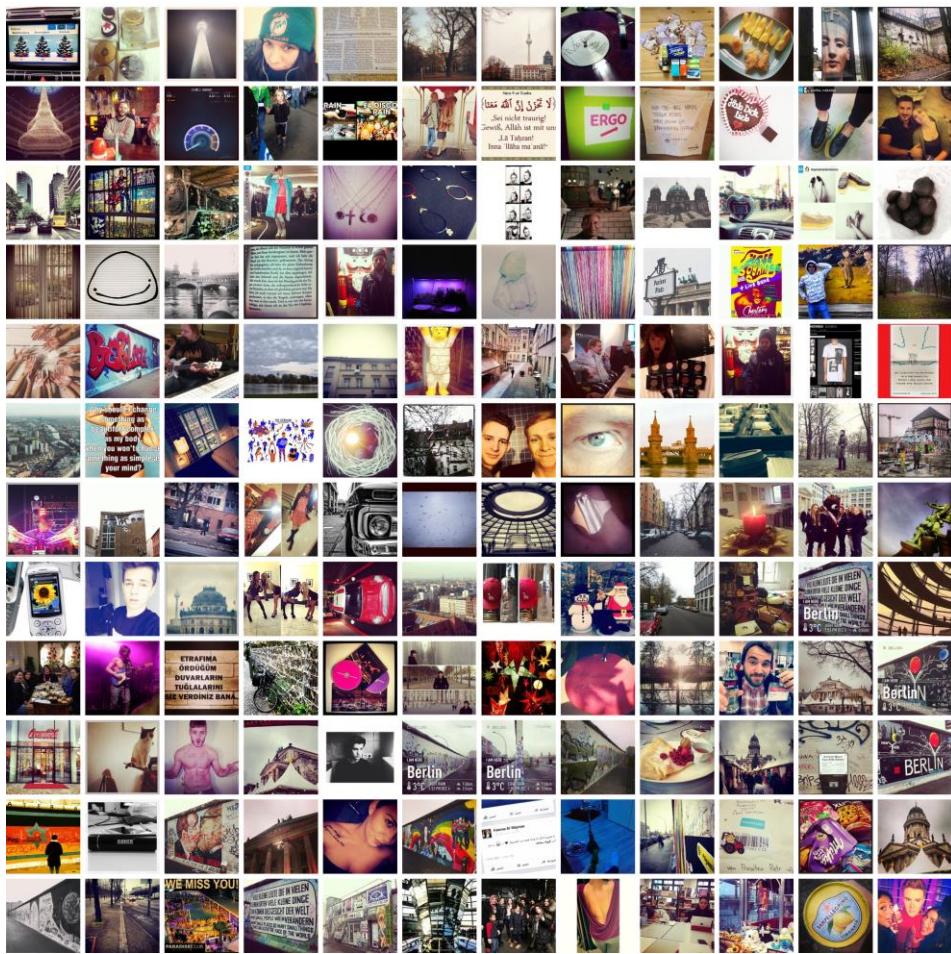
Figure 4.
Samples of Instagram images shared in Bangkok, Berlin, Moscow, New York, Sao Paolo and Tokyo during December 5-11, 2013.
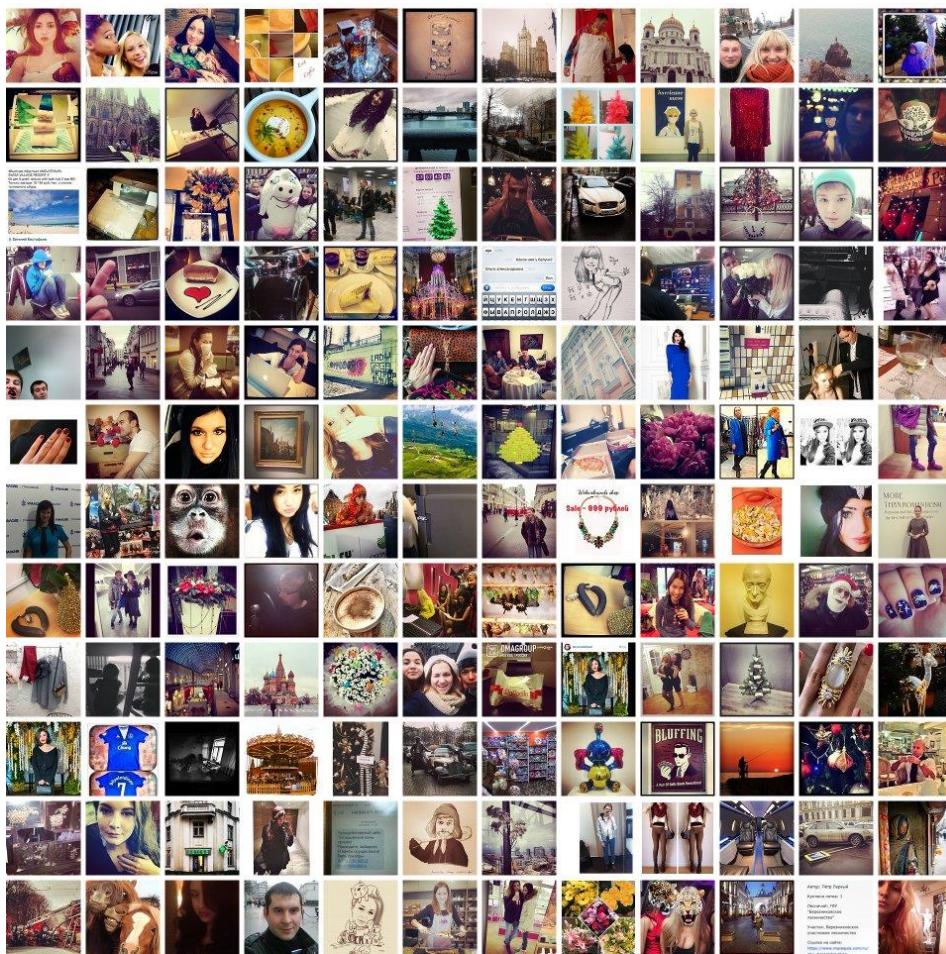
To understand what people share on Instagram in different geographic areas, we download and then visualize all images shared in a particular area over a period of time. The montages above show small random samples of Instagram images shared in Bangkok, Berlin, Moscow, New York, Sao Paolo, and Tokyo during December 5-11, 2013. The samples come from the larger data set we created for Selfiecity project (see http://selfiecity.net) - all 650,000 images with geolocations shared during that week in 5 km x 5km areas of each city. Note that because only some users make location visible for some of their photos, this may affect the kinds of photos we were able to download using location as parameter. According to the results of the analysis of 5,659,795 images shared worldwide by 369,828 users up to 2014, "more than 18.8% contain location information" (Manikonda, Hu and Kambhampati, Analyzing User Activities, Demographics, Social Network Structure and User-Generated Content on Instagram, 2014). Since we only downloaded images with location information, there may be different patterns in the other %80 of images that we can't see in our dataset.
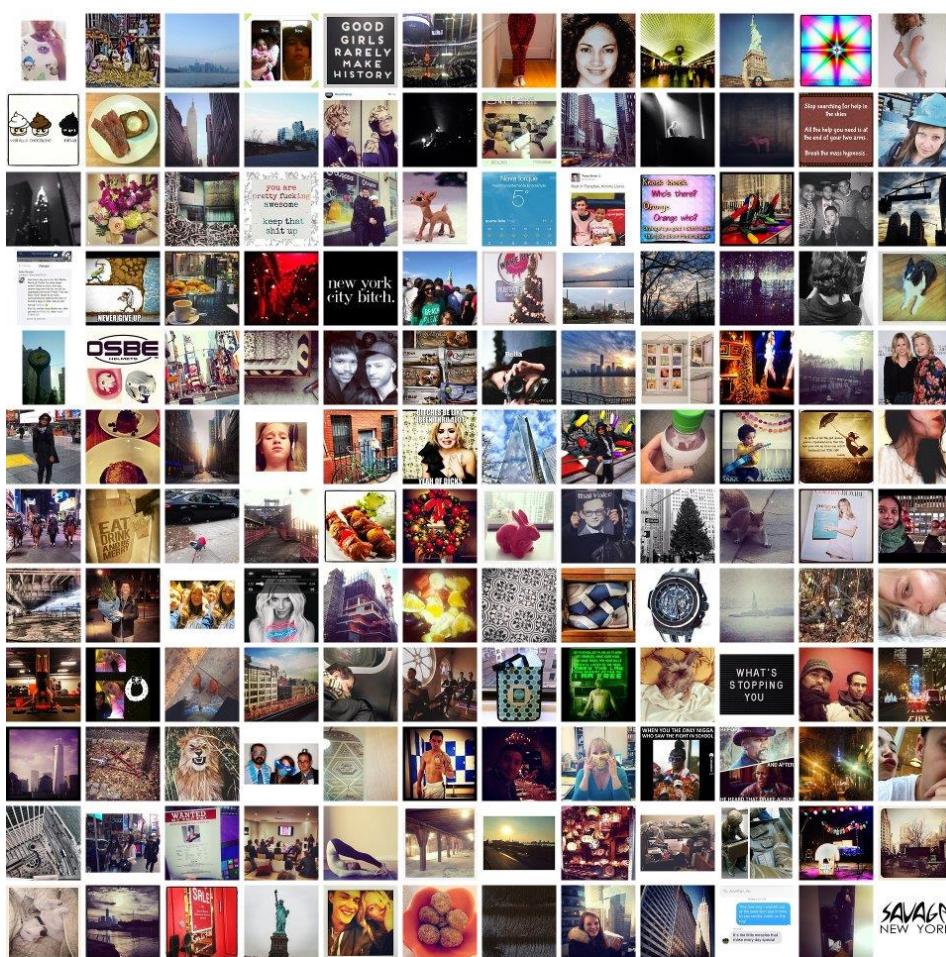
4a - Bangkok
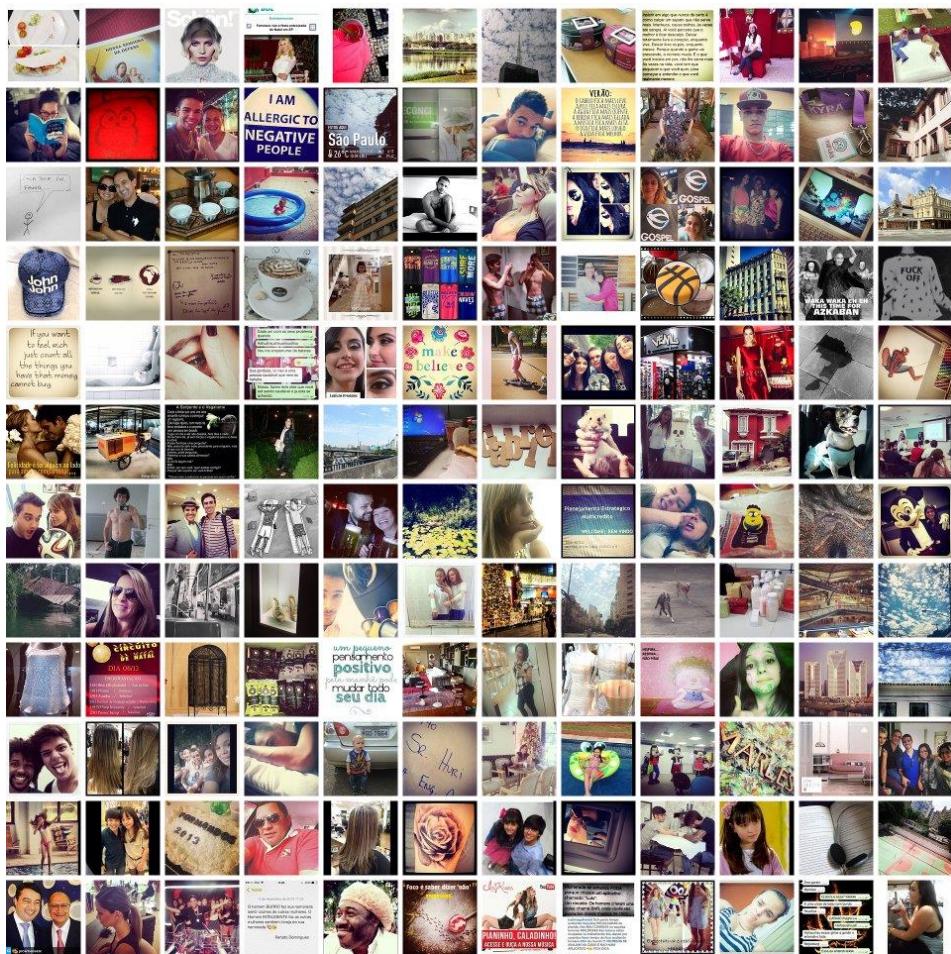
4b –Berlin
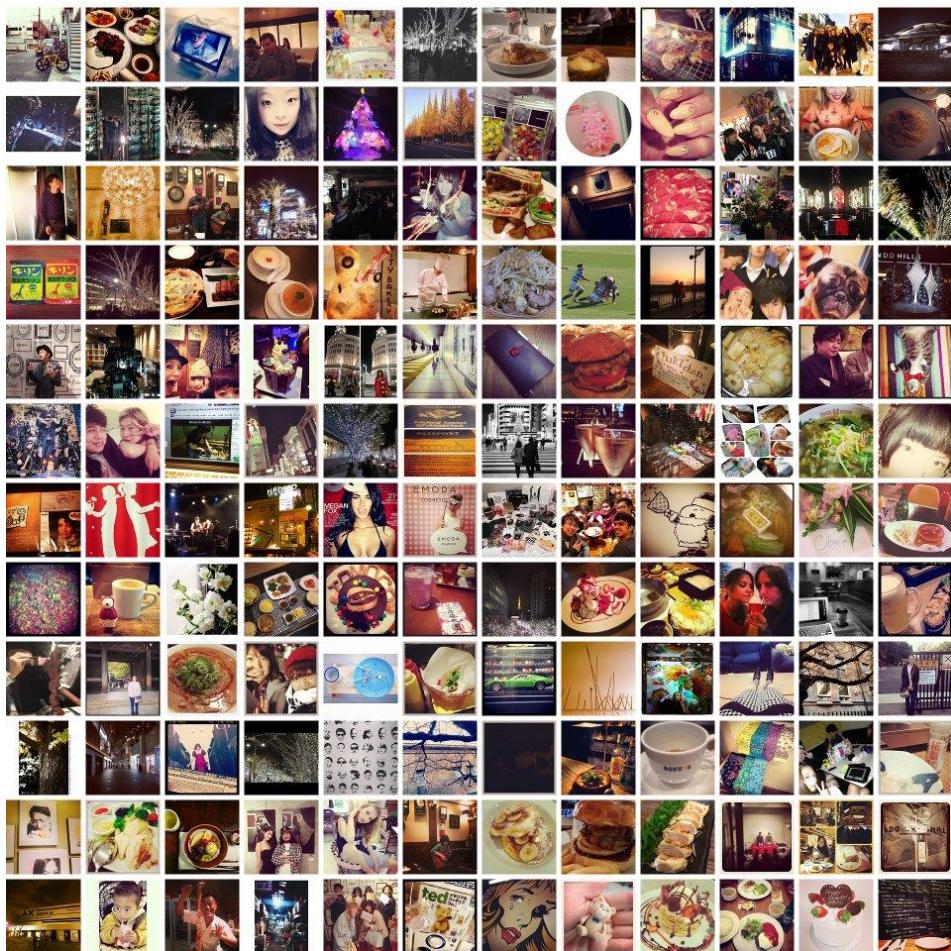
4c -Moscow

4d - New York

4e – Sao Paolo

4f –Tokyo
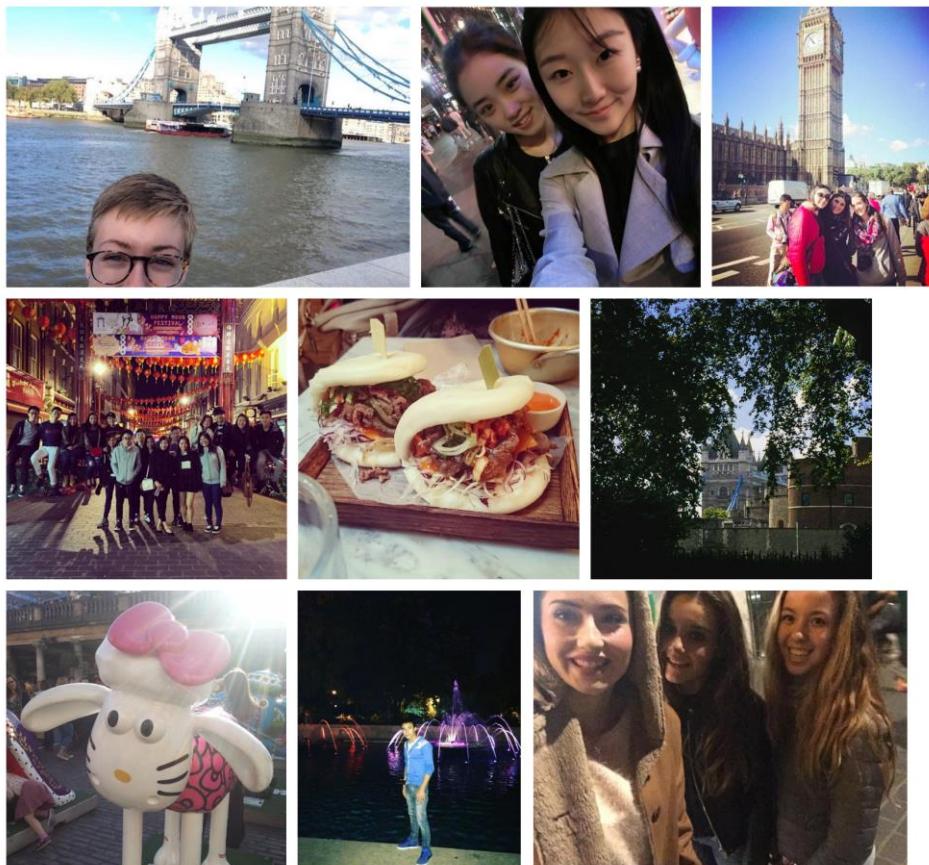
Figure 5.
Examples of casual, professional and designed Instagram photo types.

5a. *Casual* photos, selected from all 152,000 images with geolocation shared in 5 x 5km central area of London during 9/21-9/28, 2015. Images were collected for http://selfiecity.net/London.
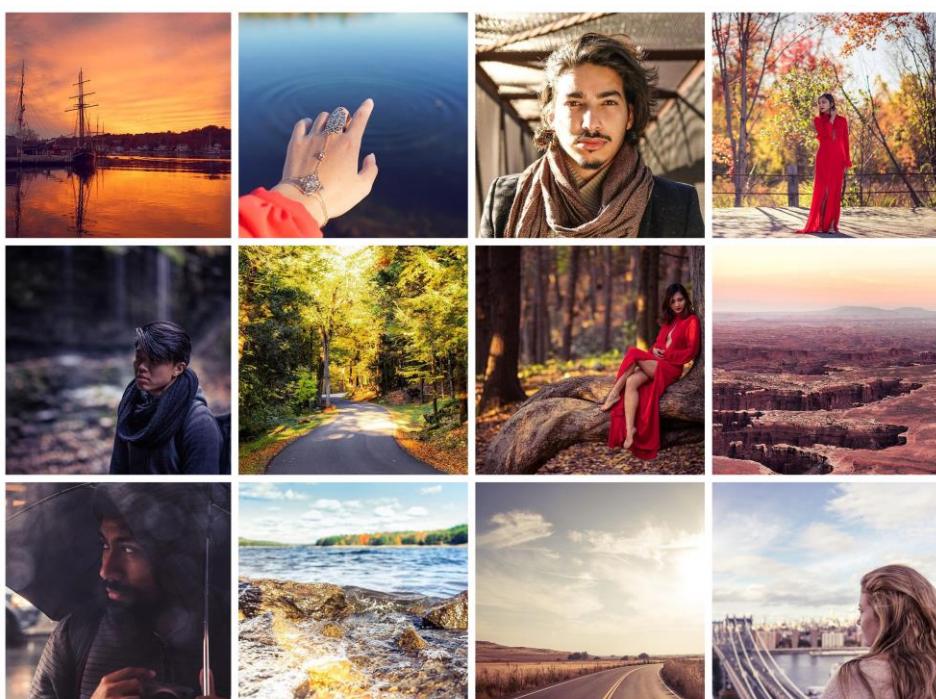
5b. *Professional* photos from Instagram gallery of @neivy (Connecticut, **USA**) during October-November 2015. **869** posts, **11.7k** followers (as of 12/28/2015).

5c. *Designed* photos from Instagram gallery @recklesstonight (Kiev, **Ukraine**) during October-December 2015. User account: **123** posts, **52.1k** followers (as of 12/28/2015).
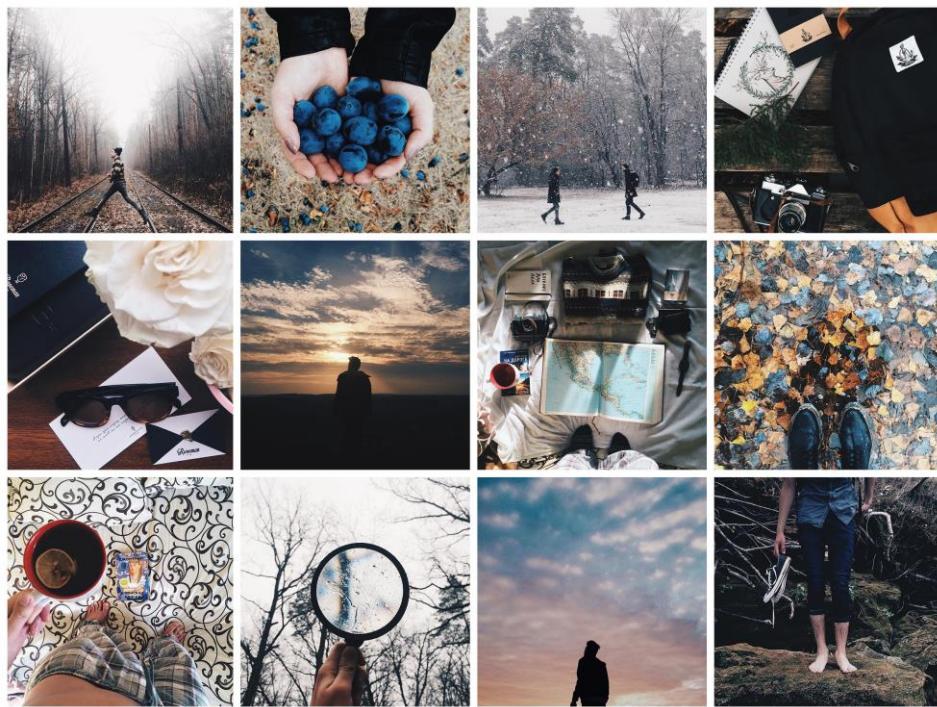
5d. *Designed* photos from Instagram gallery of @vita_century (**Russia**) during February-March 2015. User account: **255** posts, **28.9k** followers (as of 12/28/2015).
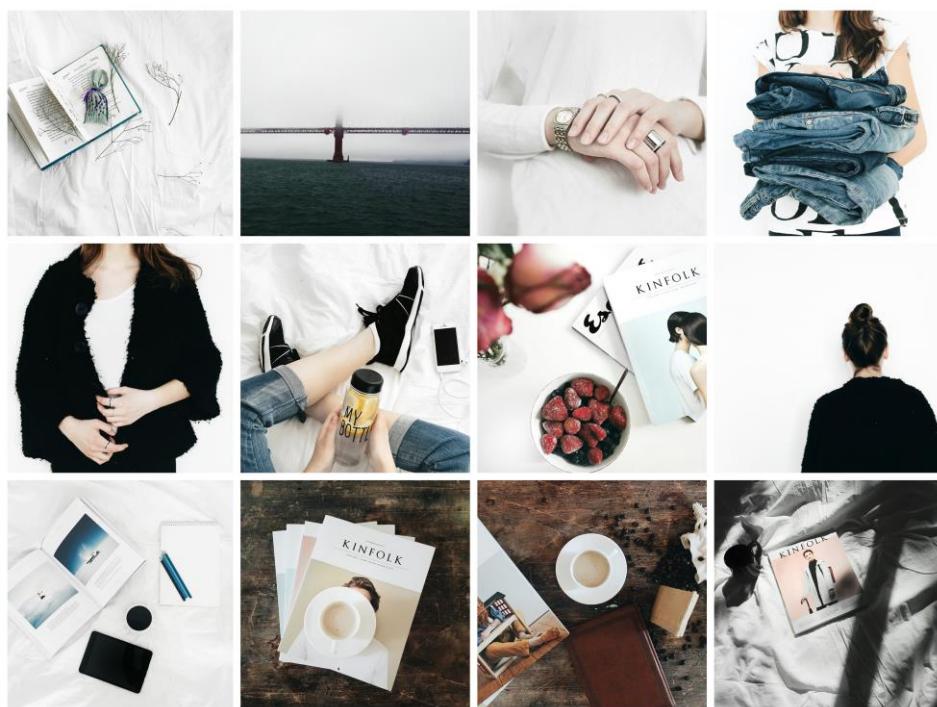
5a - *casual* photos (multiple authors)

5b – *professional* photos (single author)

5c - *designed* photos (single author)

5d – *designed* photos (single author)

Figure 6.
Examples of work by well-known photographers referred to as "snapshot aesthetics" practitioners.

6a. Robert Frank, two photographs from the book *Americans*, 1958.

6b. Daido Moriyama, "Man and Woman, Yokohama," 1969; Yutaka Takanashi, 1965.

6c. William Eggleston, two photographs from 1970 and 1976.

6a - Robert Frank

6b - Daido Moriyama and Yutaka Takanashi

6c - William Eggleston

Professional **photos**

Having discussed *casual* photos on Instagram in Part 1, we will now analyze the second common type – *professional* photos. The examples of these photos are shown in **figure 5b**. Note that most of these photos are not from photographers who went to photo schools and/or making money from their commercial photography. We are using the term "professional" to refer to the rules of photography codified in the textbooks during the second part of the 20th century and now repeated in numerous instructional videos, photo blog and websites, and texts used in photo classes. The lists of such rules may differ but what is important for our characterization of professional Instagram photos is that they were fully established *before* Instagram and mobile photography stage. The examples of such rules are the "rule of thirds"; proper exposure that shows details in shadows, middle tones and highlights; use of line orientations that lead the eye into distance or, on the contrary, make subject appear more flat; balanced colors without any color tint dominating. (The pioneering paper that used of computer vision to study of characteristics of photos including the use of such rules and their effect on aesthetic judgements of photos is Ritendra Datta et al., Studying Aesthetics in Photographic Images Using a Computational

Approach, 2006. This is now big research area within computer science. For recent examples, see Sergey Karayev et al., Recognizing Image Style, 2013, and Aydın, Smolic, and Gross, Automated Aesthetic Analysis of Photographic Images, 2015. The Datta's paper has been cited in 487 other papers, which indicates the scale of this research.)

Of course lots of modern photographers systematically broke many of these rules to develop their unique styles, producing photos that may have low contrast, dominance of one hue, and other intentional "mistakes." But breaking the rules required solid understanding and mastery of them in the first place.

As we can see from the examples in **Figure 5b**, the use of professional rules by Instagram authors does not always produce visually interesting photos. So, in our use, "professional" refers to the systematic use of rules (regardless of whether they fully understand them or just imitate others) of "good photography" by Instagram authors, and not aesthetic quality of the photos or person's photo training.

Some of the rules of such *good photography* have been already implemented for years in algorithms included in all types of digital cameras, from smart phones to the larger full frame cameras from Nikon, Canon and Sony costing thousands of dollars (plus thousands more for appropriate lenses for such cameras). Leaving settings at defaults settings typically fires these algorithms when a photo is taken. The algorithms focus camera on the detected face or faces, sharpen photo after the capture, balance grey scale and color histograms, apply image stabilization, etc. They also adjust these and other photo characteristics together to fit the automatically detected or user selected scene types we already mentioned above thus offering meta-automation. In these ways, many of the rules that characterized modern professional photography are now applied by cameras automatically during capture, but others such as composition, use of particular line orientations, proper lighting or establishment of rhythm still have to be learned and practiced manually. Since the phone cameras apply some of the rules automatically to all captured photos, this may make the proportion of professional photos on Instagram and other media sharing sites higher than it was overall in the 20th century photography.

Some Instagram photographs follow *all* rules of "good photography"– proper composition, focus, greyscale and color balance, and interesting subjects. But many more photos follow only some of these rules, but not all. This can be partly related to the use of automatic algorithms in phone cameras that implement only some rules. For example, a photo may have perfect contrast and balanced colors but bad composition. Or the photo may have interesting dynamic composition but be overexposed.

The example of how rules of good photography from the second part of the 20th century continue to function today without change can be found on the website of already mentioned Shutterstock microstock agency. To help potential contributors understand what photos will interest customers, one article on the site summarizes the requirements:

"a. Composition – make sure the subject is well framed and is clearly defined within the borders of the image.
 b. Focus – Is your subject in focus? Use a tripod when necessary or appropriate. Do not always rely on auto over-ride it manually when necessary to ensure a sharp well defined subject.
 c. Lighting – Your subject should be well lit. Use exposure compensation to make sure your image is not under or over exposed.
 d. Inspect all of your images at 100% before submitting them. Our reviewers look at all imagery at this magnification to search for technical problems – noise, critical focus, dust, sensor issues, chromatic aberrations, etc. ..."
(http://www.shutterstock.com/blog/how-to-prepare-your-first-submission, published 01/23/2014).

The subjects of professional and casual photos

Stock agencies developed taxonomy of the subjects of photos (along with video, vector art, and other image types) subjects to help the clients find appropriate photos. For example, on 02/13/2016, some of the categories on iStock website were "couple," "willpower," "liberation," and "independence" (http://www.istockphoto.com/stock-photos/). Another agency Shutterstock publishes the list of 20 most searched terms; on 12/18/2015, the top five were sky, background, business, beach, and food (the list also included wood texture as number 12, and paper texture as number 18; http://www.shutterstock.com/photos/).

While stock photography aims to cover all kinds of content to meet needs of all commercial or non-profit clients, what about other photographs that are highly *professional* (in our use of this term) and, to use the terms of Tifentale and Schroeder, *are competitive* but *not strategic* (they don't advertise, promote or persuade)? What subjects do they favor? While we have not analyzed separately the content of such professional photos on Instagram, we give an approximate answer to this question by considering content of photos on Flickr – which developed the reputation as the site for professional photographers in contrast to Instagram. (One of the answers on Quora to the question "Why did Instagram become so successful" states: "Flickr , 500PX are too professional for normal people who are not able to share high quality photos.". So if we assume that Flickr was a good representation of professional competitive non-strategic photography until about 2013, the analysis of content of large samples of photos uploaded to the site should be revealing. (After that the majority of photos uploaded to Flickr started to come from mobile phones, and iPhone and Samsung started to dominate over the names of dSLR cameras. See Chris Gambat, "An Independent Analysis of Flickr's Most Popular Tags", 09/06/2015).

In 2014 Flickr released a dataset of 100 million photos with Creative Commons licenses for use by all interested researchers (David A. Shamma, "One Hundred Million Creative Commons Flickr Images for Research," 06/24/2014.) The use of these licenses most likely makes this dataset a good representation of interests of serious photography enthusiasts, as opposed to photographers who create photos to sell – i.e., exactly the category we are interested in. The photos came with computer generated tags describing images content. Damon Crockett from our lab analyzed the data and found that the majority of photos were created between 2006 and 2013. Here are five top content tags for these photos and their relative frequencies. The frequencies are counted in relation to the top category (set to 1.00):

> outdoor – 1.00;
> indoor – 0.58;
> nature - 0.43;
> people – 0.35;
> architecture – 0.31

As we can see, the outside *world* dominates ("outdoor," "nature" and "architecture"). and this outside contains both nature and architecture. Searching Flick for tags describing photos taken with dSLR cameras such as Canon EOS 6D reveals a similar pattern (**Figure 7;** we borrowed this idea from Gambat, "An Independent Analysis of Flickr's Most Popular Tags"). This suggests that landscapes and cityscapes are the most frequent subjects for serious photography enthusiasts. Why? People as subjects are too particular, too concrete; too private; we the viewers of photos may like the face of one person but not another. Nature and city views are also concrete offering infinite details to the camera, but it is a different kind of universally appealing concreteness. At the same time, all details present in perspectival views offer best opportunity to show off the capabilities of high resolution sensors in expensive professional camera and expensive lenses. In fact, often professional photos of such views show much more detail than a human eye can see from the same point of view, and this *super-realism* is one of the clearest markers of photo professionalism today.

Fugure 7.
A small sample of images returned by Flickr when searching image tags for "Canon EOS 6D." This is a professional high-end dSLR camera with full frame 20 megapixel censor. The camera was released by Canon in 11/2012; the suggest retail price was US $2,900. Note that purchasing a few professional level lenses to use with such a camera adds another few thousands to the price. Flickr search was performed on 01/19/2016.
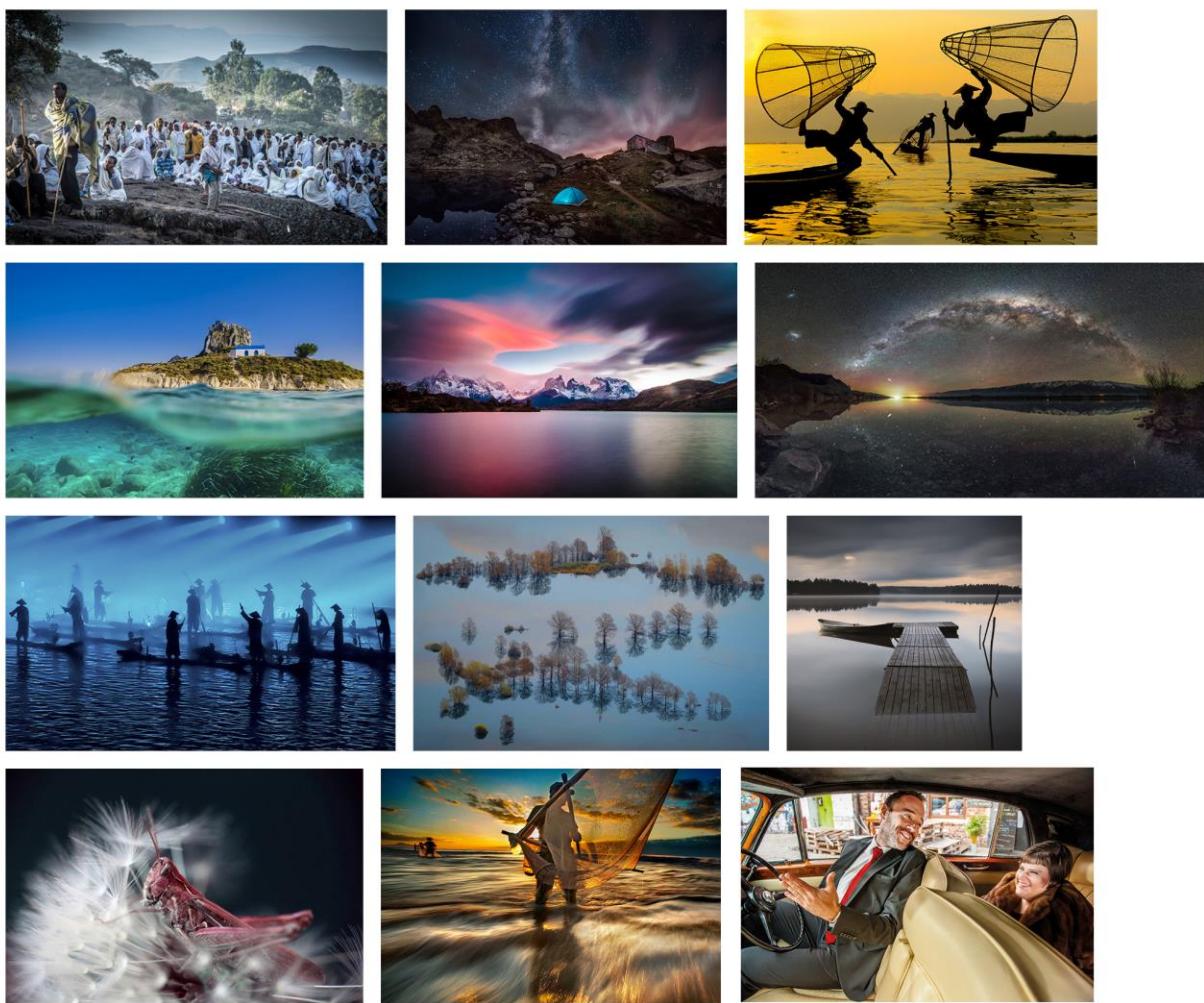
The photos that compete for awards in global competitions such as Sony awards by WPO (World Photo Organization) illustrate well this super-realism and other aesthetic ideals of professional photography today (see **Figure 8**). To us, they look very artificial: too staged, too contrived, with too much detail and too perfect colors. In fact, they look like academic paintings of the 19th century Paris salons or mid-20th century socialist realism as practiced in USSR or China, or works of classical antiquity that follow exact rules. And just as it is the case with such paintings, the photos that win in Sony competitions also appear to have a strict genre system, with no deviations.

The art academies of the 17th century formalized a hierarchy of genres of painting. Here are these genres from highest to lowest:

- allegorical composition,
- history composition,
- portrait,
- scene of everyday life (*scènes de genre* or "genre painting"),
- landscape,
- animal,
- still-life.

(source: https://en.wikipedia.org/wiki/Hierarchy_of_genres, accessed 01/10/2016)

While the first two genres are not used today by competition photos, all others have survived. But their hierarchy has changed. Landscape/cityscape genre dominates in terms of numbers of winning photos. The second frequent genre photograph of a person(s) against exotic "national" landscape background or engaged in some activity such as classical ballet. The third genre is an extreme close-up of an insect or a part of an animal with very rich texture and intricate detail. To win in a competition, a photographer also has to stick to particular techniques. For example, the only two allowed camera angles is strictly parallel to the ground or looking up (see **Figure 8**).

Figure 8.
A selection of award winning photographs from Sony World Photography Awards (National Awards), 2015. Source: http://www.worldphoto.org/national-award-2015.

Now we know something about the *ideal subjects* of professional photos, but what the subjects of casual photos? If majority of Instagram images are such casual photos, then analysis of most frequent tags assigned by people posting the photos can tell us something about what *they* see as the content of these photos, or emotions they think their photos represent. (And this is different from what computer algorithms will see when they analyze photo content.) Among top tags on the day we looked at such list (http://websta.me/hot, accessed 01/18/2016), most describe emotions or "people subjects" (we don't consider tags such as #instagood or #followme because they don't tell us anything about the intended subject or emotion). The people subjects include #me (number 6), #fashion (11), #selfie (#13), #girl (15), #friends (17), #smile (21), and #family (29). (Note that this list of top tags aggregates tags from Instagram photos worldwide, so we can't say anything about the differences among different locations.)

Based on these tag frequencies, we can conclude that casual photography on Instagram is dominated by the human world – in contrast to professional photography on Flickr or in photo competitions dominated by nature/city view genre. This suggests that Instagram's casual photography indeed is continuous with the "home mode" analog and digital photography in previous decades (see examples in **Figure 1**). However, more Instagram users are likely to be living in big cities or engaged in frequent trips that include such cities than "home mode" photographers in earlier periods. (While urban population was 746 million in 1950, it reached 3.42 billion in 2007 and 3.9 billion in 2014. In many smaller industrialized countries the majority of people may be living just in one or a few larger megacity areas.) And because most of these users live in major cities, more Instagram photos are likely to show activities and people in urban places, rather than at "home."

Another important difference between Instagram's version of home mode photography and its earlier versions in consumer film cameras from the period of 1960-2000 is what is considered worth photographing and sharing. Already in the early analysis

of camera phone users in Japan published in 2003, the authors found that "camera phone users elevate otherwise ordinary objects and events to "photo-worthy" occurrences" (D. Okabe and M. Ito, "Camera phones changing the definition of picture-worthy," 2003; the quote is from Miller and Edwards, "Give and Take.") This can be explained by people having their phones with cameras always with them and at the same time not having to worry about how many shots are left in their camera film cartridge.

Thus, what may appear to us as the "ordinary" in the original home mode photography was actually not ordinary at all, because only certain non-everyday situations were considered to be worth recording on film to create prints or slides. And in its own turn, the new "ordinary" of camera phones in early 2000s may appear to us today as pre-calculated, since now Instagram sets the new standard of the "ordinary." Which means that future social imaging technologies will at some point also change how we look at Instagram images from 2010-2015 - and what looks today as the "final ultimate ordinary" will also as highly selective.

In addition to looking at tags authors assign to their casual Instagram photos, we can analyze the subjects of photos in a different way - by applying computer vision algorithms that detect objects and types of scenes. We collaborated with one of the leading computer scientists working on analysis of aesthetics and content of photos on social networks, including Flickr and Instagram. (Since our paper about this research has been submitted for a conference that uses blind review, I can't provide more details about this research project until the paper is accepted.) She used the state-of-the-art computer vision techniques to detect the presence of 1000 different subjects and types of scenes in 100,000 Instagram photos from Bangkok, Berlin, Moscow, Sao Paolo and Tokyo. (This dataset contains 20,000 photos per city randomly selected from all geotagged images shared in central areas of these cities during December 5 – December 11, 2013. This larger dataset was assembled for selfiecity.net). To make comparisons between cities easier, Alise Tifentale from our lab organized 1000 subjects into 14 general categories. **Figure 9** shows the proportions of photos for each city in six of these categories: body and people; food and drinks; clothing and accessories; nature; architecture and furniture.

city	Body and people	food and drinks	clothing and accessories	nature	architecture	furniture
tokyo	19.0%	49.6%	12.7%	18.0%	15.5%	28.9%
sao paolo	25.8%	11.9%	21.8%	16.5%	12.9%	14.8%
moscow	22.0%	8.4%	15.2%	25.0%	21.1%	19.5%
berlin	15.3%	12.4%	9.9%	28.4%	39.7%	24.2%
bangkok	18.0%	17.7%	40.3%	12.2%	10.8%	12.6%

Figure 9.
Numbers of photos in Bangkok, Berlin, Moscow, Sao Paolo, and Tokyo in six content categories. The categories are: 1) food, 2) drinks and meals; 3) clothing and accessories; 4) nature; 5) architecture, 6) furniture. The numbers are shown as percentages, adding up in each column to %100.

The differences between the cities are quite substantial. For example, in Tokyo, %43.6 of all photos are "food and drinks" category, while in Moscow its only %8.3. "Clothing and accessories" is %40.4 in Bangkok, but only %9.9 in Berlin. "Architecture" is %39.7 in Berlin but only %10.8 in Bangkok. This analysis that uses state of the art computer vision techniques shows that the content of Instagram photos changes significantly depending on the city.

But even within a large city, the popularity of different topics may also change from area to area. In our lab, computer scientist Mehrdad Yazdani calculated the frequencies of tags users assigned to 661,809 Instagram images they shared along 13 miles of Broadway in Manhattan during 2/2014-7/2014. (For details of this dataset, see http://on-broadway.nyc/. We first collected 10.5 million geotagged photos shared in NYC, and then filtered this collection to only leave photos shared along 100m wide corridor around the

length of Broadway). Since Broadway crosses all of Mahattan, using this slice allows us to see differences between interests of Instagram users in a variety of the city areas (see **Figure 10**).

Chinatown	Soho	Washington Heights	Inwood
Area: Leonard street to Canal street	Area: Canal street to Houston street	Area: 155th street to Fairview Ave	Area: Dyckmann Street to 9th Ave
nyc	nyc	nyc	nyc
newyork	soho	washingtonheights	inwood
NYC	newyork	love	uptown
fashion	NYC	newyork	fashion
tbt	fashion	tbt	naillounge
love	manhattan	manhattan	handmade
manhattan	love	kraftwerk	ny
tribeca	tbt	uptown	cute
style	newyorkcity	NYC	whiskey
newyorkcity	art	fashion	love
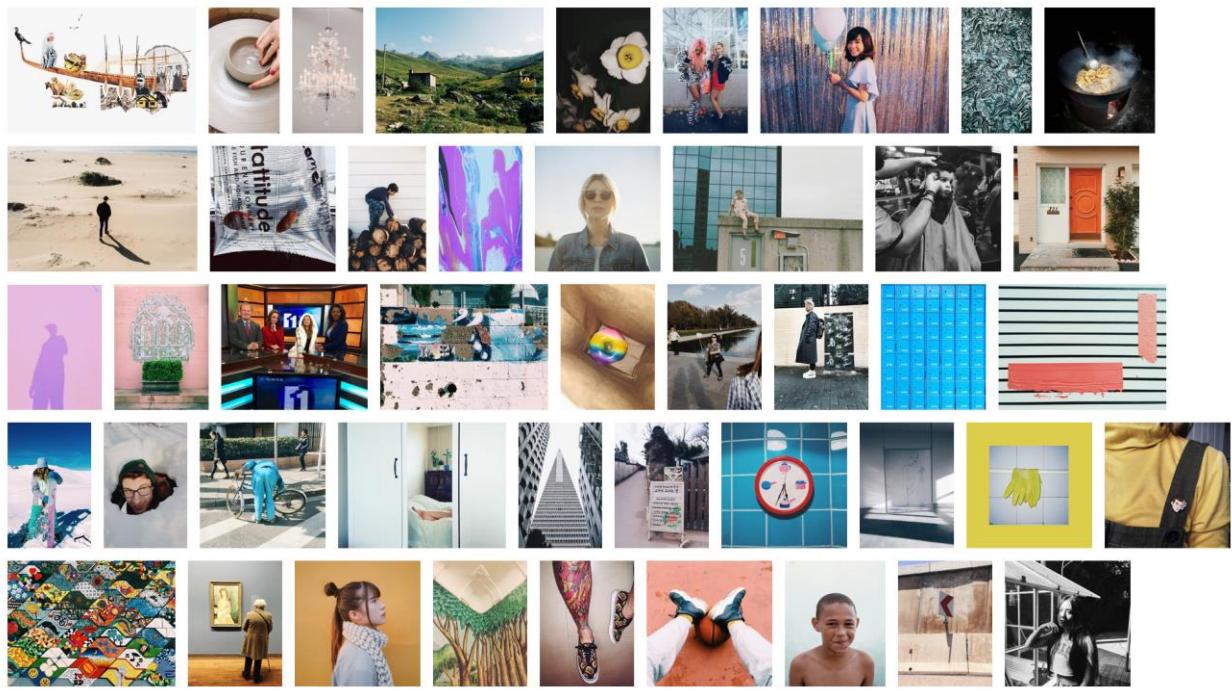
Figure 10.
Top 10 tags assigned by Instagram users to the images they shared in selected parts of Manhattan crossed by Broadway. The top row shows the names of these parts; the second row shows their south and north boundaries. After that, top 10 ten tags are shown, sorted by frequency.

Just as in the other cities we analyzed, the tags that identify a city always appear among top tags – here these are #nyc, #newyork, and #manhattan. Other tags such as #love and #tbt are part of Instagram's "global language" which is used everywhere. But other tags only appear in particular parts of a city, and they capture the specific places and interests of people who are residents or visitors to these areas: #art in Soho, #kraftwerk in Washington Heights, #naillounge and #handmade in Inwood.

Together, such results indicate that just as Instagram photos have different types of (intentional or unintentional) aesthetics such as *casual*, *professional,* and *designed*, their popular subjects are also *not* universal, but change from area to area. (Note that the analysis of subject categories using both tag frequencies and computer vision we used above did not yet consider these aesthetics. Of course, they can also possibly change with location, and other important aesthetics may also exist in different geographic areas – and such questions would be important to investigate empirically).

Designed Photos

The third common type of Instagram photos (and a different example of competitive photography on Instagram) we will now discuss in detail are the images we call *designed*. These are photos that have been arranged and edited to have a distinct *stylized look*. While retaining the basic properties of *modern photography* (scene shown in perspective produced by light focused by the lenses), these images also have characteristics of modern *graphic design*.

Figure 11.
A montage of photos that were featured on first two pages of Collection section of vsco.co, February 11, 2016, 12:30 pm.

Figure 5c and **Figure 5d** shows examples of such photos taken from Instagram galleries of particular photographers who perfectly exemplify *designed photo* aesthetics defined in the narrow sense discussed in this section. **Fig 11** shows examples of designed photo aesthetics if we use this term more broadly. To make this figure, we downloaded all photos that appeared on the first two pages of Gallery section of vsco.co in a particular moment (the Gallery pages are updated very frequently). VSCO is both a photo editing app for mobile popular with more sophisticated (non-casual) Instagram authors, and also its own social network for mobile photography. Since it is used very broadly, some of the photos appearing in Gallery are close to casual or professional types which we discussed above, but most others are not. If we compare photos in **Figure 11** with **Figure 4**, we see that VSCO images are much more controlled and composed. The subjects are carefully positioned in the frame in such a way that unnecessary details are eliminated, and strong greyscale and/or color contrast is established.

And if we compare **Figure 11** with examples of professional photo aesthetics in **Figures 7** and **8**, another set of differences becomes obvious. Professional aesthetic is about deep perspective, big open spaces, and infinite details in every part of a photo. Designed aesthetics as seen in VSCO Gallery pages is about close-ups, shallow spaces, big areas in one color, and most or all of photos with little or no details. First privileges open landscapes; the second privileges details of objects and close-ups of faces and bodies. In the first, compositions are perfectly symmetrical; in the second, they are asymmetrical. The first is about perspective; the second is about flatness. In professional photographs, we see complex lines and curves of outdoor landscapes; in designed photographs, the dominant lines are perfectly strict – because these photos often show the designed environment, as opposed to nature.

This quick comparison captures many key differences between professional and designed photo aesthetics, but we can go further. To do this, we will try first to systematically describe visual properties of professional photographs and graphic design images as these two visual cultures developed in the 20th century.

The authors of many professional photographs use a number of techniques to build the aesthetics of *photo-realism* – that is*,* they control or chose appropriate natural lighting, exposure, and use editing to achieve certain effects that we identify with "realistic photography" in the current historical period. We say "current" because in our view photo-realism aesthetics change historically. In each period they are affected by state of the art in
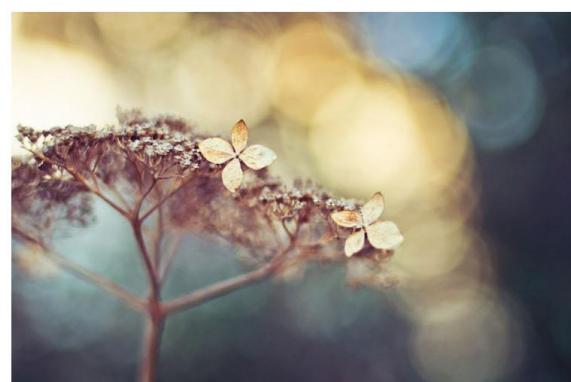
photo technology as well as by the period's cultural taste. Therefore, what we consider as ultimate photo-realism today may look unrealistic and convention-driven in ten or twenty years from now.

Some of the characteristics of *realistic photos* of the early 21st century are:

1) High level of details distributed throughout the image space and also across grey scale, with some level of details in darks, midtones and highlight areas;

2) easily readable 3D space – the ease created by composition, and choice of the point of view;

3) clear differentiation between main subject and background for particular genres such as portraits, models, and product shots.

Some of these choices (i.e., 1) are consistent with how we see the world naturally. Others (i.e., 2) are aligned with specific properties of perception such as perspective, but they *intensify* these properties (for example, including a number of lines that converge towards a vanishing point to make perspective easier to recognize quickly). Still others (i.e., 3) are only activated in particular genres but not others.

Realist photos may also include additional effects that are purely artificial constructions. The perfect example of this is *bokeh* **–** "the aesthetic quality of the blur produced in the out-of-focus parts of an image produced by a lens" (https://en.wikipedia.org/wiki/Bokeh, accessed 02/17/2016.) Bokeh is always discussed when people review and compare new photo lenses for dSLR and Mirrorless cameras, and it is very important to professional and serious amateur photography aesthetics. (See examples in **Figure 12**.) According to one photo textbook, "Differences in lens aberrations and aperture shape cause some lens designs to blur the image in a way that is pleasing to the eye, while others produce blurring that is unpleasant or distracting— 'good' and 'bad' bokeh, respectively" (Harold Davis, *Practical Artistry: Light & Exposure for Digital Photographers*, O'Reilly Media, 2008, p. 62). Bokeh exemplifies how photo-realism is a constructed style, as opposed to only being a faithful (or intensified) representation of visible reality that follows same principles as human perception. (For a relevant analysis of how fiction writers construct "reality effect," see famous text by Roland Barthes *The Reality Effect*, 1968.)


Figure 12.
Examples of *bokeh* effect. Sources: Flickr Creative Commons and Wikimedia.

Modern *design image* follows different principles. They were first defined in abstract painting produced in Europe during 1909-1914. In the early 1920s El Lissitzky and others applied them to all areas of design, including posters, magazines, and books, textiles, interiors, architecture, furniture and industrial and consumer products. Here are some of these core principles (Manovich, *Avant-garde as Software*, 1999; expanded for this article): High contrast (in use of tones, colors, font sizes, size and types of shapes, etc.); limited color palettes; simple geometric shapes; thick lines as design elements; large empty white spaces; asymmetrical composition; clear differentiation between sizes of fonts; strong visual rhythm created via repeating elements, parallel lines, etc.; use of infinite projection that creates 2 ½ space; or parallel projection that results in parallel rather than converging lines (and repeating parallel lines create visual rhythm.) **Figure 13** shows the classical examples from one of the first designers to start using these principles (El Lissitzky, 1923) and one of the leaders of the second generation of designers (Josef Muller-Brockmann, 1966).

Figure 13.
Examples of modernist graphic design.
Left: El Lissitzky, design for Mayakovsky's poem "For the Voice," 1923. Book page.
Right: Josef Muller-Brockmann, 1966. Poster.

Generalizing these principles, we can come with a single *meta-principle of modern design – clear hierarchy of information and attention*. The particular choices such as compositions consisting from only a few clearly differentiated elements, use of only a few significantly difference type sizes, and limited palettes that use a few very different hues are logical consequences of this one meta-principle.

To express this differently, we can say the following: that meta-aesthetics of modern design is to the use of extremely limited choices on all visual dimensions that a designer controlled, including colors, tones, line orientations, shape types, patterns, and fonts (if text is used) as well as objects chosen as subjects, figure poses, and lighting.

Throughout the 20th and early 21st century, original modern design aesthetics evolved resulting in a number of styles that emphasize some principles over others, or don't use some principles at all. During the 1990s and early 2000s, an influential, more minimal version of modern design emerged and it found its way into everything - hotel, café, restaurants, and other architecture and space design, print publications, web sites, Jonathan Ive's design of Apple products starting with all white iBook G3 (2001). Eventually

it was also adopted by the new generation of OS (operating systems). IOS 7 introduced by Apple in 2013 featured more minimal and monochrome "sophisticated" style from Ive's team; Microsoft Metro design language introduced in Windows Phone 7 in 2010 featured more colorful "popular" style. This *global minimalist aesthetics* became identified by marketers, consumers, and creators worldwide as *cool*, *hip*, *sophisticated*, and *contemporary* – and therefore especially important for self-identification of young urbanites who were growing up in 2000s or 2010s.

While retaining simplicity and clear presentation of information in modern design, the new minimalism differentiates itself by subtlety, i.e. *small differences* on some of the visual dimensions – in contrast to modernist design that always used big differences. The feel is often quiet and ambient rather than aggressive and loud. The color palettes may use many shades of one or two hues, rather than opposing hues that creates strongest contrast. (In our analysis of all covers of *Time* magazine from 1923 to 2009, we saw the shift away from highly saturated colors in the 1980s covers to an aesthetics influenced by minimalism in the late 1990s, with big white empty areas and smaller color accents. See Jeremy Douglass and Lev Manovich, *[Mapping Time](#)*, 2009).

While the use of *white*, shades of *grey*, *transparency*, and *translucency* were identifiers of early global minimalism in the late 1990s, a new version developed about ten years later, with focus on *rich natural textures*, use of different materials and rich color accents that signify "authenticity" and a selective use of tradition. In the early 2010s, a different version that can be called *digital minimalism* also developed in response to small phone screens, tablets and use of apps – bolder lines, higher contrast, big fonts, and use of back to back photos arranged in layouts filling the screen.

Different countries have their own additional versions of contemporary design which often include include references to local traditional aesthetics. Korea's design and fashion colors are white, grey, black, and beige. Along with white and grey, Thailand's design uses a palette of bright saturated colors – orange, green, blue, pink and violet. Tokyo's popular young fashions mix bright saturated colors and pastels.

Having a style means adapting particular choices, coordinating them to achieve a distinct look, and being consistent. This is true for any kind of "life design," be it curating of space, choice of what to wear, what to eat, and where to spend time with friends. This also applies to Instagram photos we call *designed* – they represent particular lifestyles, or subjects (such as nature). But they do this not in an arbitrary way – instead they also use a visual language of contemporary design. Some of the photos choose the global minimalist version; others reference the local versions of the contemporary aesthetics; others mix different versions in their photos. In contrast to un-curated messiness of the visible world captured by all-seeing perspectival view of the lens as in casual photos, and predictability and rigid conventions as in professional photos, designed photos aim for *originality* in terms of how subjects are shown, at the same time for very tight *control* of an image – ideally consisting from smaller number of clear differentiated elements organized to achieve strong visual contrast and rhythm.

However, since there are still photos of three-dimensional reality made using the camera lens that inevitably creates perspective and many details, they have to find a balance this default photo-realism and the language of design. While purely abstract design allows the author complete control of all visual elements and variables, photographer of a three dimensional scene has less control (unless the scene is created in a studio), since the world outside already has its shapes, colors, forms, and textures. Some designed images may tip the balance more towards realism and less control while others may retain only minimal references to visible reality privileging abstract patterns, colors, shapes, and textures organized to achieve desired aesthetic effects (see examples in **Figure 5c** and **5d**).

This *aesthetics of the in-between* is not unique to Instagram. It also can be found in modern and contemporary advertising, editorial, and fashion color photography. **Figure 14** shows example of such photography from 1950s by famous photographers Irving Penn and Richard Avedon who both created many images for *Vogue* and other magazines. And

earlier, modernist black and white photography of 1920s-1930s also operated in the space between realism and abstraction, employing devices directly borrowed from geometric abstract art of 1910s and 1920s design (**Figure 15**).
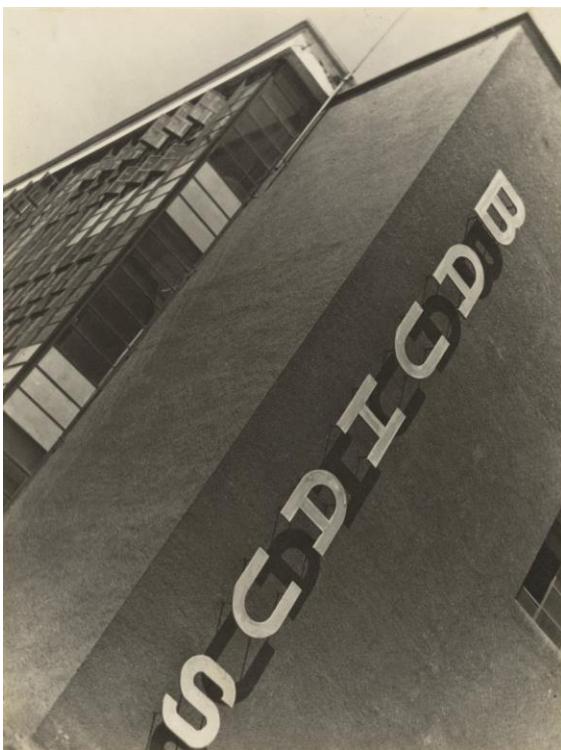
Figure 14.
Examples of the mid-20th century fashion photography.
Right: Richard Avedon, photograph of Dovima and Sunny Harnet, 1955.
Left: Irving Penn, photograph for the cover of *Vogue*, 1964.

Figure 15.
Modernist photography from 1920s-1930s. After the introduction of the first small 35mm film Leica camera in 1925, photographers were able to get very close to their subjects and use unsual points of view.
Right: Iwao Yamawaki, a photograph of Bauhaus building, 1930-1932.
Left: Alexander Rodchenko, "Pioneer," 1930.

Going from photography to paintings, we note that most of the 20th century "figurative" paintings and works on paper also explore the rich space in between 19th century realism and full abstraction. While modern art history and museum collections focused on influential artworks from various "isms," statistically these are outliers in the universe of the 20th century art made up from millions of paintings, sculptures and works on papers that are situated at different points along realism - abstraction dimension.

Modern artworks were designed for viewing in a gallery or in print publications and photographs appeared in magazines or large posters. Instagram users design their images for different reception conditions: 4.5-6 inch phone screens (or much smaller size when shown in a grid in Instagram gallery view); very quick viewing time; and competition with all other images in user's feed. This leads to the emergence of particular aesthetics that does not simply repeat modernism of the 20th century figurative art and photography.

(Screen size details: According to 11/20/2015 report, the most popular screen size in many countries at that time was 4.7 inches, followed by 5.5, 5, and 5.1. http://pocketnow.com/2015/11/20/world-most-popular-mobile-screen-size-resolution.)

Visual and Content Strategies of *Designed* Photos

Below we list examples of visual strategies used in Instagram *design photos*, which we define in comparison to aesthetics of *professional photos*. They are based on our informal observations and study of the galleries of young Instagram users from Russia, Ukraine and Belarus (see examples in **Figures 5c, 5d** and left side of **Figure 16**). Note that in these countries people are particularly concerned about style and fashion, and a sophisticated look that follows current fashions is expected for both women and men in most professional settings and situations regardless of the field. (In contrast, in the U.S. the dominant professional styles are either standard business suits or casual clothes. Even in NYC, only people in particular cultural professions and in certain parts of the city dress fashionably). Therefore, it is quite possible that in other countries design photos use different visual strategies, and also are less frequent. (In the future we would like to test what we noticed in our informal observations by measuring characteristics of large samples of Instagram photos and comparing them to measurements of photos created for other mediums, such as early Flickr photos designed for desktops and laptop viewing in 2004-2007, magazine editorial photography, etc.)

This is our list:

- Increased brightness;
- Increased contrast;
- Increased saturation, or its opposite –
- Decreased saturation to create almost a monochrome photo;
- Large proportion of light areas, and small proportion of dark areas;
- White backgrounds;
- "Negative space" (i.e., large empty monochrome areas), with no gradations or details;
- Detailed and texture parts confined to clearly differentiated parts of an image juxtaposed with other empty parts;
- Compositions arranged around diagonal rather that vertical and horizontal lines;
- Use of the point of view looking down from above;

We can illustrate the first characteristic by measing average brightness of the photos we already used to discuss professional photos and Instagram designed photos. The average (mean) brightness of professional photos shown in **Figure 7** is 99 (on 0-255 scale). For designed Instagram photos, it is significantly higher: 129 for photos in **Figure 5c**, and 173 for the photos in **Figure 5d**.

 In the case of dedicated authors of galleries of designed photos (see again fugures 5c and 5d), there are also additional key rules that apply to sequences of their photos:

- Use of a single visual style for all photos in user's gallery or a few styles reserved for particular subjects.

- In a sequence of photos posted over a period of time, no two photos posted one after another should come from the same photo shoot or show the same subject. Similar photos from the same photo shoot used in a gallery need to be separated by a number of other photos in between.
- Every photo is very polished, no casual photos are included.
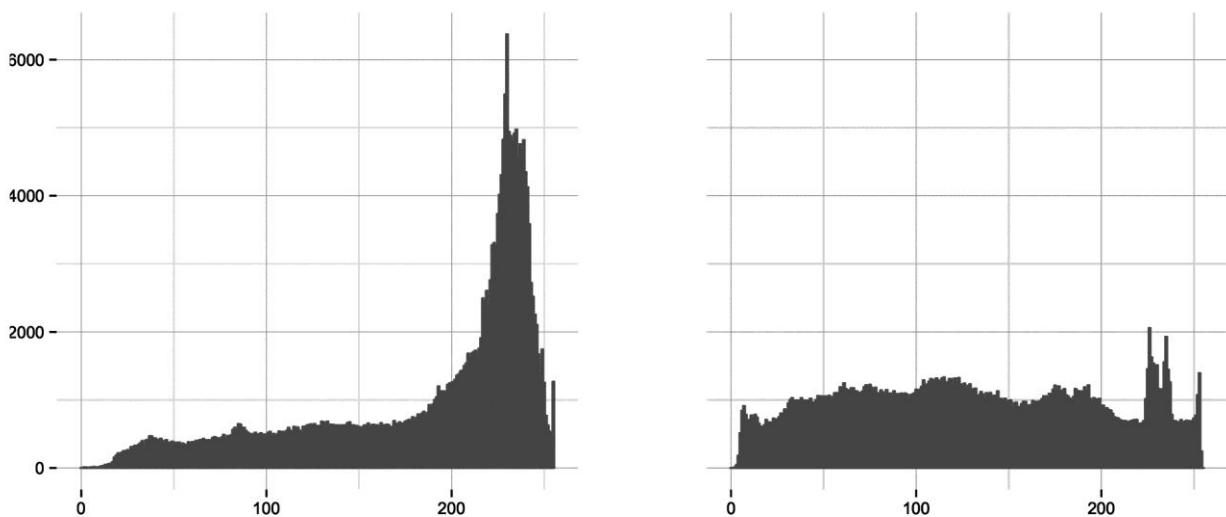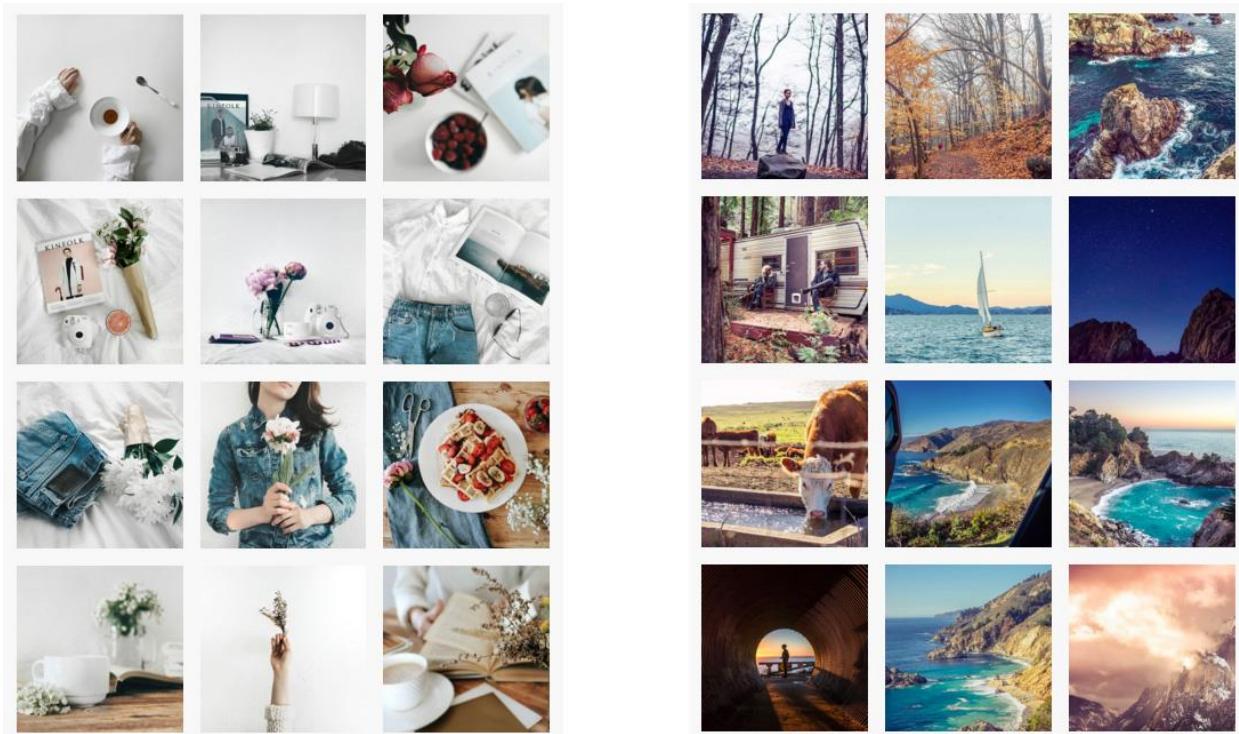
Some examples of the strategies from the two lists above can be seen in **Figures 5c** and **5d**. We also find a few of them recommended in many "how to" online posts, such as "How to Establish Your Instagram Aesthetics" from 2015:

> Edit all photos similarly. In order to maintain consistent branding, consider either picking a filter and just using that one, or using no filter at all. Bouncing around between filters based on the photo is not conducive to maintaining a common aesthetic. I prefer to pop my photos in *Afterlight* (my favorite photo editing app), up the *brightness* and the *exposure*, *sharpen* a bit, and *clarify* a bit (to bring back some of the definition you lost from over-exposing). That's my go-to photo "recipe" for photos I add to my lifestyle blog on Instagram. (Nadine, "How to Establish Your Instagram Aesthetics," http://blogbrighter.com/establish-your-instagram-aesthetic/, 04/08/2015).

The much quoted study by Curalate published in 11/2013 that analyzed 8 million Instagram photos also found that the photos that are lighter, have large background area and use a single dominant color generate more likes. (In addition to describing already existing trends, this study may have influenced some authors of designed galleries start using these features). (Brendan Lowry, "6 Image Qualities Which May Drive More Likes on Instagram," http://blog.curalate.com/2013/11/25/6-image-qualities-that-drive-more-instagram-likes/, 11/25/2013.)

We believe that out of all visual strategies in our two lists above, the single most important strategy for creating a popular gallery of designed images is *the consistent use of a strong visual style*. The experienced authors of design photos establish a single look and apply it to all their photos. This requires more modifications than simply increasing brightness, exposure, sharpening, and clarification as described in the quote above. Strong designed look is achieved by using only narrow choices on greyscale, hue, saturation, and contrast dimensions. Only one filter (if used at all) is applied to the photos, and this filter comes from a third party app such as VSCO, as opposed to built-in Instagram filters.

For example, one look may only have cool colors and low saturation. Another look may feature only darker tones, and warmer colors. Most sophisticated authors may have two or more looks, each for different subject, and they create sequences over time applying these looks. They may also remove some older photos from their galleries if they don't work in a larger sequence or received few likes.

Figure 16.
Selections of sequences of Instagram photos from @vita_century (left) and @neivy (right). Below are greyscale histograms for these photos.

Some of the visual differences between designed and other photo types can be measured and compared quantitatively. **Figure 16** compares a sequence of designed photos (left) with a sequence of professional photos (right) from the galleries of two. Similar to a photo camera that shows histograms of tones for a single photo, we show greyscale histograms below the photo sequences - but they are calculated over all nine photos in a sequence instead of a single photo. The professional photos capture all grey tones equally, and consequently their combined histogram is close to being flat. The designed photos are not aiming for photo-realism; instead they use subjects, compositions, and post-photo effects that result in very light photos but with strong darks preserved - more in line with 2D design. Consequently, their combined histogram is far from flat; instead there is a narrow and strong peak corresponding to a narrow range of dominant light tones.

Our discussion focused on the differences between professional and designed photo, but they also share some similar aims. Creating visually pleasing aesthetics is one of them. Another is that they both have to deal with the biggest challenge of modern photography – dealing with overabundance of information captured by lens and recording media. Both film cameras and digital cameras of today, including the ones in phones, *record too much information*. When we look at a photo that presents all captured information without any filtering, we may be confused about what is important and what subject photographer wanted to capture; we may also have difficulty differentiating between objects and depth planes. Both professional and designed photo strategies act to *reduce visual information*.

Composition that positions objects or a person(s) against flat background is one common strategy used by both. But professional photographers also often want to show perspectival outdoor scenes. In these cases they may rely on bokeh that blurs background, so the focus is on face, person or objects in the foreground. Currently small cameras in phones can't create bokeh, so if the author of designed photos wants to be true to Instagram medium and only use phone camera, s/he has to resort to other strategies for reducing information. Many of the strategies used in designed photos that we listed above act in this way. Strong contrast, increased brightness, backgrounds empty of details, and use of the point of view looking down from all act to get rid of details in parts of a photo so the subject clearly stands out.

Like casual and professional photos, designed photos also often feature their own *particular subjects photographed in particular ways*. Here are some frequently used *combinations of subjects and visual strategies*:

- "Spreads" or "flat lays" (i.e., careful arrangements of a number of objects, photographed from above);
- Photos of separate objects showing one or a few objects from an angle such as coffee cups, fashion and design magazines, laptops, phones, bags, and other accessories of a hip / cool / urban lifestyle;
- Parts of a body arranged with the object spreads or separate objects;
- Parts of a body (such as hands holding objects or pointing) with landscapes or cityscapes;
- Full body positioned towards the edge or corner in a scene in ways different from traditional posing for camera (standing straight, facing camera and smiling) and normal compositions where figure(s) or face(s) occupy most of the image;
- Avoidance of stereotypical subject/style combinations popular in commercial photography such as a portrait with blurred background (i.e., portraits with bokeh effect).

Note that these subjects of designed photos do not correspond to any popular particular tags. For example, if you search Instagram for #flatlay, what you will see is quite different from flat lays in designed photos. The aesthetics of photos marked with #flatlay is that of commercial photography; the aesthetics of designed photos showing flat lays (see Figures **5c**, **5d**, and **16** left) is more personal, emotional, and "moody."

While some of the subjects and composition strategies listed above are similar to what we can see in commercial photography in the "lifestyle" genre we can see on websites, in magazines, in TV ads, and so on. Others can be directly related to the modernist photo aesthetics that were developed in 1910s-1920s simultaneously both in art photography and advertising contexts – specifically, close-ups of objects, products and nature, portraits, or fashion photos that explore differences in textures between objects and background or use object shapes and shadows to create geometric structures. First developed during black and white photography era, in the 1940s these aesthetics further evolved to work in color pages of magazines, adding color to the number of visual dimensions used to create contrast.
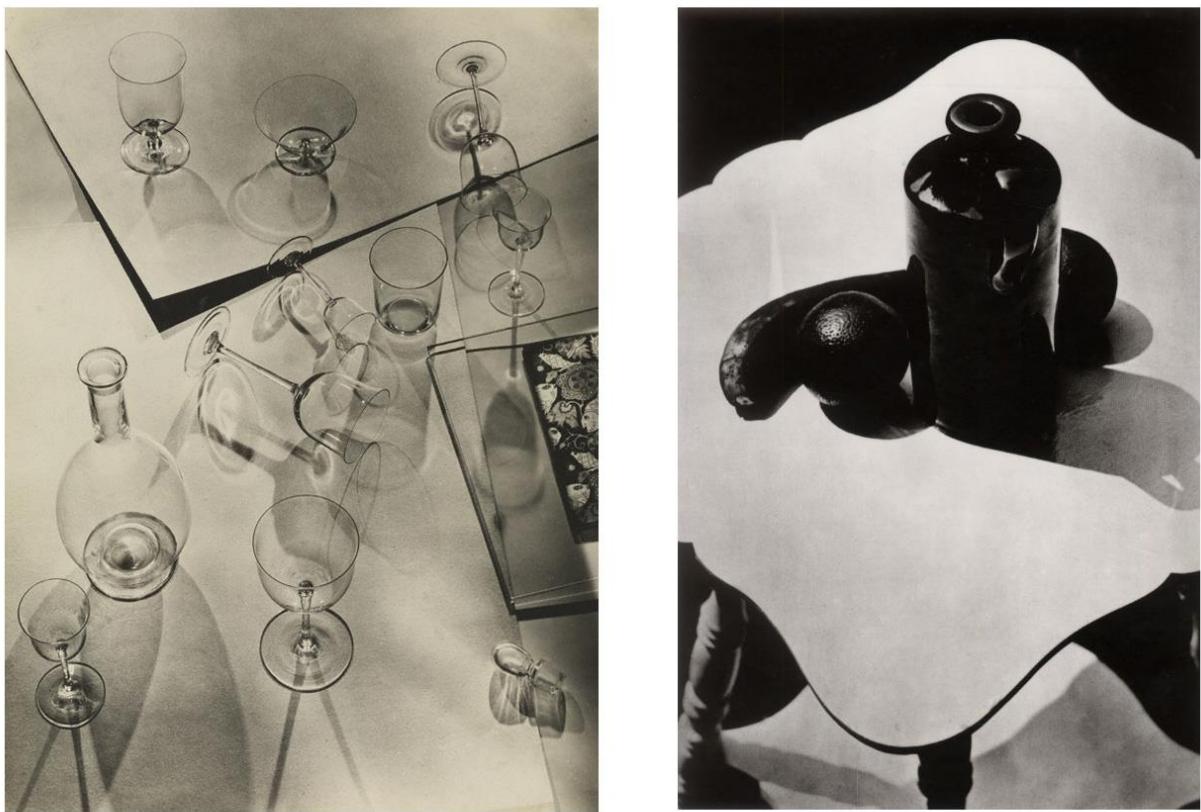
        Figure 17 shows examples of such color aesthetics developed by American photographer Irving Penn (1947) who worked extensively for *Vogue*; earlier black-and-white aesthetics by Hungarian photographer Martin Munkacsi (1930-1932) who created first outdoor swimsuit fashion spread for *Harper's Bazaar* in 1933; German Walter Peterhans (1929-1932) who was photography instructor at Bauhaus; and even earlier version by another famous American photographer, Paul Strand (1915).

17a - Irving Penn

17b - Martin Munkacsi

17c - Walter Peterhans and Paul Strand

Figure 17.
Examples of modernist art and commercial photography using close-ups and creating contrasts between textures, shapes, and organic and human-made patterns.

17a. Irving Penn, "Salad," approximately 1947.
Penn was one the first photographers to photograph objects and food in color, arranged in precise compositions against a neutral background.

17b. Black-and-white examples from fashion and sport photography by Martin Munkacsi (1930-1932).

17c. Black-and-white examples from Walter Peterhans (1929-1932, left photo), and Paul Strand (1915, right photo).

However, the authors of Instagram design photos modified these aesthetics originally aimed at silver gelatin prints or reproductions in full magazine pages (and now even larger TV screens) in response to the specific characteristics of Instagram medium – specifically, the phone screens and Instagram app interface.

For example, among design photos we don't see images that are very dark, or have low contrast, or a lot of intricate detail across all parts of the image. While such images work on a large magazine page, a laptop or a TV screen (see **Figures 8** and **17**), they would be harder to read on a small phone screen viewed in all kinds of lighting conditions. Instead, Instagram authors prefer compositions that organize the photo content into a fewer distinct shapes separated by color, tone, or texture. Such photos are in some ways like app icons – communicating even at a very small size. As already noted, authors of designed photos also often increase brightness, contrast and saturation significantly beyond camera defaults to make the photos "pop." (In 2014 Instagram added a separate *Lux* control that allows users to adjust brightness and saturation simultaneously using a single slider). These differences are very clear if we compare professional images in **Figures 7** and **8** with the designed images in **Figure 11**.

Since small screen of a phone can have much less detail than a magazine page, in order to be visually effective, reducing effects of perspective is particularly important for Instagram photography. One of the key ways Instagram designed photos do that is by photographing objects in the spreads form. It is the easiest way to turn a photo into a clear

2D design with controlled colors, grid arrangement, and use of parallel and perpendicular lines. This is likely to be one of the reasons behind frequent use of this point of view on Instagram.

We noted some of the connections between Instagram visual aesthetics and photographic and design aesthetics of modern print fashion and lifestyle magazines, but there is also another way to connect them. Rather than comparing Instagram designed images to photography that was featured inside the magazines on their pages, we can compare them to *magazine covers* - and especially the covers of *Vogue* and *Harper's Bazaar*, when their new art directors Agha (1929-), Alexander Liberman (1944-1961) and Alexei Brodovitch (1934-1958) brought ideas of European modernism to American magazine design, along with participation of best American and European art photographers and artists (for the examples of such covers, see **Figure 18**). Like Instagram images on mobile phones, the magazine covers were designed for viewing at a distance, so they used many of the same strategies that appear above in our list of "visual strategies used in Instagram *design photos*" – high contrast, use of large negative (empty) spaces, compositions that consist from a few clearly separate parts, flat 2 ½ space rather than deep perspective, and strong rhythm established by using likes arranged at the same angles.

Figure 18.
Examples of *Harper's Bazaar* covers. Left: 1947 (photo by Brodovitch). Center: 1956. Right: 1951 (styling by Diana Vreeland).

Let's turn now from the history of photography to that of design, and in particular the developments of the last 20 years. "Designed photos" on Instagram also modify the aesthetics of global minimalism to fit what works best on the small screen. For example, while grey color is the most common in minimalist architecture and space design, we don't see any pure greys in designed photos. Instead they use white areas to create high contrast that works better on small screens.

Along with global and regional versions of minimalism that developed in second part of the 1990s and early 2000s, Instagram designed photos also participate in another key contemporary design and lifestyle megatrend – nostalgic revivals of selected 20th century styles that includes not only fashions from every decade and mid-century modern furniture and product design, but also particular no longer existing media technologies and their aesthetics. In the case of Instagram's original design, this was the decision to only use single size square photos – explicit reference to photos produced by Kodak Instamatic and Polaroid cameras. Instagram original filter names and their effects also explicitly reference popular photography of the second half of the 20th century (when color photography become more common). For example, according to one description of filters effects, Nashville filter "warms the temperature, lowers contrast and increases exposure to give a light "pink" tint - making it feel "nostalgic"; Toaster filter "ages the image by "burning" the

center and adds a dramatic vignette"; Sierra filter "Gives a faded, softer look." (https://en.wikipedia.org/wiki/Instagram#Filters, accessed 12/25/2015). Such historical references and corresponding effects are also used in filters available in popular third party apps for Instagram. For example, VSCO offers many collections of presets such as The Chromatic Collection, "evoking the tone of early color photography"; The Essence / Archetype Collection offering "emulations of consumer films from past 20 years"; and "The Aesthetic Series" "inspired by classic analog film" (http://vsco.co/grid/journal/new-vsco-cam-presets-available-now, 12/03/2013). And of course, the neologism "Instagram" itself cleverly combines names of earlier technological media of representation and communication: instant camera and telegram.

The last question we want to address in this brief analysis of a designed photo type is the purpose of such photos. Our list above of frequent subjects of such photos suggests that at least some of them are created for business purposes. Indeed, some Instagram users want to establish a visually sophisticated profile that follows the aesthetics of advertising photography (but modified for Instagram – i.e. including enough of shots of the author in interesting spaces and travel destinations, with object photos in between), so s/he can then start getting paid by brands to include their products in photos, or to receive free products in exchange for featuring them. Such products can range from fashion items to notebooks, so they organically fit into Instagram "fist person lifestyle and travel blog" *narrative genre* that goes along with designed photos. Other authors already achieved such status. They periodically include items that the brands asked them to promote or send them as gifts in their photos, and include explicit references and links to the brans in photo descriptions (this is considered to be the right behavior, although not everybody does this) – for example, "Thanks to XXX [brand or company name] for the wonderful YYY [product included in the photo]."

The Instagram profiles of these authors include details on how to get in touch with them, sometimes also featuring words like "cooperation" – indicating that these authors are interested in working with brands. The appearance of products in such Instagram galleries functions as a new type of *product placement*, the well-established practice in media culture. We can also think of such galleries as *lifestyle ads*, creating not as much as through staging but through very careful selection of only certain moments in one's everyday life. The adoption of snapshot aesthetics in fashion and lifestyle advertising in the 1990s is the background for this type of Instagram photos – although in contrast to "heroin chic" of mid 1990s fashion photography, all Instagram designed photos with products or gifts from companies look "pretty," and "cool" in a healthy way, and their authors similarly look at home in design hotels and coffee shops, rather than in a 1990s rave.

In yet another case, the goal of an Instagram gallery is to establish a sophisticated visual image that does not advertise any items directly, but as a whole, makes the viewers interested and involved with the gallery and the author of the photos – who is selling some products or services on her/his blog or a web site indicated in Instagram profile without featuring them directly on Instagram. Such Instagram accounts function similarly to many contemporary ads that present images of exciting and desirable lifestyle without showing advertised product or brand directly – the latter only appearing in the last shot of a video or in corner of a still add. This ad type is often used for *brand marketing* – as opposed to product marketing. For example, in the famous *Think Different* ad campaign created by Chiat/Day in 1997 for Apple after Steve Job's return, "the first rule of the campaign was that there would be no products in the ads." And already much earlier in the 1930s, the pioneering art director of *Harper's Bazaar*'s Alexey Brodovitch, in the words of curator and photo historian Lisa Hostetler, "wanted to be 'astonished' by radical images and was willing to neglect the display of the merchandise.. His bet was that mood was a better seller than description when it came to fashion." (Lisa Hostetler, "Photography and Everyday Life in America, 1945–60," http://www.metmuseum.org/toah/hd/phev/hd_phev.htm, 2004).

We noticed plenty of all such commercially motivated designed galleries that fit "strategic photography" – but we also see many carefully designed and polished Instagram galleries without any obvious link to commercial interests. (We will address further the use

of commercial-like subjects and aesthetics of photos by many young Instagram users to define their cultural identities in the next part of *Instagram Book.*)