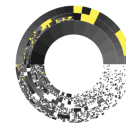


# Use of openly licensed photographs and machine learning

Summary of Survey results



**OPEN  
\_FUTURE**



# About

This research report is based on a survey that aimed to gather insights from users of photo-sharing platforms on the use of the content that they shared openly for AI training. [Selkie Study](#) conducted the study as part of [AI Commons](#), an initiative of the [Open Future Foundation](#).

The main objective of this study was to identify possible points of controversy around the usage of open content for the development of AI technologies and solutions.

The goals of the study were to identify:

- key motivations for sharing photographs under an open license;
- users' perceptions about copyright and its enforcement;

- general attitudes towards AI training with openly shared photographs of faces.

The survey was conducted between 3 December 2021 and 6 May 2022. It was distributed internationally and conducted in English. Our target group was composed of users of image hosting platforms, mainly:

- Flickr
- Wikimedia Commons
- Google Photos

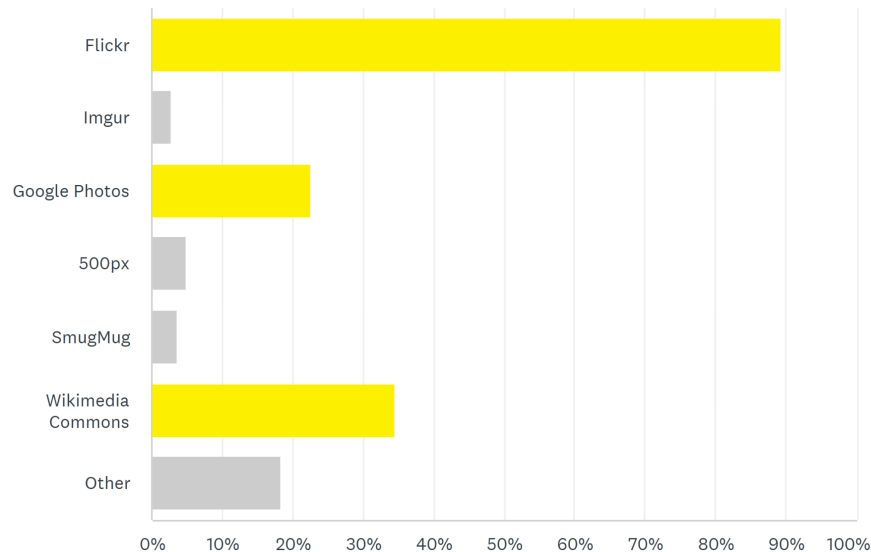


# Sampling criteria

Initially, our sampling strategy targeted only Flickr users with specific behavioral traits related to sharing photographs under open licenses: those who shared a high number of photos of faces via the hosting platform and under open licensing settings. However, this criterion was too narrow to obtain a satisfying sample; therefore, the target of the study was expanded.

The respondents had to meet essential criteria necessary to explore the attitudes relevant for our case - thus they had to be **an active user of a hosting image platform**.

The sampling process consisted of two stages: in the first stage, the sample selection was carried out through a series of screening questions posed in the survey. In the second stage, the obtained samples were retrospectively reviewed before analyzing the data.



*What type of image hosting platforms do you use to share photos?*

(n=142, multiple response, no one chose “Imageshack” option – omitted on chart)

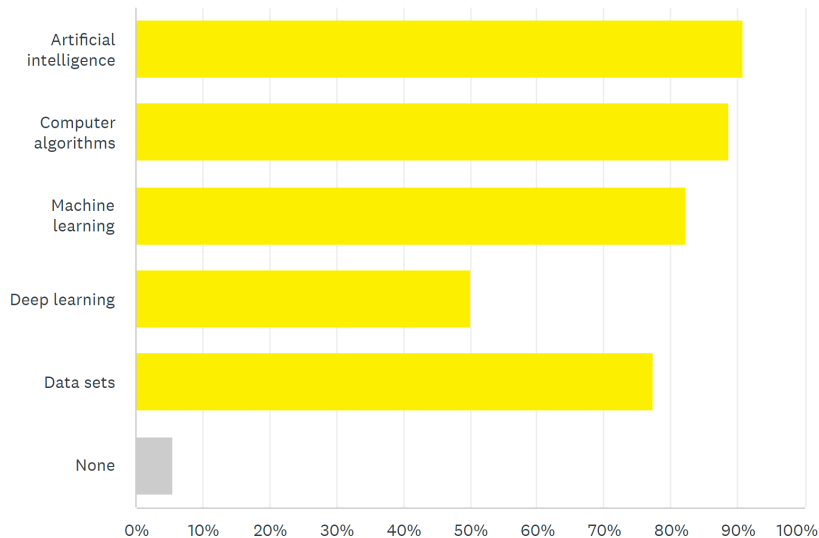
# Audience

One hundred seventy-seven people responded to the survey. Among them, 128 people replied to the complete set of the research questions.

Hundred forty-two responses were qualified for further analysis, including 14 which were partially completed.

While we knew that the sample would have included people with some knowledge of open sharing, we were uncertain about their familiarity with the field of Artificial Intelligence (AI) research. The vast majority of people surveyed were familiar with basic terms connected with the field of AI, such as AI, Computer Algorithms, Machine Learning, Data Sets, and Deep Learning.

Only 6% of respondents declared that they were unfamiliar with any of the listed terms.



*Which of the following terms are you familiar with? Please select ones for which you could provide the basic meaning.*

(n=142, multiple response)

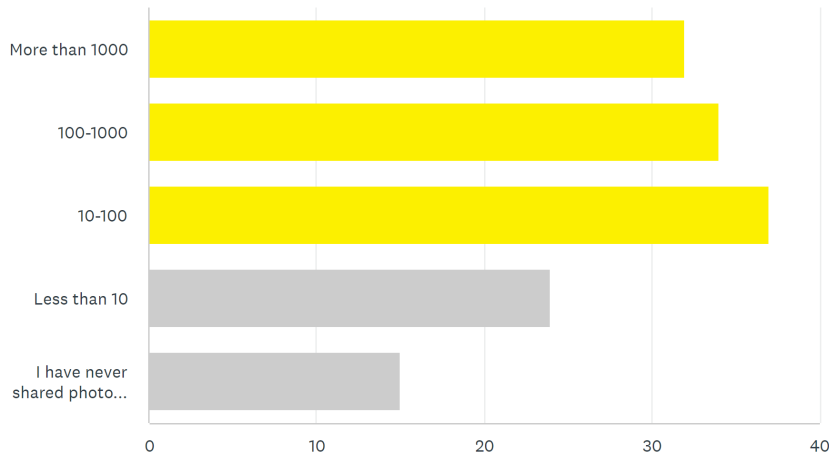




# Audience

We asked the survey participants to describe their activity as photographers. 114 of them (80% of participants), were casual photographers. 23 participants declared to be semi-professional photographers and only 5 participants identified themselves as professional photographers.

The AI\_Commons project focuses on issues related to the reuse of photographs of faces. Therefore, we asked participants how many photos of people they had shared on Flickr and other image hosting platforms until the day they took the survey. The majority declared to have shared more than 10 photographs. 16 participants reported “less than 10”, and 15 declared that they had never shared photos of faces.



*Please estimate how many photos of people you have shared on Flickr and other image hosting platforms up until today. Please consider only photos with visible human faces, like those listed below (examples of photos were provided)*

(n=142, multiple choice; axis scale – absolute)

# Motivations for sharing openly



# Introduction

Image hosting platforms like Flickr enable users to share their photographs under traditional copyright and with permissive licenses, ranging from placing works in the Public Domain to the full spectrum of the Creative Commons licensing system.

We surveyed users who primarily chose one of the Creative Commons licenses for sharing their photos to understand their attitudes towards the reuse of openly shared photographs. We specifically aimed at understanding their motivations to share content

openly – and their expectations of the use made out of their content by external parties.

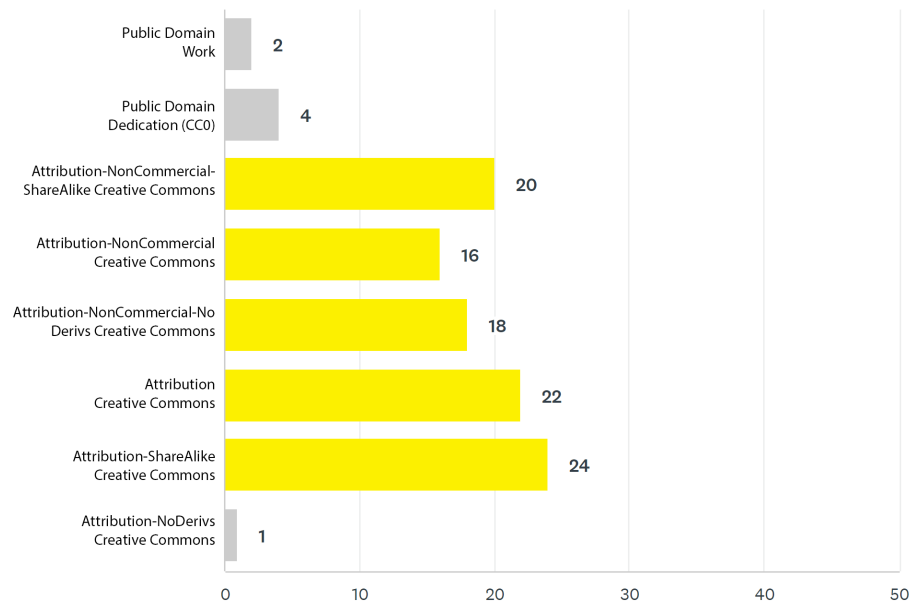
We asked participants:

- Why did they choose an open license to share their photographs?
- What uses of a photograph do they envision as plausible when sharing it?
- What use of their content do they expect, and which uses are unexpected?

# Open-licensed settings on platforms

We found that there was no predominant type of Creative Commons license that users chose for sharing photos. There is a slight preference for the most permissive licenses (Attribution and Attribution-Share Alike).

Nearly 25% of the surveyed people (35) – indicated that they primarily chose the “All rights reserved” setting for sharing photos of faces.



*What type of license settings do you primarily choose for the photos of faces that you share? Distribution of answers submitted by respondents who primarily choose open-licensed settings*

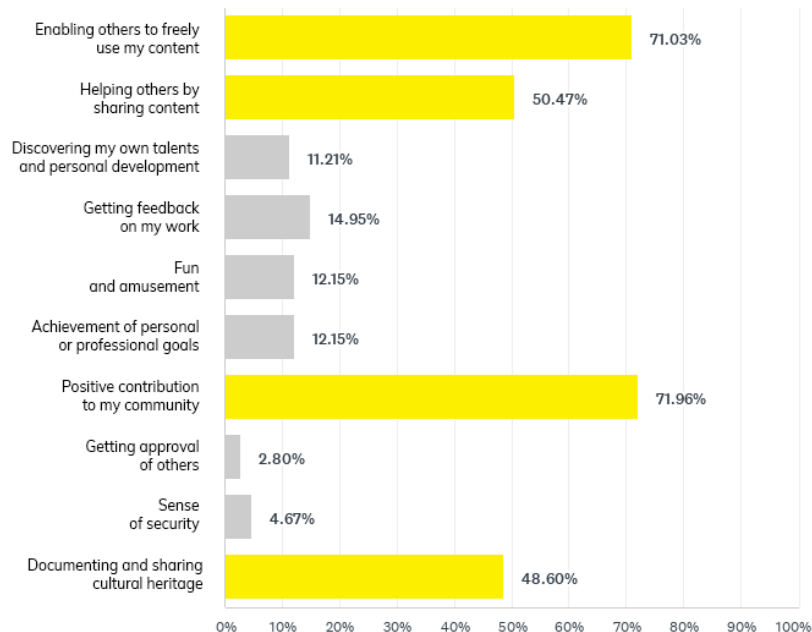
(n=107, multiple choice; axis scale – absolute)

# Motivation to share photographs using CC licenses

We asked additional questions to the participants who declared that they primarily use Creative Commons licenses (107), in order to understand their motivations. We found four main reasons in the responses:

1. **Positive contribution to my community** (72%)
2. **Enabling others to freely use my content** (71%)
3. **Helping others by sharing content** (50%)
4. **Documenting and sharing cultural heritage** (49%).

This part of the survey was based on Shalom Schwartz's model of [Basic Human Values](#).



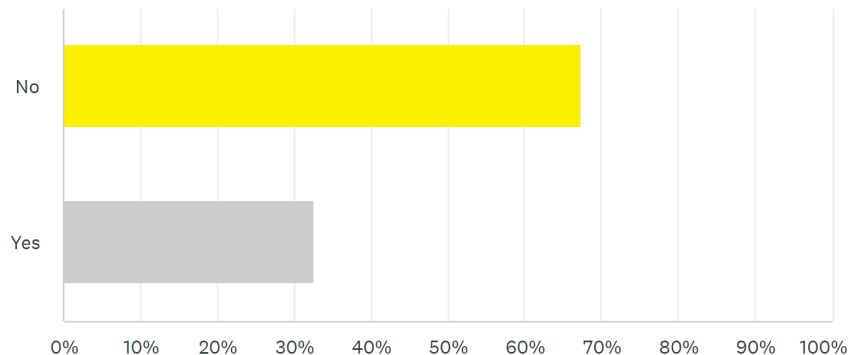
*Which of the following reasons motivate you to share photos under a Creative Commons license? Please select the 3 most important ones.*

(n=107, multiple response)

## Actual use of photos of faces shared with a CC license

An additional section of the survey investigated whether users experienced cases in which the photographs of faces they shared openly were later used – or not.

33% of the participants (35 out of 107) replied that they came across the use of a photograph of faces they had shared under a Creative Commons license.



*Have you ever come across any use of photos of faces that you have shared? Please consider the ones shared with the Creative Commons license.*

(n=107, multiple choice)

# Actual use of photos of faces shared with a CC license

We also asked these respondents to describe their experiences in more detail. We received 41 answers from them (35 from participants primarily using open licenses when publishing photographs). A qualitative analysis enabled us to identify five recurring situations in which participants came across the use of their photos of faces openly shared:

- ❑ Wikipedia article or other Wikimedia project;
- ❑ illustration of an online article;
- ❑ use of an image of a public person;
- ❑ blogs;
- ❑ news sites.

None of the users surveyed reported any inappropriate uses of the photographs they shared openly. One respondent mentioned that their photo was included in an AI training database (we quote this response in the next slide).

on blogs  
owing to public persons  
wikipedia article  
illustration of specific context  
news sites

Groups of contexts where participants came across the use of their photos of faces shared on open-license with the size indicating the number of mentions.

(n=41, qualitative affinity analysis)

”

*Today, I usually post photos under "all rights reserved", but I have found photos that I posted under a CC license in a facial recognition training dataset.*

*Some photos shared on Instagram have also been embedded on other websites.*

Flickr user, casual photographer (100-1000 photos of faces shared on hosting platforms).





# Key insights

We asked the respondents who share photos under a Creative Commons license (the majority of the respondents) to indicate the most important reasons to share pictures openly.

The list of responses for this question was prepared using Shalom Schwartz's [Basic Human Values](#) model: each of the choices relates to one of the fundamental values proposed by Schwartz. **This allowed us to test broader orientations underlying the decisions to share content openly.**

Results of this part of the survey suggest that the users of Creative Commons licenses on image hosting platforms are **highly socially oriented and focus on growth motives embedded in self-transcendence** (they primarily chose reasons related to Universalism and Benevolence).

The low statistical validity of this study makes it hard to generalize the results. Nevertheless, based on the available data, we form a hypothesis that for users of Creative Commons licenses, sharing works could be a way to affirm cooperation, social support, and tolerance.

People who build their attitudes on values related to self-transcendence are prone to prioritize higher welfare of the community than their own. At the same time, values and goals connected with protection (self-enhancement and conservation) give a lower significance to them and may even conflict with their fundamental beliefs.

We want to clarify that this does not mean that users of Creative Commons licenses are more vulnerable to the misuse of their content due to their social focus and universalistic approach.

## Key insights

In the next part of the survey, we aimed to investigate the attitudes and the perceived extent of control that users of image hosting platforms have over their works. This is connected with the subjective norms they hold, and, in turn, it determines the behavioral outcomes that we may expect in reaction to real cases of abuse of openly shared content.

Values are vital sources of goals for individuals and groups. They work like deep drivers – when tangible changes come in a related aspect of reality, values activate specific interpretations and lead to actions

based on embedded standards. Generally, we need to consider that conflicting values (here distributed on a spectrum between growth and protection as opposing values) may polarize those individuals who relate to values lying on the opposite sides of the spectrum.

Universalism and benevolence stimulate sharing and cooperation, but hardly find adequate standards in response to a violation of laws. This means that, for some users of Creative Commons licenses, the situation of abuse of their content may be confusing and cause them to reconsider further sharing.

# **Attitudes and behaviours towards different categories of use enabled by open licenses, and protecting the works**

# Introduction

In this part, we aimed to understand how users may react to their content being used for various purposes. In constructing the survey, we used the **Theory of Planned Behavior** to define essential factors shaping intentional behaviors. This approach enabled us to study what determines user attitudes towards different content uses, including cases of perceived abuse. For this purpose, we prepared a list of questions about the functioning of hosting platforms (privacy settings, terms of use), the attitudes towards sharing photographs, and perceived risks.

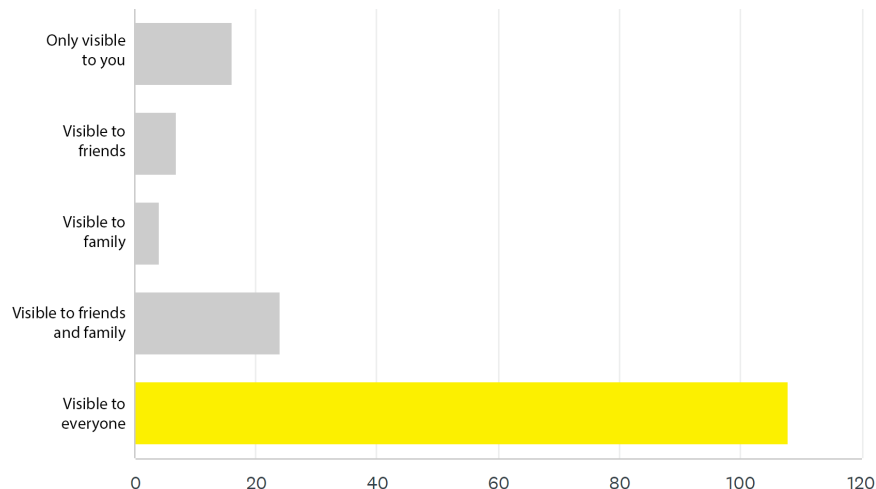
This part of the study covers the following research questions:

- ❑ What are users' attitudes to online privacy and personal data protection? Do they get familiar with privacy terms when sharing photographs online? What type of privacy settings do they choose?
- ❑ According to the users, who is responsible for protecting users' privacy? Do they believe they have the responsibility to protect the privacy/rights of subjects?
- ❑ What are the advantages and disadvantages of sharing photos? Do they experience any abuses of content that they share? What are the risks of sharing photographs openly?

# Privacy settings

Privacy settings enable image hosting platforms' users to chose how visible their content is. To check the preferences of our respondents, we prepared a question related to the sharing photos, based on the settings available on Flickr.

**The majority of those surveyed (76%) declared that they primarily use the “Visible to everyone” setting** (the most permissive setting). Fifty-one participants pointed out that they use settings with privacy restrictions, including 13 persons who alternatively choose both – either “visible to everyone” or with privacy restrictions, probably regulating settings depending on the type of content.



*What type of privacy settings do you primarily choose for the photos of faces that you share?*

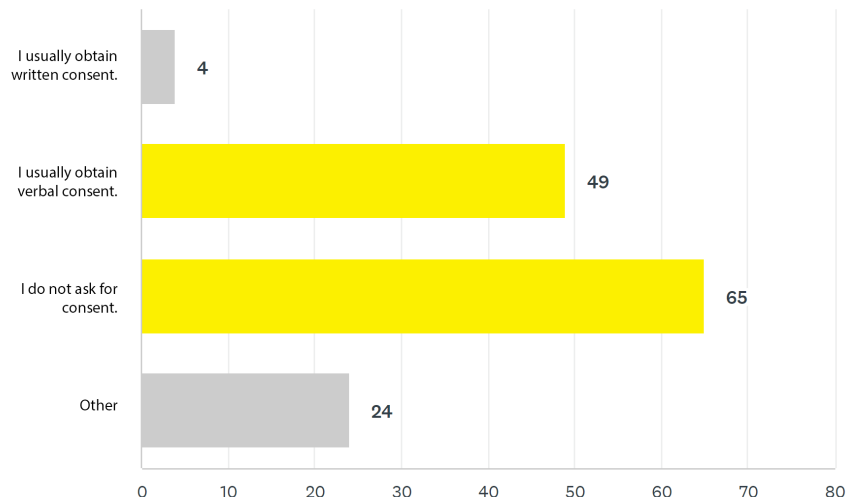
(n=142, multiple response, axis scale – absolute)

# Photo subject consent

Privacy and security concerns can be translated into the practical issue of obtaining the photo subjects' consent for the use of the pictures (when sharing photographs of others). We asked participants how they usually obtain the permission of the photo subject (to take a photo and then use it).

**Almost half of the participants (65) responded that they do not ask for consent from the subjects of their photographs.**

Most participants who usually ask for consent predominantly obtain verbal consent (49), pointed to this option). Only 4 reported that they usually get written permission. Twenty-four respondents chose the “Other” option (details in the next slide).



*When taking a photograph of a person, how do you usually obtain consent to take the photo of their face?*

(n=142, multiple choice; axis scale - absolute)

# Photo subject consent

Twenty-four participants chose the “Other” option in response to the question about photo subject consent, and most of them provided their reasons for doing so. We found five significant types of behavior related to obtaining consent:

- ❑ 7 participants indicated that they assume **photos from public events do not require photo subjects’ consent**. One respondent explained it clearly in relation to legal rules (quote on the next slide);
- ❑ 4 persons claimed that they avoid sharing photographs with visible faces of others;
- ❑ 3 respondents remarked that the need to obtain consent (especially its form) **depends on the context**;
- ❑ 2 respondents mentioned that they share photographs from specific contexts where a **third party is responsible for consent**;
- ❑ another 2 respondents stated that they use **sharing settings limiting the need for consent**.

”

*I usually only take pictures of individuals or small groups I know (with usually implicit consent and no public sharing), or of persons of public interest in public situations (“Personen der [temporären] Zeitgeschichte” in German), or with “attached”/negligible/accidental people (“Personen als Beiwerk” in German), for which no explicit consent is necessary due to German law – in case of any doubts I state “All Rights Reserved”, though I usually use CC BY-NC-ND as a standard.*

Flickr user, Semi-professional photographer (10-100 photos of faces shared on hosting platforms).



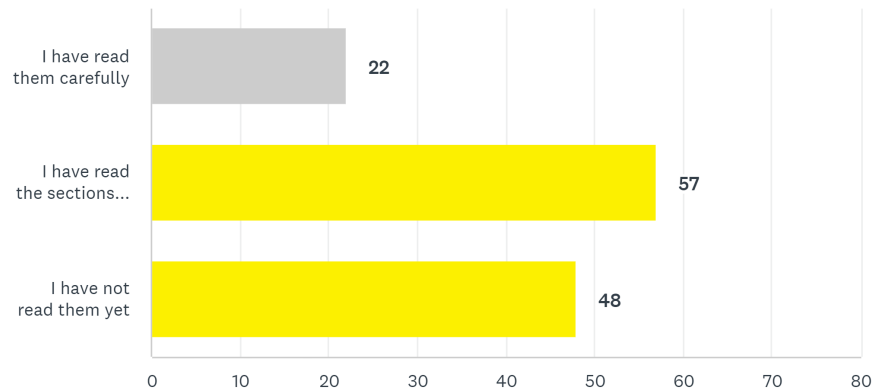


# Terms & Conditions of Use

Flickr users are the majority of our respondents. In order to better understand their behavior when sharing photos of faces, we asked them if they had read the Flickr Terms & Conditions of Use.

Fifty-seven respondents (45% of the Flickr users who took the survey) indicated that they had read the sections that were interesting to them. Forty-eight participants (38% of the Flickr users who took the survey) admitted that they had not read the Terms & Conditions of Use.

Only 22 respondents declared they had read the Term & Conditions carefully.



*Have you read the Flickr Terms & Conditions of Use?*

(n=127, multiple choice; axis scale – absolute)

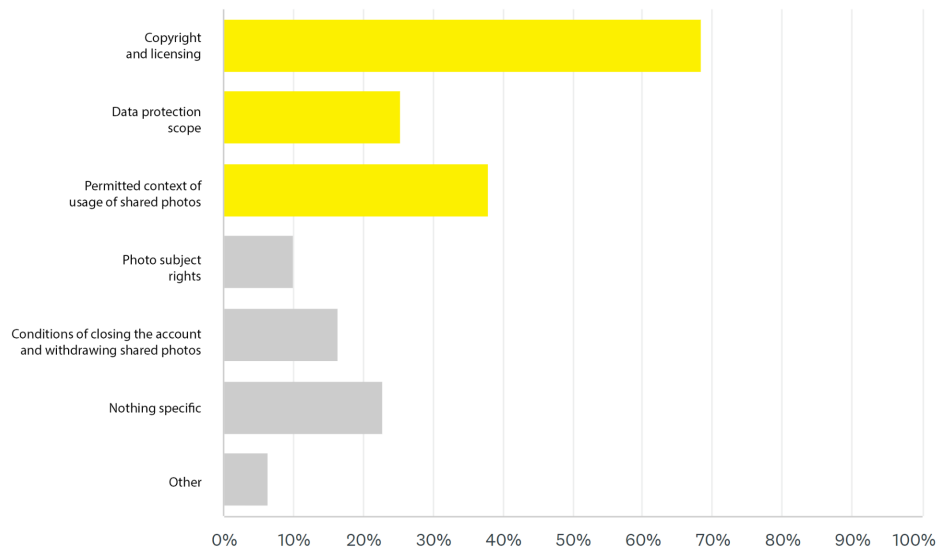
# Terms & Conditions of Use

Furthermore, we asked those users, who had read Flickr Terms & Conditions of Use, what they were specifically interested in.

Most of the respondents to this question (54) pointed to the “Copyright and licensing” section. “Permitted context of usage of shared photos” was the second most frequently chosen option, with 30 participants choosing it, and “Data protection scope” was the third one.

“Conditions of closing the account and withdrawing shared photos” and “Photo subject rights” received just a few matches.

Almost a quarter of participants said they were not interested in anything specific.



*What are you specifically interested in when reading the Flickr Terms & Conditions of Use?*

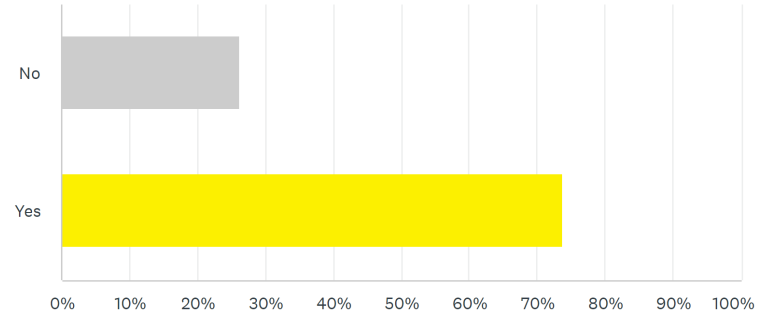
(n=79, multiple response)

# Decision not to share photographs of faces

Before asking about the perceived risks related to sharing photographs of faces online, we asked participants if they had ever decided not to share a particular picture of a person.

This question allowed us to explore participants' actual behavior that controlled access to pictures of faces; and to understand in what conditions they decide not to share a photo.

More than 70% of respondents (hundred-four, 104) confirmed that they had decided not to share photos of faces in the past. On the next slide, we present details of their answers.



*Have you ever decided not to share a photo of a face which you have taken?*

(n=141, multiple choice)

# Decision not to share photographs of faces

We asked participants who decided not to share a photo in the past to explain their decision. Ninety-one participants answered the question:

- ❑ 24 participants indicated that they decided not to share a photo to protect **a specific group of photo subjects** (in particular children);
- ❑ 21 participants indicated “**privacy matters**”; in most cases, the reason was not further specified;
- ❑ 17 participants indicated that the **photo subject did not agree to publish the picture**;
- ❑ 16 participants decided not to share a photograph of face simply because the **photo was considered not flattering**;
- ❑ 13 participants indicated that the specific context where the photo was taken could **negatively affect the photo subject**;
- ❑ 8 participants referred to **legal constraints** and **security issues**;
- ❑ 5 participants indicated that their decision was based on their **personal rules for sharing a photo of faces**.

*Groups of contexts where participants decided not to share a photo of faces in the past.*

(n=91, qualitative affinity analysis)

# The request not to publish by the photo subject

Nearly **33% of respondents** answered “yes” to the question: *Have you ever been asked by a person whom you photographed not to publish a photo or to take it down?*

Forty participants specified their response:

- ❑ 13 participants indicated that they were asked to do so by **people photographed in public spaces**. Sometimes the requests had clear justification (e.g., being photographed at events although they explicitly did not give permission), but in other cases, photographers argued with the photo subject's request and, in two instances, they declined the request;

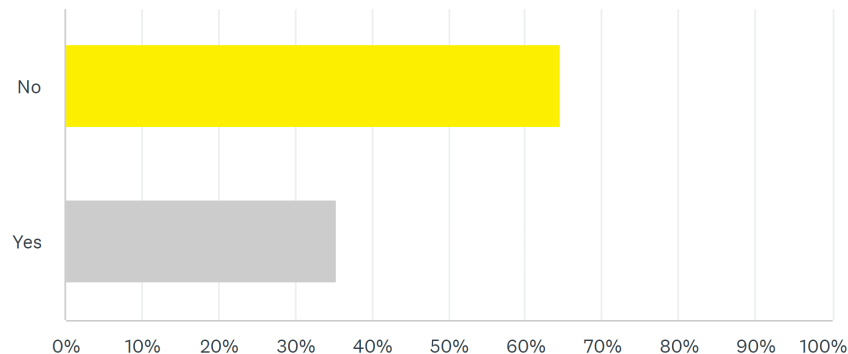
- ❑ 10 participants indicated that **requests were made by a group or an individual concerned by privacy issues**;
- ❑ 7 participants indicated that a request was linked to **changes in photo subjects' life situation** (e.g., change of heart about their online presence). Another five (5) participants indicated that the request was since a subject being **unsatisfied with the photo**;
- ❑ 3 participants indicated cases where a **photographer interpreted the subject's rights differently than a photographed person**.
- ❑ 2 respondents received a formal request to remove the photographs from Wikimedia Commons.

# Risks & dangers related to sharing photos with faces

We asked participants if they ever noticed any risks or dangers related to sharing photos with faces under a Creative Commons license. More than 65% of respondents (91 out of 141) answered “No.”

A bit more than one-third of participants (50 out of 141) indicated that they perceived risks or dangers related to the practice of sharing photos of faces with open licenses.

In the following slides, we present the results of a qualitative analysis of their answers.



*Have you noticed any risks or dangers related to sharing photos with faces under a Creative Commons license?*

(n=141, multiple choice)

# Risks & dangers related to sharing photos with faces

44 participants described in more detail how they perceive risks and dangers related to the practice of sharing photos of faces with open licenses:

- ❑ 14 participants mentioned the risk of a photo being used in **an online context to which either the photographer or the subjects would not agree to** (e.g., “images incorporated in content someone may not want to be associated with,” “on the website of an organization whose views they do not agree with,” “questionable commercial businesses,” “the place this person lives in is recognizable”);
- ❑ 9 participants indicated artificial intelligence and/or face recognition as the main reason;
- ❑ 9 participants indicated cybercrimes, license violation;
- ❑ 7 participants indicated issues connected to copyright and CC\*;
- ❑ 4 participants indicated the lack or change of the photo subject’s consent – limitations, changes in time, commercial context;
- ❑ 3 participants referred to real cases of abuse;
- ❑ 3 participants referred to the lack of control after publishing the photos, signaling a general belief that the control of content is limited;
- ❑ 2 perceived a high risk related to the use of open licenses.

\*Detailed in the next slide.

Groups of descriptions from participants who noticed risk / dangers related to sharing photos with faces.

(n=44, qualitative affinity analysis)



# Risk & dangers related to sharing photos with faces

More than half of the participants who responded to the question about the perceived risks referred to **issues that are essential to the AI Commons initiative**.

- 9 participants indicated risks connected with using openly shared photographs for **Artificial Intelligence development or face recognition algorithms (including issues linked to algorithmic bias)**. Most of the comments referred to these issues in general terms. One of the responses emphasized the rising danger of abuse: *“I’ve always known that there could be a risk of a photo being misused somewhere, but now with the whole facial recognition training thing I see it as very risky.”*;

- 3 participants referred to **actual cases of abuse** that they heard about (from a Wikipediocracy article, an article by Cory Doctorow, “the Australian case”);
- 9 participants indicated issues related to **copyright and Creative Commons licensing**. Three comments stated that, while CC licenses cover copyright and should not be expected to protect against other dangers, most image-hosting users are unaware of such distinction (see quote in the next slide). Other participants pointed to the risk of commercial use of their content. One respondent pointed out that a CC license is irrevocable and that this “can become tricky at times.”





*Creative Commons licenses are copyright licenses. They have nothing to do with personality rights, but, for the uninformed, they may seem like they do. In many cases, that does not matter: Industry professionals (at least in certain branches) will shy away from anything that does not have a formal model release. The news industry has its own rules anyway. But non-professionals may not even be aware that personality rights and copyright are two separate issues. The Creative Commons licenses are not very upfront about that, especially in the abridged summaries most people get to see instead of the actual license text.*

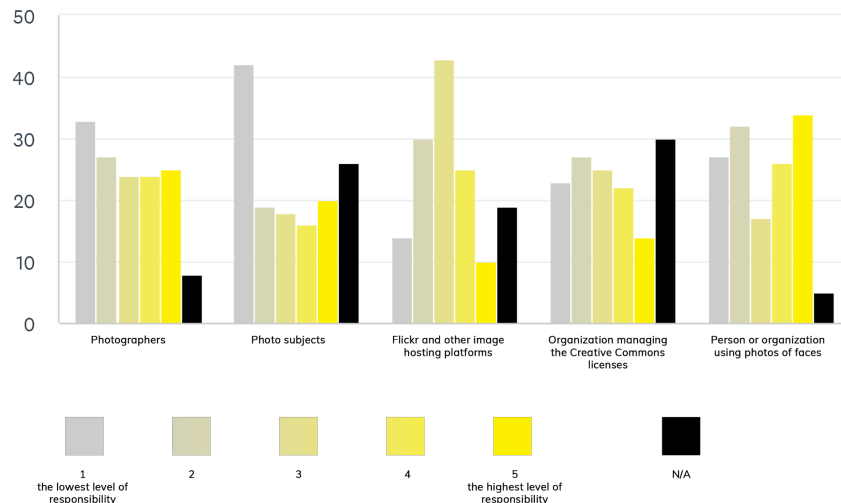
Wikimedia Commons user, Semi-professional photographer (100-1000 photos of faces shared on hosting platforms).



# Responsibility for the use of photos with faces

To understand how users of image-hosting platforms assign the responsibility for how photos with faces are used, we asked participants to assign a level of responsibility to five entities involved in the sharing of photographs under open licenses.

Many participants picked the “N/A” option to answer this question: this suggests a significant level of uncertainty related to the matter. This is especially noticeable with regard to Creative Commons, as the steward license; and the responsibility of the photo subject. On the other hand, there was clarity and relatively stronger sense of responsibility of the downstream users of the shared photographs.



*In your opinion, who should take responsibility for the use of photos with faces, which are shared on image hosting platforms? (in particular for negative outcomes of such use). Please rate on a scale where: 1 is the lowest level of responsibility and 5 is the highest.*

(n=141, multiple choice; axis scale – absolute)

# Key insights

In this part of the survey, we investigated users' activities and attitudes towards different uses of their works, and risk management. Participants were asked to indicate which privacy settings they use and how they manage photo subjects' consent. It appears that only a small percentage of surveyed users take strict measures to prevent the misuse of their content and protect the subjects of their photographs. Furthermore, a significant group of users does not pay attention to Flickr's Terms & Conditions of Use. This group seems to be slightly bigger than those users who pay attention to protecting their content and the subjects of their photographs.

At the same time, most of the survey participants decided not to share a photo of a face at least once. A qualitative analysis of their responses revealed that, in most cases, the reasons for this were strictly connected with protecting the photo subjects' privacy. Users also seem to react to real dangers or explicit requests from photo subjects.

Two-thirds of participants indicated that they had not noticed any risks or dangers related to sharing photos with faces under a Creative Commons license. Among respondents who had seen risks and dangers, nearly half pointed at general contexts of misuse, and the rest defined the context more precisely.

## Key insights

Most image-hosting platform users do not recognize – without being prompted – distinct dangers related to artificial intelligence technologies.

We also inquired about the degree of responsibility for using photos with faces and potential risk management. Responses revealed a high level of uncertainty among users.

The insights described above suggest that users tend to respond to specific requests made by photo subjects and to react to concrete signals of potential danger.

Nevertheless, the awareness that open-shared content may be used without consent to develop AI technology is rather uncommon.

It is worth noting that this part of the survey was presented before presenting potential risks related to AI technologies. This means that survey participants answered the question about risks and dangers based on their own experience.

# **Attitudes towards Artificial intelligence and automatisisation technologies**

# INTRODUCTION

Our study's primary purpose was to find out how users of image hosting platforms view and react to actual cases of the usage of openly-shared content in the context of AI technology development. The final section of our survey was dedicated to investigating this issue.

We prepared nine questions, which gradually informed participants about the fact that photos with faces may be used in facial recognition datasets. We started with general questions about the appearance of AI technologies in different contexts. Then we presented a few actual cases of using visual content for AI training. In the last question, we

asked how photographs might be effectively protected from unwanted use.

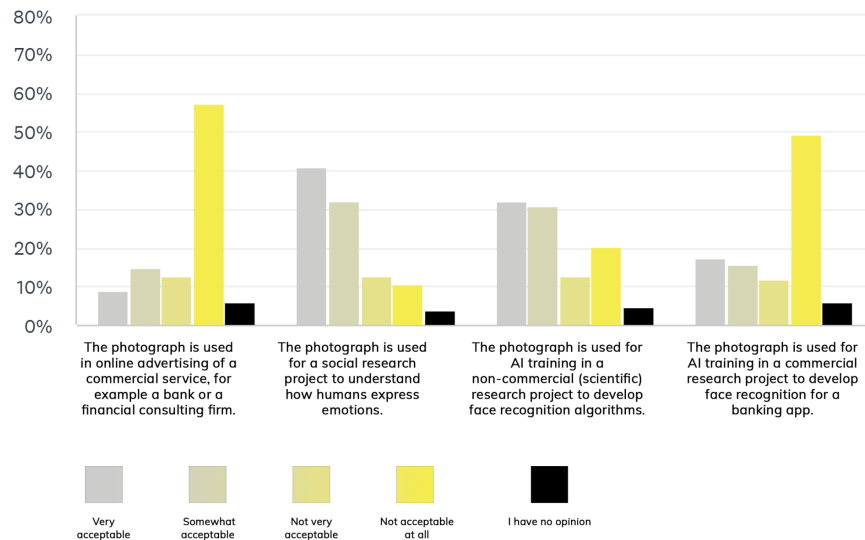
Thus, we raised the following questions:

- ❑ Do attitudes towards AI training with shared photographs depend on the context: commercial / non-commercial; variety of uses for health / research / military / business / academic / education purposes
- ❑ What is the users' level of awareness of social challenges related to AI and facial recognition? What kind of risks do they perceive?

# Use of shared photos in different contexts

At first, we wanted to understand if users of image hosting platforms treat various contexts of AI research as different. We asked survey participants how acceptable it would be to use a photo of a friend's face in four different contexts. Two of them were connected with the non-commercial use of photos (one related to AI and one in another research context). The other two concerned commercial use (one associated with AI and one with use in online advertising).

Respondents were **more likely to accept the use of their photos in a non-commercial context** – including a research project linked to AI training. The highest level of reluctance we could observe was towards the commercial use of pictures in advertising.



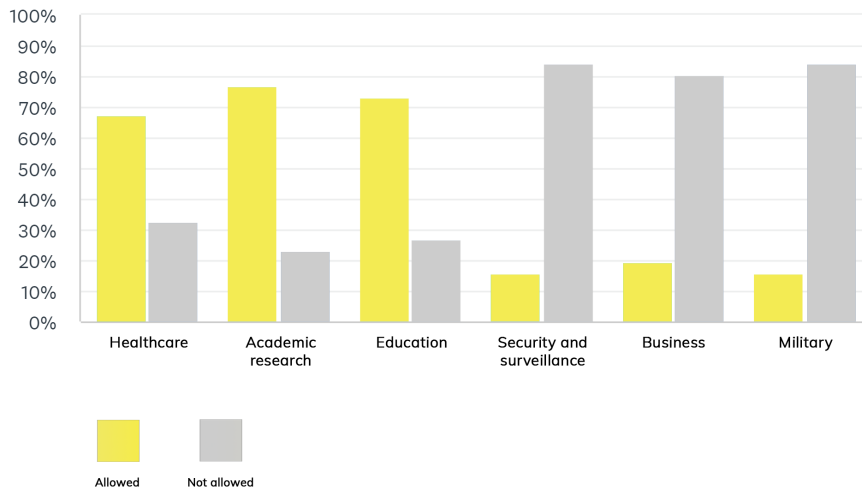
*Please imagine that you shared on Flickr a photo of your friend's face. You made the photo available under a Creative Commons license that allows the photograph to be freely shared. How acceptable would the following situations be for you?*

(n=134, multiple choice)

# Regulating the use of photos to train AI systems

Continuing the investigation of various contexts of use, we asked participants to imagine that hosting platforms provided a more detailed sharing functionality that would differentiate between different contexts. They could select: “Allowed” or “Not allowed” for six different purposes of using a photograph to train AI systems.

Most of the participants were willing to allow the use of their photographs to train AI systems for academic research, education, and healthcare purposes (in this order: 77%, 73%, and 67% chose “Allowed”). Participants indicated that they would not permit the use of their photos for security and surveillance, business, and military purposes. Over 80% of participants picked “Not allowed” for all these positions.



*Let's assume that you can set specific sharing permissions for the use of photos with faces. Please indicate whether you would allow using your photographs to train Artificial Intelligence systems for the following purposes.*

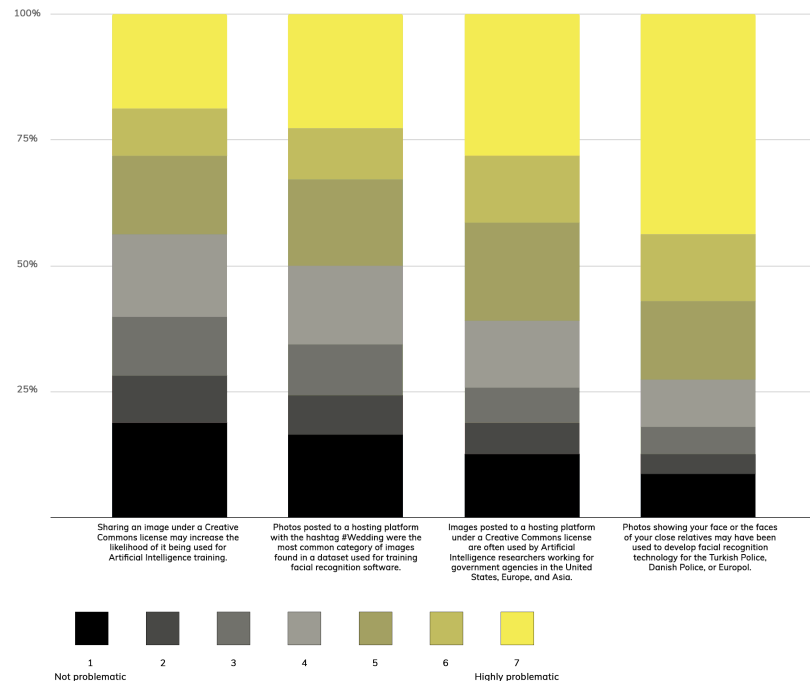
(n=134, multiple choice)



# Use of shared photos

In the final part of the survey, we described real cases related to the use of photos for the development of AI and other automatization technologies. At first, we described four real scenarios where photographs had been used. Participants could indicate their opinion about each case on a scale from “Not problematic” to “Highly problematic.”

The small scale of the sample limits the possibility of interpreting the distribution of participants’ responses. Still, it is worth noting that one case visibly received more answers close to the “Highly problematic” pole: “Your face or the faces of your close relatives may have been used to develop facial recognition technology for the Turkish Police, Danish Police, or Europol.”



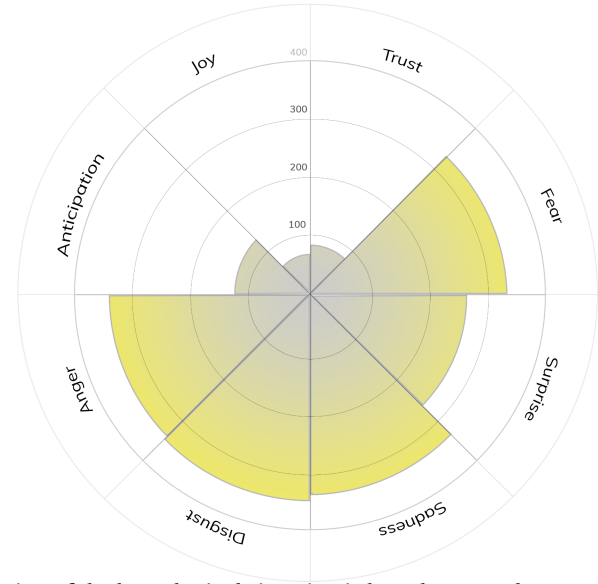
*Below, we present some facts about image hosting platforms. Please, read them carefully and indicate your views.*

(n=128, differentiate scale)

# Facial recognition dataset – emotional reactions

Finally, we presented a description based on a real case – the one of a training dataset called MegaFace. We asked participants to express their feelings and emotional reactions to the case, using a scale of eight primary emotions developed by Robert Plutchik.

The bipolar values of joy and sadness are reliable indicators of elementary emotional valence. Respondents expressed a high level of sadness at a much higher frequency than the level of joy. Furthermore, they reported other negative emotions, especially disgust and anger, indicating that the case situation was unacceptable for them. It is also worth pointing out that high fear and anger suggest hesitation around an opposing reaction – fighting for rights or withdrawing from risky areas (this is linked, in a natural way, to the previously mentioned emotions).

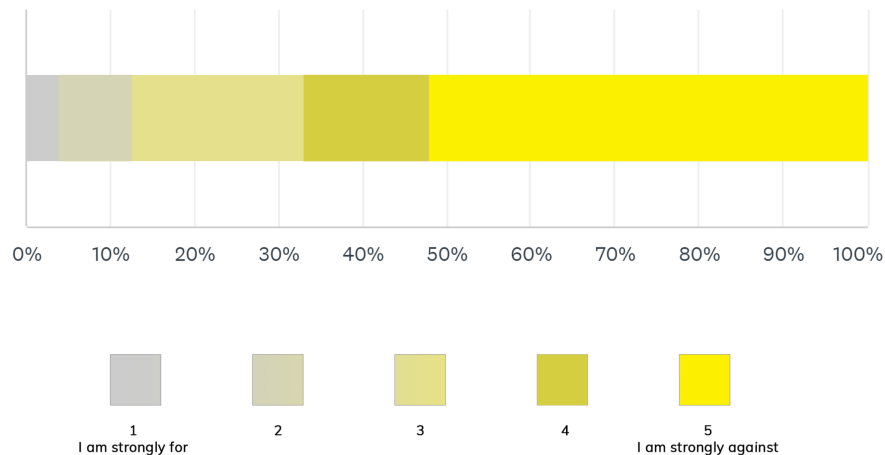


*The description of the hypothetical situation is based on a real case – a training dataset called MegaFace. What are your feelings upon learning about this? Please indicate this on the scale below, where 1 is the lowest level of a particular emotion, and 5 is the highest level. "0" means that you do not feel this emotion.*

# Facial recognition dataset – attitudes

We also asked how participants felt about the commercial use of photos of faces that they share.

More than half of them responded that they are firmly against it. The distribution of answers clearly shows a trend towards refusing commercial use of photos of faces.



*How do you feel about the commercial use of photos of faces shared by you? Please indicate this on the scale below, where 1 is the lowest level of a particular emotion, and 5 is the highest level. "0" means that you do not feel this emotion.*

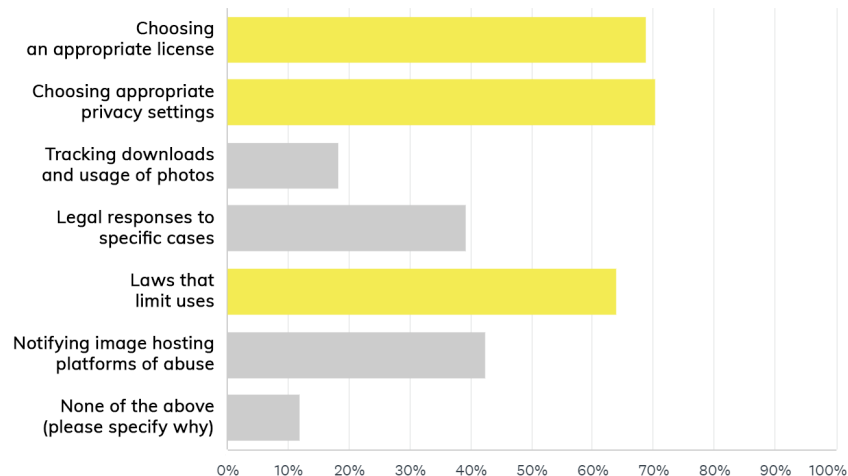
(n=127, multiple choice)

# Protecting photographs from unwanted use

The last survey question focused on what participants identified as effective ways of protecting photos of faces from unwanted or harmful use, thus increasing their perceived sense of control.

Three options were most popular, with more than 60% of participants choosing them: Choosing appropriate privacy settings, Choosing an appropriate license, Laws that limit uses.”

The first two are strictly connected with users’ actions, and all three of them have a legal basis. It thus seems that a significant portion of hosting platform users expects to cope with potential problems thanks to appropriate regulations or legal solutions.



*Which of the following actions are, in your opinion, effective ways of protecting photos of faces from unwanted or harmful use?*

(n=125, multiple choice)

# Protecting photographs from unwanted use

Few participants chose “None of the above,” while 15 of them specified their reasoning. On this basis we identified the following groups of responses:

- ❑ **it is impossible to control those entities which tend to violate rules** (“Bad actors will not care about either licensing, ToS or the law. Many of the options above will limit uninformed actors though”);
- ❑ **abstaining from sharing photos of faces** is the only effective way (“The only real effective protection is not to share.”);
- ❑ **platforms owners should change their rules to protect users** (“Stricter terms & conditions for providing corporate API access.”);



*Those making the scariest uses of photos – e.g. human-rights abusing governments and security forces – are unlikely to respect licenses or laws.*

Flickr user, Casual photographer (more than 1000 photos of faces shared on hosting platforms).



# Key insights

The attitudes of survey participants largely depend on the context and purpose of AI development. In the survey, participants pointed out that they perceive the commercial use of their content (not only for AI training) as a significant risk factor.

To better understand this, we gathered some insights from the qualitative analysis of responses to open-ended questions. We put the comments expressing reluctance towards the commercial use of visual content in relation to the question about risks.

Participants argued that the commercial use of their content exposes them and the photo subject to the risks of economic loss and of placing photos into a context that might negatively affect the subject.

The question about hypothetical functionalities introduced by the platforms, which would offer higher control over the use of photos, allowed us to compare attitudes towards various contexts of use. Again, participants preferred not to allow the use of their photos in a commercial context (represented by “business”); on a similar level, most of them did not accept any military and surveillance purposes. On the other hand, participants were less reluctant to use them in healthcare, academic, and educational contexts.

We may link the above insights with participants' values, as expressed earlier. Business, military, and surveillance contexts are anchored in values like achievement, power, and security from the Basic Human Values classification – all of them are opposite to the social focus and self-transcendence, which proved to be important to the participants.

# Summary and crucial insights

We should not forget that concrete social and cultural incidents impact on participants' perceptions. Most known data abuse cases are related to high-tech companies or security services. It seems that negative attitudes towards these actors also influence attitudes towards AI development.

Responses to the survey show that users tend to have stronger opinions about cases in which the actors are clearly identified (government agencies, national police, Europol). The results suggest that respondents react more firmly when they receive specific information about the actors. Such details probably enable them to assess potential risks better and imagine consequences.

In one of the questions, we asked participants to imagine themselves in a particular situation of data abuse. This allowed us

to investigate the respondents' attitudes at an affective level. Survey takers reacted predominantly with emotions in the pole of sadness of the [wheel of emotions by Robert Plutchik](#). A significant part of the participants reacted with opposing emotions, especially fear and anger (almost half indicated a high level of both). Such a high degree of emotional reactions reinforces the previous insights by validating that many participants had not detected the risks and dangers outlined in the survey earlier.

In their responses to the last question on the effective ways of protecting photos of faces from unwanted or harmful use, most participants felt that their sense of control would strongly benefit from solutions set on a legal basis. Fewer participants believed in solutions solely connected to their own actions, while many expressed doubts about the effectiveness of any type of effort.



# Conclusions

# Conclusions

The application of the survey results is limited due to the small size of the sample. Still, insights from this data enable us to outline directions for further research, and also recommend actions that support users who openly share works in understanding – and reacting – to incidents linked to Artificial Intelligence development.

- The results of our survey suggest that **users of image hosting platforms may not be aware that they could be directly affected by specific dangers connected with AI technologies** – especially when they share photographs of faces openly. Users, on average, tend to confuse the scope of

copyright-based licenses as tools that also offer privacy and personal data protection.

- Our study aimed at understanding behavioral patterns among users of image-hosting platforms. When sharing photos of faces, users do not pay much attention to issues such as responsibility for further reuse, potential risks, or the scope of application of open licenses,. Furthermore, **most users do not actively search for signals of potential misuse and danger; instead, they react to specific signals of risk, as these disrupt their way of reaching those goals that are important for them.**

# Conclusions

This is not different from the attitudes of the broader population of internet users; nevertheless, in the context of visual content that is particularly sensitive – the photographs of faces – this becomes a bigger point of controversy.

- Another important issue is the context of use. The results of our study imply that users of image hosting platforms **have a clear, negative attitude related to the commercial use of their content**. Commercial applications induced a notably higher level of concern among

participants than non-commercial contexts. Similarly, participants expressed a strong reluctance towards military and surveillance contexts of use.

- We identified a few clues suggesting that specific **cases of the use of photos of faces for AI technology development may induce hesitation among photographers to use open licenses**. The disclosure of problematic cases generally creates dissonance between comprehending unexpected facts and finding the right responses to them.

# Conclusions

- Our research shows that users struggle with new information about potential dangers. Some of them will take extreme means to protect their content and their photo subjects (withdrawing content, fighting for rights). However, there is a high probability that the majority of users will remain passive and not react to these risks.
- There is a clear need to further consider users' agency and perceived control. Participants were asked about effective ways of protecting photos of faces from unwanted use. The majority of

them opted for choosing appropriate privacy settings, choosing a proper license, and for relying on laws that limit reuses. Even though they pointed out two options connected with users' actions, the validity of these options depends not only on the right decisions of a given user, but also on the quality of legal and technical tools available. This shows **that users of image hosting platforms still rely in this regard on solutions provided by other entities.**

”

*I wasn't aware that my images might be used for machine learning and artificial intelligence. I would like a licensing option that excludes this use.*

Flickr user, Casual photographer (10-100 photos of faces shared on hosting platforms).





*If it weren't for the confusion around the “non-commercial” CC license, I'd use that for everything. I do not know how I can make things available for non-commercial orgs like Wikipedia and cultural heritage orgs without using the commercial license.*

Flickr user, Casual photographer (more than 1000 photos of faces shared on hosting platforms).



”

*I've worked in data science and in social neuroscience. I was proud to have my photos available to researchers. But I no longer share photos of people I know for fear that certain governments could use those photos, directly or indirectly, against them. It is sad but unsurprising, and I think beyond the scope of (cc) or Flickr's ability to police. The worst agents will respect neither licenses nor the law, and the line between beneficial and weaponizable research is, as often, shifting and faint.*

Flickr user, Casual photographer (more than 1000 photos of faces shared on hosting platforms).



# **Appendix: theoretical models used in this study**



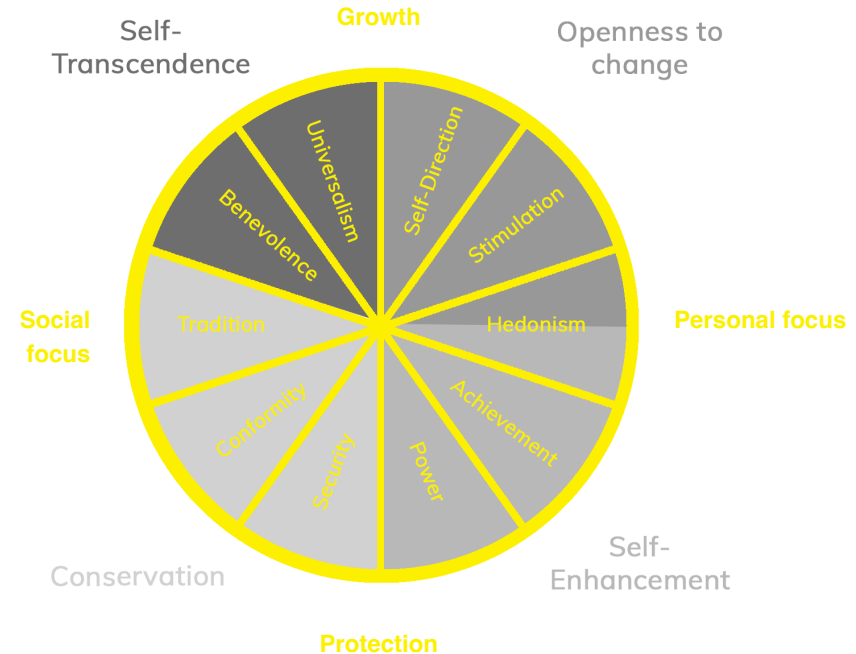
# Basic Human Values – deepest motives

Shalom Schwartz developed the Theory of Basic Human Values (BHV) to identify the universal values occurring across all cultures worldwide. The BHV Theory recognizes 10 fundamental human values, each of which has a central goal: the underlying motivator.

BHV may be structured upon two bipolar dimensions:

- 1) Self-Enhancement ↔ Self-Transcendence
- 2) Conservation ↔ Openness to change.

A value can conflict or align with other values – meaning that some goals may be conflictive.



# Basic Human Values – the basis for implications

- ❑ Values are beliefs linked inextricably to affect. Activating particular values triggers emotional arousal – especially when important values are threatened.
- ❑ Values refer to desirable goals that motivate action. It means that values are deeply anchored drivers – on an observable level, they orientate individuals in specific directions and lead them to certain activities. But...
- ❑ Values transcend specific actions and situations, and it means that values are not equivalent to norms or attitudes that usually refer to specific actions, objects, or contexts.
- ❑ Values serve as standards or criteria. They enable individuals to select or evaluate actions, policies, people, and events (whereby people in daily life are unaware of the influence of values; it may change when actions reveal oppositions or different orientations between important values).
- ❑ Values are ordered by importance relative to one another. It means that people have an ordered system of priorities characterizing them as individuals.
- ❑ The relative importance of multiple values guides individual action. Attitudes or behaviors usually come from more than one value.

Source: Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). New York: Academic Press.

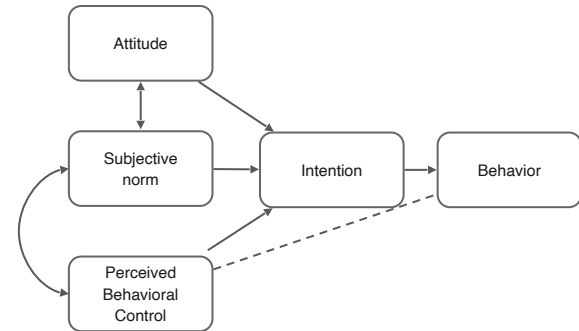
# Theory of Planned Behavior

We used the Theory of Planned Behavior developed by Icek Ajzen to construct an inquiry tool covering users' main factors of intentional behavior (and, in particular, their ability to respond to signs of abuse). This model helps in predicting behaviors in which individuals have incomplete voluntary control.

*“Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance” (Ajzen, 1991, p. 181)*

- ❑ Personal attitude – Individual's personal attitude towards a particular behavior. It is the sum of all knowledge, attitudes, and prejudices that individuals think of when perceiving a behavior.

- ❑ Subjective norms – How individuals perceive a given behavior based on internalized norms.
- ❑ Perceived behavioral control – How individuals perceive that they can perform and control a given behavior.

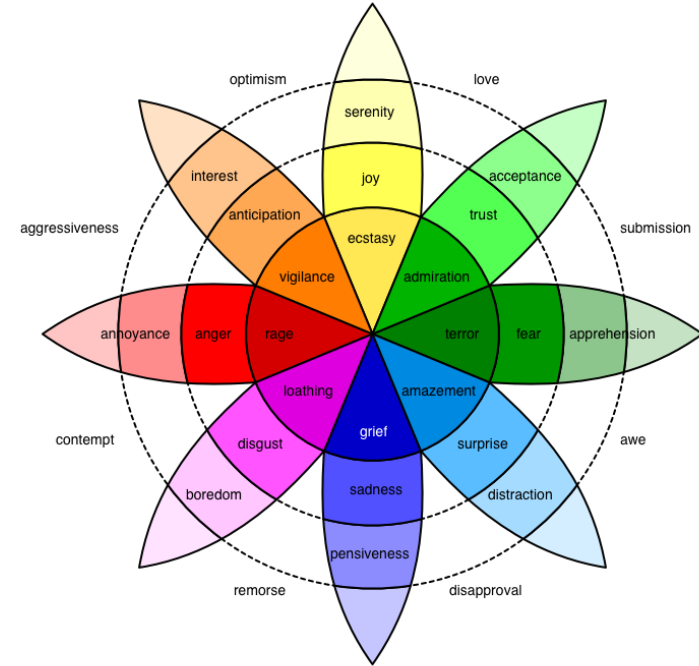


Source: Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), 179-211.

# Plutchik's wheel of emotions

Robert Plutchik elaborated a psycho-evolutionary classification approach for general emotional responses and identified 8 primary emotions – anger, fear, sadness, disgust, surprise, anticipation, trust and joy.

He also created a wheel of emotions to illustrate how different emotions are related. He identified 8 primary bipolar emotions: joy versus sadness; anger versus fear; trust versus disgust; and surprise versus anticipation.



[Plutchik's wheel of emotions](#), By [Machine Elf 1735](#), Public Domain



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