VISAVIS Your visual fact checker

Guide

Recognising and understanding misleading images

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Introduction

Why this guide?

More and more, we are **misled** by what we see online: **AI-manipulated** photos, edited videos or images taken **out of context**. Whereas in the past it was mainly journalists and photographers who created images, today anyone can create and share them. This makes it increasingly difficult to trust what we see. These forms of deception, in which images and videos are deliberately used to misdirect us, are known as **visual disinformation**.

Because of these rapid **developments,** it is getting harder for everyone to **assess** what is **reliable** and what is not. That's why it is important to use the right knowledge and tools to analyse images **critically**, so that we can fight against disinformation.

Who is this guide for?

- **Organisations working with (older) adults**
  For example: local community service centres, libraries, or training initiatives that want to help (older) adults look at images critically.

- **Anyone looking for practical guidance**
  And wishing to learn how to check images and better understand what is and isn't real.

What does it cover?

The guide contains the following sections:

- **Explanatory glossary**
  An overview of the key terms and concepts related to visual disinformation.

- **Tips for working with older people on misleading images**
  Insight into how people aged 55+ experience visual disinformation. How can you work on this topic with them? And how can you provide the right support?

- **Recognising and understanding misleading images and videos**
  - explanation of the broader context of visual disinformation and misleading images and videos,
  - a guide to fact-checking images and videos,
  - a step-by-step plan for using Google Lens.

After completing this guide, you will be able to ...

... explain what visual disinformation is and why it is a growing problem.

... recognise and explain the different types of misleading images and videos.

... critically assess images and videos by asking simple questions.

... use practical tools to verify images and videos.

... better support others in recognising and fact-checking misleading images and videos.

Explanatory glossary

The glossary below helps you understand some of the more difficult words used in this guide. The terms are listed in the order they appear and are highlighted in light purple throughout the text.

> Artificial intelligence (AI): Technology in which computer systems recognise patterns and learn from data in order to perform tasks. The more data you feed into AI, the more it learns and the better it can perform the task.

> Visual literacy: The ability to read and understand images and videos, taking into account the creator's choices in visual language and the context in which the image or video was created. Visual literacy also includes the skills to use and create images and to assign meaning to them.

> Image manipulation: Making changes to an image or video. This can involve adding, removing or altering elements so that the image or video shows something different from what actually happened.

> Clickbait: Misleading, over-promising or sensational text or imagery intended to make people click on a link. Clickbait most often consists of shocking titles or images attached to a post on social media or a website. The actual content of the article or video often doesn't match the title.

> Deepfake: A fake video in which someone appears to say or do something that did not actually happen. Creators use artificial intelligence for this. The technology uses existing footage to imitate a person's voice, behaviour and movements, allowing someone to spread fake news by impersonating other people.

> Disinformation: Incorrect or misleading information that is deliberately used to cause harm or mislead.

> Fact-checking: Fact-checking simply means verifying whether something is true. You examine who said something, when it was said and whether other reliable sources say the same. That way you can tell whether a message, photo or video is genuine.

> Filter bubble: A situation in which you mainly see information, news and opinions that confirm your existing beliefs and preferences. This is caused by algorithms on social media and search engines that filter content based on your past interactions and interests. Other perspectives and information are literally filtered out.

> Generative AI: A form of artificial intelligence that can create new, original content such as text, images, music or other media.

> Misinformation: False or misleading information that is not spread deliberately, but rather accidentally or out of ignorance – so the person sharing it often doesn't realise the information is incorrect.

> Phishing: A form of fraud in which people try to obtain your details (username, password, credit card details etc.) and then misuse them. Phishers often ask you to click on a link and provide personal information. Phishing often happens via email, but also via phone calls and text messages.

> Polarisation: A phenomenon in which groups come to oppose each other more and more in a societal debate. It is an intensified 'us-versus-them' mindset, where both groups are no longer open to hearing each other's beliefs.

> Reverse image search: Also called 'search by image'. A way to use a photo to search where an image appears elsewhere on the internet, whether it has been used before, when it first appeared and in what context it was previously shared.

Tips for working with older people on misleading images

Young people, adults and older people alike, everyone comes into contact with misleading information and images nowadays.

For some older adults, that can be an extra challenge: they didn't grow up with online media and only became digitally active later in life, in a rapidly changing digital environment. When you lack certain digital skills, it can sometimes be harder to judge what is reliable or to recognise deception. At the same time, it is important not to generalise: many older adults today are highly digitally skilled and approach online information just as critically as younger generations.

Why misleading images pose an additional challenge

For many older adults, information used to be closely linked to trusted sources such as newspapers, television and official institutions. Online, however, reliable and unreliable sources are mixed together. An image forwarded by someone they know or a family member may be more likely to inspire trust, even if the content is completely untrue.

Technological developments also play a role. Concepts such as deepfakes, AI-generated images or image manipulation are relatively new. If people don't know these techniques exist, it is only logical that they more readily assume images to be genuine.

Emotion also plays an important part. Misleading images often play on fear, indignation or concerns about health, safety or finances – topics that are relevant and recognisable for many older adults.

Tips for working on misleading images with older adults

Working on misleading images with older people calls for an approach grounded in respect, recognition and trust. These tips help to enable discussion of the topic and to provide the right support.

- Start a conversation, not an argument.
- Use recognisable examples from their everyday lives.
- Focus on simple checking questions.
- Acknowledge that it's OK to have doubts – and that everyone doubts things sometimes.
- Explain complex concepts step by step and avoid technical jargon.
- Use offline analogies to explain a digital/online concept.

Working on visual disinformation with older people is not about warning or correcting, but about learning to look together, asking questions and building trust.

Recognising and understanding misleading images

Images often say more than words. That is precisely why photos and videos are increasingly used to mislead us. An image or video can be real, but shared in the wrong context. Or they can be edited, or they can be created entirely using artificial intelligence.

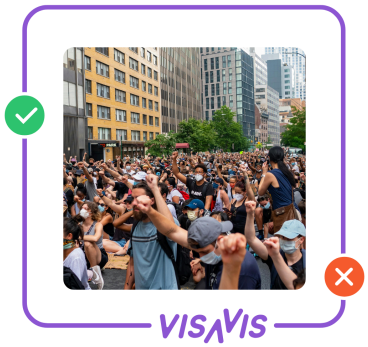
Types of misleading images

When you know how images are used to mislead and can recognise these techniques, you will notice more quickly when something isn't right and can begin fact-checking more purposefully. Below are the most common forms.

1. Real images and videos that are misrepresented and taken out of context

These are images that are real, but are used in a misleading way.

- **Images or videos that tell a different story**



Example: A video of protesters against coronavirus measures in 2020 that is reshared as if it were footage of a recent protest against migration policy.

- **Images or videos with an incorrect time or place context**

Example: Images of the tsunami in Thailand in 2004 that are shared with the claim that another tsunami has just occurred.

2. Manipulated images

Here, the image is deliberately altered in order to mislead.

- **Photoshopped images**

Elements are added, removed or cropped to create a different impression.

- **Deepfake videos**

Videos created using AI in which someone appears to say or do something they never actually said or did.

Example: A video in which a famous actor appears to make a statement he never made.

- **AI-generated images**

Images or videos that are not based on reality, but are entirely created by generative artificial intelligence. AI can be asked to generate almost anything.

Example: A photo in which two politicians embrace each other warmly.

Did you know ...
even small adjustments, such as choosing a different angle or playing with lighting or colour contrast, can make an image tell a completely different story.

How (misleading) images capture our attention

Photos and videos are often shared before anyone checks whether they are actually correct, and this has everything to do with how images affect us.

1. **They evoke strong emotions**

Images that provoke anger, fear, amazement or compassion are shared more quickly. Emotions make people think less critically and click 'share' more quickly. Creators of disinformation deliberately exploit this by combining images with emotionally charged titles or claims. We call this clickbait.

2. **They often seem easier to understand**

An image conveys a lot at a glance. You don't need to read much or investigate further to form an impression, which makes images more likely to go viral.

3. **Social media algorithms**

Social media platforms tend to show posts that receive many reactions or likes more often, without distinguishing between real and fake. As a result, emotional or sensational images gain extra visibility and spread more quickly.

> Did you know ...
> if you frequently click on certain images or posts, you will automatically see more of the same. The algorithm assumes these are your interests and fills your feed accordingly, potentially placing you in a filter bubble.

Tip: Want to share something with others? First ask yourself: Who benefits from this image or video being spread? Is it real? What emotions does this image or video evoke?

What are the dangers of misleading images and videos?

Fake images aren't harmless; they can distort reality. People may draw incorrect conclusions or come to believe falsehoods. That's why it is important to understand why misleading images can be dangerous and what impact they can have, even when they seem harmless at first glance.

- **They are used for financial fraud**

Misleading images and videos are increasingly used in scams. Think of deepfake videos of well-known figures supposedly recommending an investment opportunity, or advertisements for products that look too good to be true. Victims may lose money or hand over personal details.

- **They fuel fear, polarisation and social unrest**

Shocking or emotional images can stir fear, anger or distrust. They are often shared without context and can set groups against one another. In this way, misleading images contribute to polarisation and can intensify tensions within society.

- **They can influence people's opinions**

Some images are intended to persuade. They push a particular narrative, worldview or standpoint. By showing images selectively or placing them in a specific context, creators try to steer people's opinions on issues such as politics, religion, health or lifestyle.

- **They harm individuals and reputations**

Misleading images can portray people in a negative light, even when they have done nothing wrong. An edited image can seriously damage someone's reputation, sometimes with long-lasting consequences for work, relationships or mental health.

- **They undermine trust**

Because we encounter misleading images more and more often, people start to doubt not only fake images but also genuine ones. It becomes harder to distinguish what is reliable and what is not. As a result, trust in media, organisations, institutions and reliable sources comes under pressure.

- **They can lead to real-world actions**

People sometimes act on the basis of misleading images. They may share hateful messages, join protests, incite violence, make financial decisions or avoid certain groups or places.

Step-by-step: How can you fact-check images and videos?

We are used to scrolling quickly, judging and sharing without pausing to reflect on what we see. Every day, images and videos appear online that are not always what they seem. They can be edited, taken out of context or even entirely generated by artificial intelligence. Visual literacy helps you approach this critically: you learn to understand images and videos better, see how they can mislead and check whether they are accurate.

You don't need to be an expert to expose misleading images and videos: it is about taking a moment to pause and reflect on what you see and feel before sharing something. This step-by-step plan will guide you through the process.

1. Does an image evoke emotions? Pause for a moment.

When an image or video makes you angry, frightened, sad or extremely enthusiastic, this is often a signal to pause. Take a moment to reflect and ask yourself questions such as:

- Why does this image or video affect me so strongly? Does it evoke strong emotions or doubts?
- What is the creator trying to do: inform, persuade or manipulate?
- Why am I seeing this? Does it play into my existing beliefs or fears?

2. Check the source and the reactions

The reliability of an image or video is often linked to who shares it and where it comes from.

- Who shared or created the image? Does this person have knowledge of the subject?
- Do they post this kind of content often – or not at all?
- What are other people saying in the comments? Are doubts being raised about the image?
- What do other sources say? Consulting just one source is usually not enough to determine whether something is true. Look further.

3. Analyse the image: is it manipulated or generated by AI?

Images or videos can be misleading in different ways: they may be taken out of context, subtly edited or entirely generated by AI. It is therefore important to **look carefully for details that don't seem right**. The more things appear to be off, the greater the chance that the image is fake. Combine these observations with step 4: checking the context.

You can use the checklist below to determine whether an image or video has been generated by AI or manipulated:

1. **Look at human details**

- Too many or too few fingers?
- Strange body shapes or unnatural movements?
- Uneven pupils or unnatural reflections in the eyes?
- Too many or too few teeth? A set of teeth that looks too perfect?
- A vague hairline, strands of hair blending into the background or hair with no clear origin?
- Buttons, zips, watches, glasses or jewellery that are distorted or missing details?

2. **Look at light, shadow and the laws of nature**

- Does the lighting on the face match the surrounding environment?
- Are shadows consistent and logical throughout the image?
- Do objects obey the law of gravity? Floating objects are suspicious.

3. **Look at background details**

- Do buildings, furniture or other objects have normal shapes?
- Are objects in proportion to each other and to the foreground elements?
- Do the language and symbols on road signs, street names or shop signs make sense?

4. **Look at text and logos**

- Odd letters, blurred or incomplete words, incorrect or distorted logos?

5. **Check for perfection or blurriness**

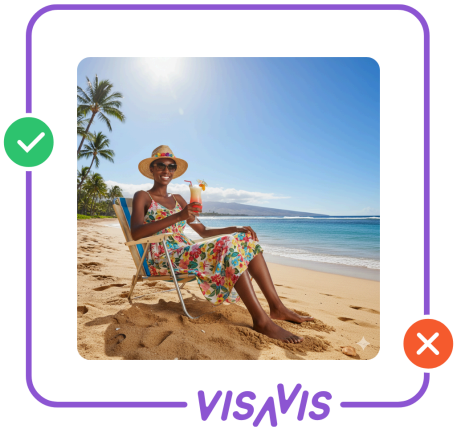
- Do the images look too perfect? For example, due to strong lighting, symmetry, unnatural shine or exaggerated colour contrasts.
- Is the image very blurry? AI images are sometimes deliberately made blurry to conceal errors and details.

6. **Look for a watermark**

- Is there a watermark present? Some AI tools leave a small logo or watermark in the image or video.

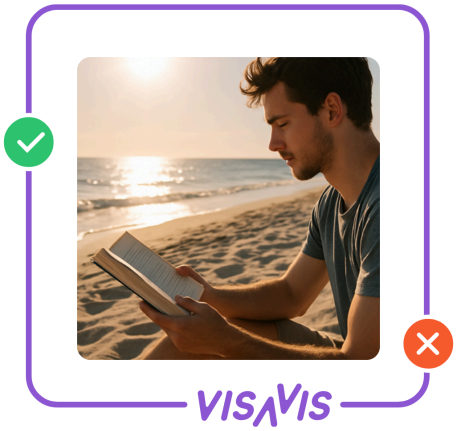
Some examples:

Example: At first glance, the image looks real. But on closer inspection, you will see that the woman has six fingers on one hand.

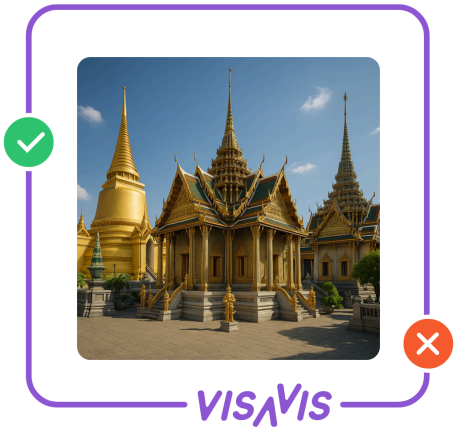


Example: Examine the woman's shadow closely. Its shape doesn't align with the contours of her body. This is a common sign of AI-generated images, as AI sometimes has difficulty producing consistent and realistic shadows.

Example: Pay attention to the arm behind the woman. Behind it, there appear to be two heads where there should be one. The subway grab handles also look incorrect, with one appearing incomplete behind another.



Example: If you look closely at the book, you'll see there's no readable text, just some blurry lines. There may be something "unreal" about the boy in the picture. His skin looks unusually smooth, and it doesn't really make sense that he is reading while his eyes are nearly closed.



Example: Examine the image closely. The perfect symmetry, unnatural shine, and overly bright colours make it look artificial.

Example: Look at the bottom right corner — you'll see a Gemini® watermark from Google's AI model.

Additional points of attention for videos:

- **Mouth and speech**: Do the lips move in sync with the speech?
- **Sound**: Do background sounds match the situation or environment?
- **Blinking**: Too little, too much or uneven blinking?
- **Body movements**: Do body parts move stiffly, slowly or unnaturally compared to the rest of the body?
- **Objects and limbs**: Do objects or limbs suddenly appear, distort, disappear or merge into one another?

Please note: Developments in AI technology are moving very quickly and therefore some tips may become outdated over time. It is important to remain critical at all times and keep an eye on new tools and techniques.

Did you know ... there are also detection tools that allow you to quickly check whether an image or video has been manipulated.

The **VISAVIS image and video inspector** (www.visualfactcheck.eu) are both tools to verify whether an image was created or manipulated using AI and to check whether videos have been taken out of context.

4. Check the context

Perhaps step three has shown that the image is not manipulated or generated by AI. Perhaps you are still unsure, or there are details you want to investigate further. The information you gathered in step three will help you check the context. In this step, you **examine whether the story accompanying the photo or video is accurate**. Is an old photo or video being used as if it were recent? Or did what you see perhaps happen in a different place from what is being claimed?

To check this, you can ask yourself a number of questions:

- When did the images first appear? Is the image older than the event currently being discussed?
- In what context did it previously appear? Was this photo perhaps used three years ago in connection with a disaster in another country?
- Was the image taken at the stated location? Small details can reveal a lot about where, when and in what context an image was captured. Pay attention to concrete clues such as:
    - **Location**: street names, number plates, shops, road signs, buildings – do these match the claimed location?
    - **Language**: which language do you see or hear on signs, in shops or spoken by people?
    - **People**: do ethnicity, clothing and context fit the supposed location?

- **Weather**: is it sunny or cloudy? Snow or summer conditions? Does this fit the date and location?

Don't rely on a single post, one website or one image. Check whether multiple reliable sources present the same story:

- Is the image also being shared by other (news) media or trustworthy organisations?
- Do they describe the same event, location and timing?
- Are there differences in how the image is interpreted or framed?

Tip: a reverse image search helps you check online where an image or video has appeared before and in what context. This allows you to quickly see whether the image or video has ever been used for something else. Well-known tools for performing such a reverse search include Google Lens®, TinEye® and Bing Visual Search®.

At the end of this guide, you will find a step-by-step plan for using Google Lens® to determine where an image comes from, when it first appeared and in which contexts it has been used.

5. Make a decision

Now that you have analysed the image and checked the context, it is **time to make a decision**. Ask yourself:

- Can I say with confidence that this image is accurate?
- Are there still aspects I am unsure about, or that I cannot verify?
- If you don't immediately know where to look for answers to all your questions, talk to someone in your close circle (friends, work, hobbies etc.) and search for answers together.

The rule of thumb is simple: if you're in doubt, don't share it.

Remember: you don't need to be an expert to recognise misleading images. By checking step by step, looking critically and pausing to reflect on what you see, you can already expose many fake images. And if you're unsure where to look for answers, talk about it with someone in your immediate surroundings (friends, family, colleagues etc.) and look for answers together.

Analysing images with Google Lens®

Google Lens® is an app that helps you **analyse images**. You take a photo or use an existing image or a screenshot from a video, then Google Lens® searches online for similar images and additional information. This is also known as a **'reverse image search'** or **'search by image'**.

Important: Google Lens® helps you find information about images or videos, but does not issue an automatic judgement. You need to review the results yourself, compare them and think critically. Only then can you draw a conclusion about what you're seeing.

Google Lens® can also read and translate text. In this step-by-step guide, however, we focus solely on using the app to analyse images.

Using Google Lens® on your smartphone or tablet

1. Downloading Google Lens®

Google Lens® is already installed on most Android phones. If not, you can download the app via the Google Play Store. On an iPhone or iPad, you can use Google Lens® via the free Google® app, which you can download from the Apple App Store.

2. Using Google Lens®

A. Open the app.

- On **Android**: open the Google Lens® app or the Google® app and tap the Lens icon (camera symbol).
    - The first time you open it, tap 'Open camera' → 'While using the app'.
- On **iPhone**: open the Google app and tap the Lens icon.
    - The first time you open it, tap 'Allow' → 'Continue'.

B. Take a photo or choose an image

- Point your **camera** at the object or **image you want to investigate** and take a photo,
- Or **select an existing photo** from your gallery. To do this, tap the gallery icon in the app and choose the desired image.
    - The first time you select an image, the app will ask what level of access to your photos or camera roll you want to allow. For example, you can choose all photos or selected photos only.

Tip: Want to check a **video**? Take a **screenshot** of a **clear frame** from the video and use that in Google Lens® for further analysis.

C. View the results

Google Lens® **analyses** what is shown in the image and displays possible **results** at the bottom of the screen.

You will see **different tabs or categories**. This is what they mean:

- **All**: Shows a combination of all types of results that Google Lens® has found – similar images, exact matches, products, websites and additional information. This is useful if you want an overview of everything available.

- **Exact matches**: Shows images that are exactly the same as your photo or screenshot. This helps you check whether an image has been published elsewhere online and in what context it is being used.

- **Products**: Google Lens® recognises objects in the image and shows similar products, often with extra information. This is useful if you want to know exactly what something is or where you can buy it.

- **Visual matches**: Shows images that look similar but are not exactly the same. This is useful for finding context or seeing in which situations similar images or videos are used.

- **About this image**: Provides additional background information about the image, such as its origin or when it first appeared online.

Using Google Lens® on your desktop or laptop

You can also search by image on your **laptop or computer**. You **don't need to download a separate app or software for this**; you can simply do it in your **browser**.

Below are the **main differences** compared to the mobile app:

- You start a search by clicking the **Lens icon** (camera symbol) in the **Google search bar**.
- Instead of taking a photo, you **upload an image** or paste an **image link**.
    - You can **copy an image link** by **right-clicking** on an image and selecting '**Copy image address**' or 'Copy image link' (the wording may vary slightly depending on the browser).
- If you use **Google Chrome**, you can also **right-click** directly on an image on a website and choose '**Search with Google Lens**'. You don't need to go to the Google search bar first.

Got it? Test yourself!

Test yourself with these short exercises and discover how well you recognise misleading images. You will see real examples and learn step by step what to look out for.

VISAVIS

Get involved and change the future of visual misinformation.
Go to www.visualfactcheck.eu