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New evidence, new challenges: ICC judges' perspectives on user-generated evidence and judging in an age of artificial intelligence

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Abstract

Evidence recorded on personal digital devices, or "user-generated evidence" (UGE), has profoundly shaped our ways of knowing about international crimes. UGE can be expected to play an important role in future cases before the International Criminal Court (ICC), yet few trials to date have relied extensively on UGE.. This research provides important insights into how ICC judges define UGE and perceive its strengths and weaknesses, and on the readiness of the Court to adapt to judging in an age of Artificial Intelligence. Using grounded theory to analyse interviews with ICC judges, we identified several key themes, including concerns about the perceived importance and potential bias of evidence sources; the practical challenges of employing UGE; the burden placed on the parties to ensure the reliability of the evidence, to rigorously challenge the opposing party's evidence, and the importance of preparing legal professionals to address the risks associated with misinformation and disinformation.

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Key words

User-generated evidence; citizen evidence; International Criminal Court; judges; deepfakes

Resumen

Las pruebas registradas en dispositivos digitales personales, o «pruebas generadas por los usuarios» (UGE, por sus siglas en inglés), han influido profundamente en nuestra forma de conocer los crímenes internacionales. Se prevé que las UGE desempeñen un papel importante en futuros casos ante la Corte Penal Internacional (CPI), aunque hasta la fecha pocos juicios se han basado ampliamente en ellas. Esta investigación ofrece información importante sobre la forma en que los jueces de la CPI definen las UGE y perciben sus puntos fuertes y débiles, así como sobre la disposición de la Corte para adaptarse a juzgar en la era de la inteligencia artificial. Utilizando la teoría fundamentada para analizar las entrevistas con los jueces de la CPI, identificamos varios temas clave, entre ellos las preocupaciones sobre la importancia percibida y el posible sesgo de las fuentes de pruebas; los retos prácticos que plantea el empleo de la UGE; la carga que recae sobre las partes para garantizar la fiabilidad de las pruebas, para impugnar rigurosamente las pruebas de la parte contraria, y la importancia de preparar a los profesionales del derecho para hacer frente a los riesgos asociados a la desinformación y la información errónea.

Palabras clave

Pruebas generadas por los usuarios; pruebas ciudadanas; Corte Penal Internacional; jueces; deepfakes.

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1. Introduction

When the Statute of the International Criminal Court (ICC) was completed in 1998, the iMac computer had just been released. It would be three months before Google was founded, and a year before the first commercial camera phone was sold. Today, billions of people worldwide carry mobile phone devices in their pockets with computing power that would have been simply unimaginable in 1998. The advent of smartphones and the rise of social media have turbocharged people's ability to capture and share information, including information about alleged international crimes, at an unprecedented scale. These technological developments have borne a dramatic impact on the conduct of investigations, particularly those into international crimes where investigators may be denied access to the sites of the atrocities and may be unable to interview witnesses. In particular, user-generated evidence (UGE) – information captured on personal digital devices and used in legal proceedings – has become an important facet of international criminal law fact-finding, and this is only set to increase, with recent conflicts in Ukraine and Palestine on course to become the most well-documented in human history (Fidler and Grove 2023, Kelley 2023, Klosterkamp and Jeffrey 2024, Anosova *et al.* 2024). Fact-finding missions, commissions of inquiry, and similar bodies have already come to rely on UGE, often posted online as "open source" material, thus helping shape the evidentiary landscape, and acting as a bridge between human rights documentation and international criminal investigations (McGonigle Leyh 2017, Murray *et al.* 2022).

The ICC's reliance on user-generated evidence (UGE) can be traced to earlier cases. In issuing an arrest warrant against Libyan commander Al Werfalli (ICC 2017), the Court drew extensively on videos posted online that appeared to show his involvement in extrajudicial killings (Irving 2017, Freeman 2018). Similarly, in *Al Mahdi* (ICC 2016), the prosecution relied on video material to demonstrate the destruction of cultural property in Mali. Both cases, however, had limitations: Al Werfalli died before appearing before the Court, and Al Mahdi pleaded guilty, meaning the evidence was not challenged at trial. More recently, the 2024 judgment in *Al Hassan*, also arising from the situation in Mali, provided some insight into how journalistic videos are evaluated, with considerable emphasis placed on independent corroboration (ICC 2024). The 2025 judgments in *Yekatom and Ngaïssona* and *Abd-Al-Rahman* both touched, albeit briefly, on evidence obtained from Facebook. In *Yekatom and Ngaïssona*, the Court held that Facebook messages could not be attributed to the owner of an account without additional proof that they were the person who actually sent the message (ICC 2025a). The Trial Chamber in *Abd-Al-Rahman* declined to rely on the evidence of a Facebook expert given that material put to him in cross-examination had not been properly introduced (ICC 2025b). These cases show that UGE is central to fact-finding before the ICC, but that many key issues around its admission and evaluation are still evolving.

The relative paucity of final judgments from the ICC incorporating UGE to date means there is a gap in our understanding of how judges perceive this new kind of evidence, and whether they consider the ICC's existing legal framework as adequate to address its challenges, particularly in an age where Artificial Intelligence (AI) can be used to generate or edit convincing fake content at scale. While there is a growing body of scholarship on the collection, verification, and admissibility of digital evidence (for instance, Hamilton 2018, Braga da Silva 2022, Koenig and Freeman 2022, Minogue *et al.*

2024, White 2024, Gavrysh 2025), very little research has examined how judges perceive evaluate this new type of evidence. This gap is compounded by the fact that the ICC has adopted a *laissez-faire* model for the introduction of evidence, allowing evidence to be submitted by the parties with the admissibility criteria only considered at the end of the trial (Irving and Rewald 2022). This means that individual decisions on the admissibility of evidence are not issued throughout trials, leaving the parties and observers with little insight into the key factors judges deem most relevant until the Trial Judgment is issued, and even then, discussion of the relative strengths and weaknesses of UGE may be limited because it forms part of a broader judgment covering a huge breadth of legal and factual issues (McDermott 2024, 39-64).

1.1. Methodology

This article seeks to fill that important knowledge gap by presenting some unique insights derived from interviews carried out with ICC judges between October 2022 and March 2025. In total, 12 judges were interviewed, 11 of whom were sitting judges at the time of interview, and one of whom was recently retired. Given that the total number of ICC judges is 18,[4] this can be seen as a relatively representative sample, while being "sufficiently small for individual cases to have a locatable voice within the study, and for an intensive analysis of each case to be conducted" (Robinson 2014, 29). This sample size proved sufficient to reach saturation, or the point at which further data reveals no new insights (Bryant and Charmaz 2007, Hennink and Kaiser 2022).

Judge interviewees were recruited via direct email. Participating judges were offered full anonymity; each interviewee was given an ID (e.g. "Judge 1") when the transcripts were anonymised. Of course, anonymity has its drawbacks, but on the other hand it allowed participants to speak freely and frankly without fear of identification. Interviewees represented a broad spectrum of prior experience, coming from different legal systems from a diverse range of countries and with backgrounds in both criminal and international law. Interviews were primarily carried out face-to-face at the seat of the Court in The Hague, with a small number (n=4) carried out via Zoom. Our study was exploratory in nature, and we took a grounded theory approach, where the themes were developed directly from the data, rather than starting with pre-existing hypotheses. The interview data were analysed using reflexive thematic analysis (Terry *et al.* 2017), an interpretive approach that emphasises the researcher's active role in generating, rather than merely discovering, patterns of meaning across qualitative data. This method acknowledges that analysis is shaped by the researchers' disciplinary perspectives and engagement with the data, and values reflexivity throughout the process. The first and second authors independently coded all transcripts and met regularly to discuss, refine, and consolidate emerging themes and subthemes through an iterative and inductive process. In light of the size of the dataset, this was done manually instead of using Nvivo or similar software. Analytical notes and codebooks were compared and revised to

[4] ICC 1998, Article 36. Sometimes the number of judges can be more, when judges whose term of office has expired are still sitting on ongoing cases, or it can be less on order of the President. Article 36 requires State Parties to ensure geographic and gender diversity, as well as representation of the principal legal system of the world and a mix of judges with criminal law and international law experience, when electing judges.

ensure transparency and depth of interpretation, with themes developed to capture both shared and divergent judicial perspectives on UGE.

In Part 2, we outline findings associated with the judges' definitions of UGE. In Part 3 we present findings relating to the perceived strengths of this kind of evidence, while Part 4 sets out our findings on the perceived weaknesses of UGE, in the eyes of the judges. Part 5 contains our findings on judges' views of developments in AI, particularly "deepfakes", or AI-generated videos, images and audio. Some authors have suggested that deepfakes will threaten the utility of UGE in future proceedings, if real content cannot easily be distinguished from AI-generated or AI-edited content (Hak 2024). Our research reveals that ICC judges did not perceive AI to pose a major threat to the use of UGE in future trials. They did, however, note that further training of judges and legal professionals is needed to prepare the Court for this new era. This article provides a unique contribution to the burgeoning scholarship on UGE in international criminal law and human rights law, by providing grounded insights into the benefits and challenges of UGE as perceived by ICC judges. It also provides unique findings on the practice of international criminal judging in an age of AI, a growing area of research (Bo 2025).

2. Defining user-generated evidence

FIGURE 1

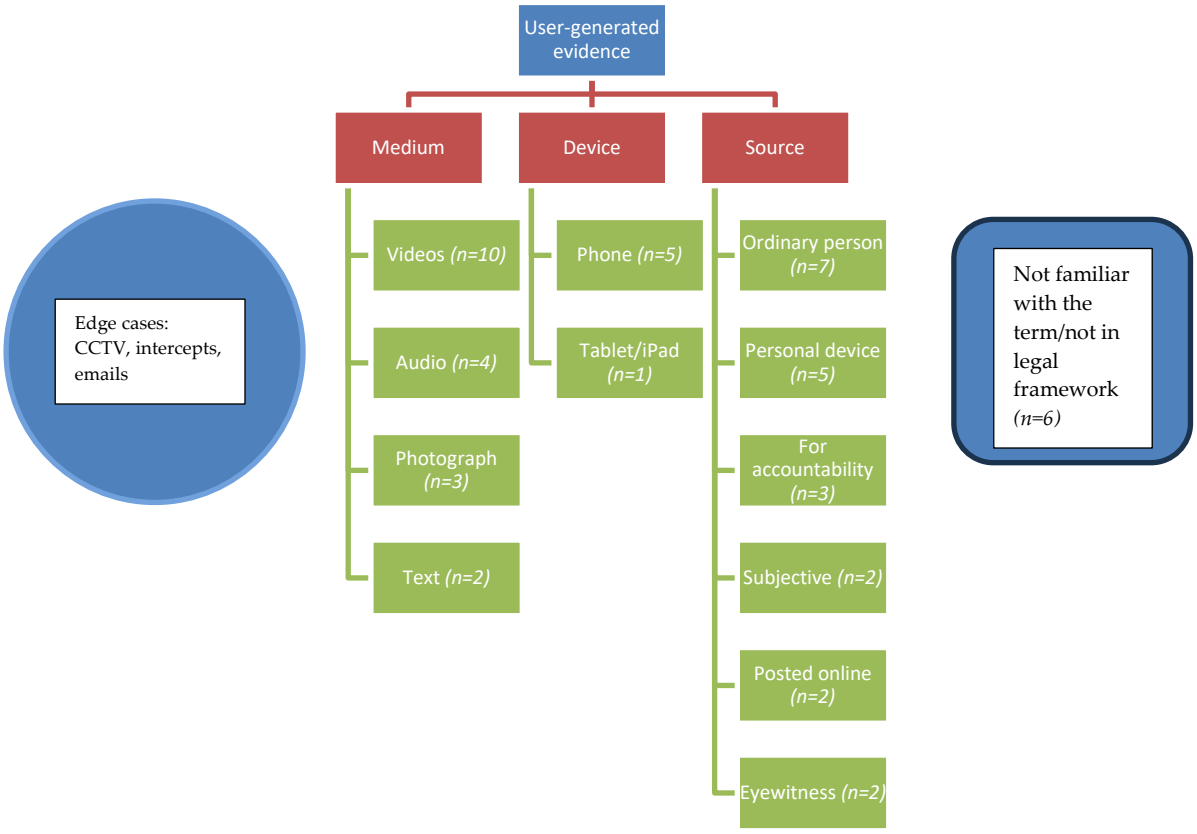

Figure 1. Judges' definitions of UGE.

Our research focused on UGE, which is defined as information recorded by an ordinary citizen and used in legal adjudication (Hamilton 2018, 3). It is distinct from the broader category of "digital evidence", which includes records generated by computer devices (incorporating, for example, browser search history and online transaction records)

(Freeman and Vázquez Llorente 2021, 168-169), in that it only focuses on evidence generated by users. It is also distinguishable from online open source information, defined as "information on the Internet, which can be accessed, for example, on public websites, Internet databases or social media platforms" (OHCHR and Human Rights Center, University of California, Berkeley 2022, para 15), as it includes UGE that may not be in the public domain. This is an important distinction, because several recent trials have used evidence such as photographs and videos that were seized from USB devices or smartphones and were not necessarily also in the public domain (Aksamitowska 2021; McDermott and Hausknecht forthcoming 2026). Moreover, bespoke mobile phone applications have been designed to directly capture evidence of mass human rights violations, storing the material securely offline rather than sharing it publicly (eyeWitness 2025). Such evidence, while user-generated, does not qualify as open source material.

Acknowledging these semantic nuances, we asked participating judges to define UGE at the beginning of each interview. Several judges (n=6) prefaced their definition of UGE by noting that they were unfamiliar with this term or by pointing to the fact that the ICC does not use the term "user-generated evidence". Indeed, Article 69(4) of the ICC Statute does not distinguish between different types of evidence but instead states that the Court may rule on the relevance or admissibility of *any* evidence. Some respondents noted that this kind of evidence has not appeared in many cases; the "court is still at a very early stage of its development… And you didn't have that much evidence with modern tools altogether" (Judge 3).

In offering their definition of UGE, our interviewees highlighted several themes, such as that UGE is generated by an ordinary person (n=7), taken on a personal device (n=5), and/or posted online (n=2). The subjectivity of UGE was mentioned twice (Judge 2, Judge 12), with the judges stressing that UGE provides evidence from "the user's point of view".

Interestingly, almost every interviewee (n=10) mentioned video content as an example of UGE, while audio, photographs, and text were mentioned less often, despite the fact that technically all four "types" of content fall within the parameters of UGE. Mobile phones were the device most frequently mentioned (n=5) as being used to generate content, even though UGE may be generated by other personal digital devices, such as cameras. Three interviewees defined user-generated *evidence* as content that is taken specifically for the purpose of accountability, with Judge 9, for example, clarifying that "the reason why I ended my... description of definition with its being for purposes of accountability is just because of the word evidence at the end. Because anybody can record as we see now."

There was a level of uncertainty stemming from the fact that courts and mechanisms, as well as guidelines, employ different terms to define this type of evidence. As one interviewee mentioned, "usually this is called... these are just called digital evidence, digital evidence in most of the general national system[s] or other UN courts, just the digital evidence presented by the parties" (Judge 6).

There was also uncertainty as to the outer limits of what constitutes UGE. Judge 3 asked: "things like telephone intercepts, are they user-generated evidence? Not quite. Registration of telephone conversations, which has been a key tool in a number of cases,

not really." Judge 12 wondered whether witness testimony would not also qualify as UGE, posing that "there are parallels between the two and… I will also use the metaphor because I think it's a right way of finding some solutions that we had for the human testimonies." For this judge, the only difference distinguishing witness testimonies from UGE was that "on one hand you rely on the memory of a human, on the other hand you rely on the memory of a chip in a smartphone".

3. The benefits of user-generated evidence

When analysing judges' views on the perceived benefits of UGE, we identified three main themes: UGE as direct evidence that can replace witness testimony; the contemporaneous nature of UGE; and UGE as corroborating or contextual evidence. The most common advantage noted by judges was that UGE provides a visual real-time account of the crime (n=5). Judges also noted that UGE could be used in place of live witness testimony, thus potentially reducing the costs and length of trials (n=4).

3.1. User-generated evidence as an alternative to witness testimony

From a practical standpoint, UGE was described as beneficial as it provides insights into events when the scene of crime cannot be accessed, or of crimes that were committed years earlier.[5] This reflects observations in the literature, that UGE "can be highly accurate and show precisely what is happening" and "[i]f stored properly… will not degrade or become influenced over time, unlike human memory" (Gillett 2023, 316).

UGE was described by Judge 9 as "first-hand information or raw evidence", since it is produced as the crime is being committed. They noted that in contexts where the conflict is ongoing, investigators are often unable to reach the crime scene, and that in those scenarios, UGE can be particularly advantageous. Judge 12 described UGE as "evidence from the field", allowing for "investigations without setting a foot in the country", while Judge 9 noted the frequent time lag between atrocities and investigations, enhancing the utility of UGE. These reflections indicate the judges' willingness to rely on UGE as a tool to bridge evidentiary gaps when the scene of the crime is inaccessible and where much time has passed since the alleged crimes and the trial.

UGE was also widely perceived as being less resource-intensive than relying on witness testimony, in particular. Judge 3 pointed to the time- and resource-intensiveness of securing witnesses. They noted that

> … witnesses are costly. You have to bring them, you have to first convince them to come, to bring them over, make sure they say what you expect them to say, then many of them expect not to come back to where they came from, to be relocated somewhere else. Enormously complicated and expensive.

They added that UGE, in contrast, is "much better, it's cheaper, it can have great value, and it's more expeditious".

[5] Judge 10: "There is also value in this type of evidence, from people on the ground, one can use this evidence even years after the fact."; Judge 4: "And the benefit also is that within the mass violations of human rights, it's quite difficult to collect evidence. If for instance you cannot use that user generated evidence it will be difficult to you at the end of the day, when we know that the facts with which we are dealing has been done so long time ago."

Judge 7 addressed the fallibility of witness testimony, mentioning several factors that might impact witness testimony, including "the psychological impacts, pushing on victims, how they remember things even using your own memory". They surmised that UGE, which captures events as they unfold, could thus help overcome the shortcomings in witness testimonies. The judge's statement reflects the limitations of witness testimonies in international criminal trials as acknowledged in the literature (Granhag *et al.* 2013, Combs 2018, Drenk *et al.* 2024), reinforcing the value of UGE in overcoming evidentiary gaps. Especially in the prosecution of core international crimes, where investigation and trials are lengthy processes, witness testimony may be incomplete or inaccurate (Chlevickaitė *et al.* 2020, Smith 2020). The reliance on UGE rather than witness testimony can potentially reduce trial costs and resources and lessen the risks of threats and retraumatisation to witnesses. Yet, it is unlikely that international criminal cases could proceed without witnesses altogether, and a combination of UGE and witness testimony will almost always be necessary, with each playing a complementary role in strengthening the evidentiary record.

Judge 8 talked about violence against protestors in a country in which the protesters had documented the events as they unfolded, sharing videos on YouTube, thus making it "very difficult to deny that this violence was going on". They envisioned UGE being used as direct evidence, noting that one of its strengths is that the content is shared online without a time lag. With "smartphones getting smarter" and more people having access to them, UGE has become "a very important branch of evidence and we should really get to grips with it". Judge 8 concluded that UGE "alleviates the need to call so many witnesses to establish a fact, and denial becomes a little bit difficult. And I think it makes the investigation a bit easier".

3.2. User-generated evidence provides a visual real-time account of the crime

Several interviewees (n=5) spoke about the idea of UGE providing a visual, real-time account of events, as in the words of Judge 1:

> Well, the benefits the recording will provide you with a visual account of the underlying facts of alleged crime, the manner in which the crime was committed, and you know, possibly the identity of the perpetrator and identity of the victims. So, that is of course helpful.

The idea that "seeing is believing" has been discussed extensively in academic literature. Images have been described as "a more effective conveyor of information than [their] verbal and written counterparts alone" (Parry 2009, 176; see also Sherwin *et al*. 2006, 241-242), as well as "an unmediated replication of nature and hence, as an especially privileged evidentiary form" (Mnookin 1998). Psychology research has revealed that video tends to be believed more readily than text or audio (Sundar *et al.* 2021). The power of visual imagery came up throughout our interviews, with Judge 3 recalling the impact that viewing audio-visual evidence has had on them, and the lasting memories of such imagery. Judge 2 similarly noted that "visual images of course carry much more impact, or make much more impact". Referring to cognitive studies on memory, they recalled that

> … according to some of these studies, people remember spoken word for 10 seconds, it's on a really short span, but visual. I mean, nobody forgets, don't they… the picture

> of the girl running down the road in Vietnam, Cambodia? The one who had been napalmed. Nobody has forgotten that.

3.3. Diverse roles of user-generated evidence

As has been established in the literature, UGE can serve multiple evidentiary purposes: it may offer an initial lead of a potential crime (Murray *et al.* 2022, 559), shed light on the broader circumstances surrounding an incident (contextual evidence), corroborate other pieces of evidence, or help link a person in command to a crime and to prove that they were aware of the events and either intended or tolerated the outcome of the crime (as linkage evidence; Vukušić 2018, 46).

Unprompted, several of our interviewees brought up the different roles UGE can take on at trial. Judge 11 posed that the power of UGE lies in corroboration, envisioning that video footage could be used to corroborate witness testimonies. For them, relying on one piece of UGE as direct evidence was "dangerous", cautioning that:

> If you have only the picture, then you have to be obviously more careful. So, you know, it's difficult to give an overall and definite answer to this. You have to see it in the context, in the bigger context of the real situation you're confronted with.

Others were more optimistic, posing that the role of UGE can go beyond corroboration, as it could function as lead, linkage, or direct evidence. Accordingly, UGE provides "a visual account of the underlying facts of alleged crime, the manner in which the crime was committed, and […] possibly the identity of the perpetrator and identity of the victims" (Judge 1). Talking about a previous case, Judge 5 remembered an instance in which a video captured on a smartphone was used to confirm the identity of victims depicted in videos captured on a phone. In that case, UGE was further used for geolocation, confirming the location at which the crimes had been committed.

A major obstacle in international criminal trials is the challenge of establishing individual criminal responsibility, linking the alleged perpetrator to the crime (Aksamitowska 2021, 203). Linkage evidence is required when prosecuting those higher up the chain of command, who might not have been at the scene of crime, but who might have ordered, or were aware of the events (Vukušić 2018, 46). The potential role of UGE as linkage evidence was brought up by Judge 6, who imagined that UGE could be very useful in establishing individual criminal responsibility. They were keen to stress that the usefulness of UGE is not limited to the prosecution, but that the defence could equally rely on UGE to show the innocence of their client.

4. The challenges of user-generated evidence

Despite the benefits of UGE outlined above, judges noted that there are certain challenges and risks inherent to this form of evidence. These included: the high volume of UGE and the challenges this poses; the risks of fake or manipulated content; bias, and the difficulties with keeping up with the volume of UGE, and with new technological developments.

4.1. The high volume of user-generated evidence

The large volume of potential evidence circulating online, coupled with the multiplicity of actors involved in collecting UGE, might create additional workloads for the parties

involved in a case due to the time-consuming processes of identifying, verifying, preserving, and analyzing UGE. Judges (n=4) expressed concern about the high volume of UGE when we asked them about which challenges they foresee to arise with regards to the increasing reliance on UGE. Judge 2, noted:

> So you send your video off to the IBA [the International Bar Association, creator of the eyeWitness to Atrocities app], and they report it and all the rest of it, and they decide, okay, of the 15,000 that we were sent, we're going to send 1,000 to [the] ICC prosecutor's office. And then the defence say, but hang on a moment, we want to see all the other 6,000…

They noted that, in that context, the prosecution would not have those other videos in its possession, so such a circumstance would require a request to a third party to provide additional evidence. Of course, given that the prosecution has the duty to examine exculpatory and inculpatory material equally, it might be the case that it refuses to accept a curated collection of the evidence deemed most relevant by a third party in this context. On the other hand, examining every piece of evidence gathered by a non-governmental organisation in relation to a particular situation may be impossible.

As well as these inefficiencies and the extra work UGE may present for the parties in preparing their cases, Judge 5 noted that showing it in court may also be time-consuming, if, for example, a piece of UGE was a two-hour long video. They suggested that one solution would be to focus on those parts of footage that are "sufficiently probatory" and that speak to the parties' arguments. In this regard, Judge 8 similarly noted that the onus is on the parties to be strategic and to highlight pieces of UGE that support their case. On a practical note, Judge 12 observed that judges cannot view evidence across different screens when sitting in the Court, making it difficult for them to fully examine the UGE that may be displayed in court.

The judges also raised issues of fairness, in that the volume of evidence that a party might tender risks placing a disproportionate burden on the opposing party, which, in the prosecution of core international crimes, will often be an already under-resourced, understaffed, and overburdened defence. Civil society actors investigating mass atrocities and apps designed to simplify the collection of UGE evidence focus on gathering evidence to support the prosecution, not the defence of crimes (Hamilton 2018, 40). An increasing reliance on UGE hence risks aggravating the existing inequality of arms between defence and prosecution (Hamilton 2018, 40). Judge 2 worried about how the lack of resources on behalf of the defence could affect proceedings:

> And then the defense say, we don't have the resources to plough through all these videos, and then we go back to, you know, the descriptions, how you're going to select on descriptions, which means that you've got to have proper, properly trained technicians.

On the other hand, Judges 4 and 6 pointed out that UGE can help defence lawyers build their case, with the latter noting:

> … this can be applied to exactly same equally to defence lawyers as well. If they want to… prove innocence of their clients, then they also can collect hundreds of dialogue, digital conversation through Facebook or other service providers. And if that can be admitted easily, then they can also prove innocence much easier than now, so that's why we need this kind of admission. Easy admission of this digital evidence, statement

> digital evidence to experts or to other… other measures approaches. It's not just for prosecution, it's for defence as well.

While the judges' statements suggest that UGE can have potential advantages for the defence, it remains to be seen whether, in practice, defence teams are able to make effective use of UGE to the same extent as the prosecution, or whether asymmetries in resources and investigative power ultimately limit the benefit of UGE to them (Stavrou 2022).

4.2. Misinformation and Disinformation

Judges were keenly aware of the risk that misinformation (false or inaccurate information) and disinformation (false information that is created and spread deliberately to mislead) can infect the veracity of content. Judge 10, for example, noted how fake news rocks one's confidence in what one can believe. There was a broad awareness that audio-visual evidence could be particularly susceptible to convincing manipulation, as has been noted in the literature (Pfefferkorn 2020). Judge 5 referred to the phenomenon of misattribution, whereby real content from a different context is shared with a misleading caption; they referred to a particular example where a TV channel broadcast footage from Syria which had wrongly been claimed to come from Ukraine. Judge 1 referred to the problem of staged content, noting "the fact of the matter is the videos could be authentic in the sense that they are recordings that appear to have taken place. But how do we know that the facts of what is being recorded are reliable in the sense of whether this is not a staged issue?" Judge 8 mentioned more crude forms of manipulation that they have come across, such as judges' signatures being copied and pasted onto fake "judgments" which are then circulated online. Judge 1 referred to the quality of the recording as undermining the reliability of UGE "because if the person was a kilometre away and the phone is like [shaking], you'll see just something but impossible to determine anything out of it. You can't really say if that is corroborating anything."

The conflict in Ukraine was specifically mentioned as an example of a situation in which there is not just a huge volume of potential UGE, but also "so, so many fake photos" (Judge 5), as well as "a lot of motivation for, perhaps false evidence for, perhaps, doctoring, perhaps manufacturing evidence" (Judge 7). Judge 12 warned about "the malicious actors that are going to create a whole fake narrative", posing that detecting fake content in face of the huge volume of evidence was going to be a big challenge, giving rise to "the risk of genuine error".

Some judges showed good knowledge of verification techniques employed by investigators to determine that a piece of UGE is what it purports to be. For example, Judge 9 referred to the techniques of geolocation (the identification of the geographic location of a piece of content, often by comparing visible features against satellite imagery or other pieces of content) and chronolocation (the identification of the time and date of capture of a piece of content, through techniques such as shadow analysis, cross-referencing, and weather analysis). They observed that an investigator who had conducted these techniques might be called to testify on their verification of the piece(s) of evidence.

Expert testimony on the authenticity of a specific piece of evidence, as well as more generally on editing, photoshopping, and audio-visual manipulation, was also suggested as a solution by Judge 7, to address misinformation and disinformation. Due to the lack of formalized qualifications on experts on UGE and the oftentimes group-based nature of online open-source investigations, questions remain as to who could be called to testify on the credibility and authenticity of a piece of UGE, and it remains to be seen how the ICC will deal with these issues (Gillett and Fan 2023).

Judge 7 also stressed the importance of corroborating evidence as a means to combat misinformation, stating that, "we're not going to have a case that's built entirely" on UGE, and "it's good to not place reliance on a single piece of evidence if you can avoid it because if something goes awry, that could become very problematic on appeal".

4.3. User-generated evidence cannot show the full picture

Judges discussed bias in a different sense from that found in existing literature, which has tended to focus on structural biases such as who has access to create and share content online, and how these shape the representativeness of UGE and the kinds of violations that are investigated (McDermott *et al*. 2021, 89). In contrast, our interviewees spoke mainly about bias in relation to the source of the information and the motivations or perspectives of those producing it. Judge 4 highlighted that the source of a piece of UGE and the person who first uploaded the piece might be unknown, leading to a situation where "sometimes you don't know how this evidence has been put on the table". They added that a person creating a piece of UGE, for instance by filming a scene they witness, might also be biased, and that investigators should thus be mindful of the motives someone has for capturing a scene. Judge 2 stressed that:

> I think you would start by, the starting point would be, who is the [source], and does he have an obvious bias? Is he a journalist who's written two thousand articles [against one side of the conflict], I mean, all of that, I mean I think this is the point, isn't it?

Knowledge of the source of the UGE was mentioned by almost all judges. As noted by Judge 7, "someone taking pictures on their camera, who comes to testify, who talks about it, it's all down to the credibility of that person." Judge 2 described information identifying the source of the UGE as "the first port of call" in assessing its reliability. Where the source is unavailable or unknown, Judge 1 posited that other means would be needed to "try and validate that evidence". They specifically mentioned looking at the metadata of the UGE, determining whether the person who captured it was really in that place at that time, and what their vantage point would have been.

In addition to the bias of the source of a piece of UGE, some judges mentioned their own potential cognitive biases. Judge 12 signaled a need for judges to be aware of one's own emotions, and the impact graphic content has on them. They posed that:

> when you have images that are extremely violent or create a lot of empathy, it's always good to, I think, to keep a very technical look at it, because before being touched by something, you need to make sure that it is something that is valid.

This concern reflects broader findings in the literature on cognitive biases, "systematic preferences that influence the way we process, select, and retain information" (Casu *et al*. 2024). They can impact how people search for information, how they interpret results,

what they choose to collect and preserve, and what they disregard. A person might focus their attention on one piece of information and ignore other potentially relevant information ("anchoring": Tversky and Kahneman 1974), may only look for information in support of a specific hypothesis ("confirmation bias": Nickerson 1998), or be tempted to come to a conclusion based on easily accessible information ("availability heuristic": Tversky and Kahneman 1973). To this end, Judge 5 noted that lawyers should be aware that a piece of UGE can only show one perspective, and interpret UGE as one piece in the evidentiary puzzle:

> … what is on the film and what seems to be or what should be understood by those who submits this as a kind of evidence and can be said that no we cannot accept the totality of what is suggested to me but apparently 10% or... So what is clear is that for instance when it is clear that he's beaten or he's flogged on the Timbuktu market. But it's not clear who physically effectuated the torture.

While these concerns are highly relevant in the context of UGE, they are of course not unique to it; cognitive bias can shape judicial reasoning across all types of evidentiary material and legal decision-making more broadly.

Bias could also cause selectivity in investigating and prosecuting crimes, with a focus on charging those individuals who are being filmed and who are more likely to be lower-ranking perpetrators. More private crimes, such as sexual and gender-based violence, and torture committed in detention facilities, might also be neglected as they are less likely to be captured on camera (Hamilton 2019). This point was brought up by Judge 12, who remarked that UGE risks reproducing inequalities, as some conflicts generate more UGE than others due to a higher use and availability of smartphones and internet connection. Contrasting the conflicts in Ukraine and Sudan, they noted:

> Because when, when everyone has a smartphone this is something that you're gonna get on a daily basis. When you face with people that are much poorer that do not have an access to electricity it doesn't exist. So we need to be mindful of that and we need probably also especially as judges to be conflict-specific when we look at what we expect from this type of evidence.

Judge 12's comment is an important reminder that judicial expectations regarding UGE should be context-sensitive, and that structural and technological differences shape the evidentiary landscape in different conflict settings.

4.4. Keeping up with the quickly-changing technology

Interviewees (n=4) noted the speed at which technology advances when asked about the challenges arising in the context of the increased reliance on UGE. Judge 1 mentioned lacking knowledge on "the speed of which technology works and operates". They noted that further training would be helpful, as "[we] are not born with those abilities to determine, right here, right there, how things evolve, and how things in the digital world operate."

Interviewees were also concerned with the resources required to deal with UGE at the ICC (n=4). Judge 3 explained that handling UGE necessitates "proper databases", as well as experts who know how to operate those databases and can offer support. To be able to rely on UGE, the ICC will have to become a "high-tech criminal court", in the words of Judge 3, who suggested the Court could draw on the experience of the International,

Impartial and Independent Mechanism (IIIM), which works towards accountability for international crimes committed in the Syrian Arab Republic since March 2011, as a mechanism that has adopted the tools and expertise required to deal with UGE. We agree with this assessment, as without the necessary digital infrastructure and expert personnel, the effective use of UGE will be severely limited.

The ICC Office of the Prosecutor has taken the first steps towards becoming such a "high-tech criminal court" through the establishment of the Information Fusion Centre to analyse information and the tools developed in the framework of the Project Harmony, some of which use machine learning to filter evidence (Peake 2024). It remains to be seen whether those efforts will suffice in preparing the ICC, and the judges specifically, for the increasing reliance on UGE, also recognising the needs of the defence to have equal access to expertise, tools and resources to preserve and analyse UGE.

5. The deepfakes question

Deepfakes are images, audio, or videos generated using machine learning algorithms (Twomey *et al.* 2025, 64). The term "deepfake" was first coined in 2017 by a Reddit user who circulated videos of female celebrities with their faces placed on the bodies of pornography actresses. Since then, the technology to create deepfake content has become more accessible, with models such as OpenAI's Sora, and Grok, created and owned by X (formerly Twitter) that can be used to generate videos and images from a simple text prompt. While deepfakes can be used for positive purposes, such as education, entertainment, and arts, their increasing prevalence risks undermining trust in all online content and fostering dis- and misinformation (Alanazi *et al.* 2025). As the models have become more sophisticated, and the algorithms learn to remove "tells" or anomalies that can give away the fact that content is AI-generated, deepfakes are increasingly difficult to detect (Groh *et al*. 2022, Mai *et al.* 2023). Some authors have suggested that the biggest risk inherent to these developments is not that deepfake evidence will be introduced in the courtroom, but rather that it will become easier for real footage to be dismissed as possibly fake (Chesney and Citron 2019, Rini 2020, Pfefferkorn 2020, Sandoval *et al.* 2024).

The ability of perpetrators to cast doubt on real footage, capitalising on the perceived impossibility to discern real from fake UGE, is sometimes called "the liar's dividend" (Chesney and Citron 2019). If borne out in practice, this risk may be heightened in the context of atrocity crimes, where misinformation, disinformation and edited or misattributed (i.e. real footage, but from a different context) content can be shared widely online (*Evaluating Digital Open Source Imagery: A Guide for Judges and Fact-Finders* 2024, 12-14). Our study therefore sought to explore ICC judges' awareness of deepfakes and their perceptions of whether the "liar's dividend" poses a genuine evidentiary concern. We asked some further questions to unpack where the burden should fall in relation to the authenticity of UGE: is it for the proponent to show that every piece of UGE they rely upon is real, or for the opponent to show that it is inauthentic, if they wish to challenge its admission or weight?

The majority of interviewees (n=9) had previously heard of the term "deepfake", with some expressing concerns about the information landscape and the prevalence of fake content. For example, Judge 1 noted "anything can be fake nowadays, anything digital

can be created or changed digitally. As a matter of fact, the technologies there right now for you to be speaking to me and it would appear that you are telling me something which you in fact are not telling me". Similarly, Judge 3 noted that with some of the early examples of UGE, the technical capabilities were not present to create deepfake footage, but this might change with future conflicts:

> And the capabilities, you know, the guy who made videos on the telephones in Timbuktu, can't be deepfakes. Now the people who will be involved in what's happening in Ukraine, they're much more, much more clever and sophisticated, so I suspect our colleagues will have to be much more demanding, and rigorous, and probably adopt their own, and the prosecutor also, they [will have to] adopt their own specific approaches to these things, to sort things out.

Judge 7 noted that the ICC is particularly vulnerable to the risk of manipulated content, noting that "we're the prime target for something like that", while Judge 12 was similarly "sure that we're going to be confronted with that at some point."

Interestingly, of the three judges who had not come across the term "deepfake" before, two told us that they first learned about deepfakes when examining the consent form and participation information sheet sent about our project in advance of the interview. This raises interesting ethical questions about conducting deepfake research and ensuring that research does not induce panic about deepfakes amongst participants. For example, Judge 9 noted:

> You know, when I saw your documents, that's when I, you know, read around... And you know I now know its dangers, you know, making videos and putting words into people's mouths. You know, they can fake videos or put in people's faces on other people's bodies. So to answer your question, I only got to really look around it after I read your documents.

In response to this, the interviewers sought to clarify what is possible and to reassure the judge that it would be rather difficult to create a very convincing deepfake of the type of videos that we might see in the context of international criminal trials, especially if subjected to expert analysis to verify the content. The judge further confirmed:

> Yes, that's true. When I read, you know, this weekend, I got to see that... certain apps ... embed the metadata from what I saw, the cell phone towers, and they record hash values as a check against subsequent manipulations. So now I got to know about the Eyewitness to Atrocities, Camera V...

Whether mobile applications of this nature become more frequently used remains to be seen. One of the challenges of this kind of application is that many users prefer to share material through existing apps and services that they are familiar with, such as WhatsApp or Signal private messaging, or to online social media platforms, which can strip "metadata" from the file that would otherwise include information on the time, date, place, and device used to capture the UGE. EyeWitness to Atrocities has partnered with local organisations to encourage their staff to use the application in documenting potential evidence (Gabriele *et al.* 2021), which somewhat alleviates this issue as dedicated applications preserve important metadata. Phones that contain inbuilt verification technology, such as the watermarking of content or the addition of "C2PA" (Coalition for Content Provenance and Authenticity) metadata, are likely to come at a higher cost, and marginalised communities and individuals in conflict zones might lack

the resources to afford such devices (Pfefferkorn 2021). The reality is that important evidence will most likely continue to be captured using the camera on personal digital devices, and not on dedicated apps, for many years to come.

When it came to assessing the risks that deepfakes pose, Judges 2, 4, 5 and 11 all stated explicitly that deepfake content would need to be excluded from the record. In the words of Judge 11:

> Well, I mean, I can't foresee what will happen. I think at the end of the day, if it's a deep fake, a deep fake, or if it's not a deep fake, has to be decided by the judge... Of course, the opposing party will say we should not take it into consideration because it's a deep fake. But then I have to admit it, to try to assess as credibly as possible if it is or is not a fake, and then decide. If it is, I throw it out. If it's not, I keep it [in]. Simple.

The same judge emphasised that it is for the parties to select their evidence, and that professional obligations would prevent a lawyer from submitting evidence that they know to be fake. Judge 12 similarly noted that they would expect any party who is relying on evidence to be sure that the evidence was genuine before they submit it to the Court:

> So the first assessment has to be done by the submitting party. And then if there is an opposition by the other party saying it's a deepfake, because I mean… the party handing in a piece of evidence, could be in good faith saying it is good evidence. Okay. The other party, knowing that it is a deepfake, opposes [its admission]. And then it's up to the judge to decide.

These statements were despite the fact that there is no specific exclusionary rule for inauthentic content in the ICC's legal framework, although it is possible that such content could be ruled inadmissible as lacking in any probative value.

When asked whether they perceive that the prevalence of deepfake content will make it easier for one of the parties to argue that real evidence should be excluded because of the risk that the evidence might have been created using AI, the judges did not perceive this to be an issue. As cogently expressed by Judge 7:

> It's not about all doubt, it's about reasonable doubt, and it's the same in assessing evidence, it's the reasonable basis to advance that this has been tampered with, or to advance that, you know, the, there could have been another reason why they attacked these people, you know, this kind of speculation... And if you're using a sensible, common sense kind of approach, then there's no danger that someone's just going to stand up and say, 'Oh, this is a deepfake...', therefore we should disregard it. No, I think we would be much more prudent on something like that.

This is similar to the decision of the European Court of Human Rights in *Ukraine and The Netherlands v. Russia* (European Court of Human Rights 2022). Russia's objections to a particular photograph in the evidence, of which there were two versions in circulation, were dismissed. A convincing explanation had been provided for why there were two versions of the same photograph in existence (European Court of Human Rights 2022, para 473). The Grand Chamber further noted, "as for the remainder of the photograph, the respondent Government referred only to indications of 'potential' fakery. This falls quite significantly short of establishing that the photograph has been fabricated" (European Court of Human Rights 2022, para 473). In *Al Hassan* (ICC 2024, para 1031, fn. 3458), the defence challenged the authenticity and integrity of some videos presented by

the prosecution, which had not been formally authenticated. Nevertheless, the Chamber found the videos reliable, noting that: one witness identified the locations at which some of the videos were filmed; a geolocation expert identified the same likely locations; another expert analysed the metadata to indicate the date and time the video files had been modified, and lastly, other authenticated videos depicted similar scenes (ICC 2024, para 1031, fn. 3458).

Judges agreed that the parties play a large role in deciding whether questions of authenticity will be determined. Judges 8 and 9 particularly discussed how if one of the parties challenged the authenticity of a piece of evidence, or if there was disagreement on certain facts, the UGE would be subject to greater scrutiny. In the words of Judge 12:

> If they come with a piece of evidence and the other party doesn't contest it and basically discusses this piece of evidence without contesting its authenticity, then I don't think we should ask the party that presents the evidence and for reasons of efficiency, I don't think we should prove, with a very technical protocol, the authenticity of each piece of evidence.

When asked whether it is for the moving party to prove that the evidence they submit is real, or for the opposing party to prove that it is fake, there were slightly differing responses. For Judge 9, "I think that the party who relies on it must bear the burden of proving that the evidence is real and that it will be supported by in-court testimony... it rests really on the calling party." Conversely, Judge 12 again emphasised the efficiency risks of demanding proof that every piece of evidence is authentic before it is admitted, noting:

> As soon as you have doubts, yes, I think judges should always have the possibility to ask that to the party, but I don't think it should be, especially if you have multiple videos that have been taken and if they're not the line of defense of the other party, I also don't think that we should start discussing on things that are not even going to be in the major arguments on the other side.

In practice, as with all other matters, the answer will depend on the context of the case. The moving party will, in many circumstances, provide information on the provenance of their UGE, and the opposing party may not challenge its authenticity. In-depth research carried out by one of the authors has revealed that in domestic prosecutions of international crimes, challenges to the relevance of UGE and what it can reliably show in relation to the culpability of the accused are much more common than authenticity challenges (Hausknecht 2025).

6. Conclusion: The future of UGE in the ICC

This article provided some unique insights from interviews with ICC judges on their views of UGE. From these interviews, it was clear that judges see UGE as playing an important role in future trials before the Court and perceived the key benefit of UGE as lessening the reliance on witness testimony. Nevertheless, they were mindful of some of the big challenges posed by this new kind of evidence, including its volume, the technological needs of the Court to receive and analyse UGE, and the risks of biases, gaps, manipulation and misinformation. However, on balance, most judges saw the benefits of UGE – including through providing evidence that would otherwise be

unavailable, lessening the reliance on eyewitness testimony, and providing direct, contextual, or corroborating evidence – as outweighing these challenges.

The fact that several overlapping terms can be used to describe (some forms of) UGE, and that the term UGE does not appear in the Court's legal framework, caused some differences across judges in defining what constitutes UGE. Most judges, however, had a broad understanding of it being content that is captured by ordinary persons, and many saw UGE as being synonymous with videos, in particular. There was remarkable unanimity amongst judges that changes to the ICC's Statute or Rules of Procedure and Evidence were not needed to prepare the Court for the new era of UGE in Court, with only one of 12 judges proposing that new admissibility rules are required. While recognising the risk that the judicial record may be flooded by huge volumes of UGE, judges rely on the parties to be judicious in their selection of content for submission as evidence.

Many judges were aware of deepfakes but did not perceive the increased availability of AI as fundamentally challenging the role of UGE in international criminal trials. While they were conscious that the types of cases the ICC deals with can leave it open to the risk of misinformation, our data shows that a great deal of trust is placed in the lawyers to not knowingly introduce fake content, and to robustly challenge the other side's evidence if there were suspicions of manipulation as a means to address this challenge. Judges noted that they already deal with issues of authenticity and integrity of evidence (for example, when assessing the credibility of witnesses), so the misinformation landscape and the risk of AI-generated content could be seen as a new face on an old problem, rather than something that could shake the very foundations of international criminal law. Judges were nevertheless clear that the Court will need to invest in training and resources to ensure the readiness of parties and judges for the future role of UGE in ICC trials.

This article, by providing interview data from ICC judges, shines a new light on the practice of international criminal judging in a fast-moving landscape. Further research aims to explore how lay adjudicators approach the evaluation of user-generated evidence, through mock jury studies. Future research could explore the particular forms of expertise that may be required in court, and who qualifies as an expert on UGE (Gillett and Fan 2023). A separate potential avenue for future research is the broader power dynamics of UGE and the platforms and tools needed to search for, analyse, store, and preserve UGE (Vecellio Segate 2023). After our last interview was conducted, several ICC judges and staff members from the Office of the Prosecutor were targeted by sanctions from the United States of America, and the threat of further sanctions led the Court to move away from using Microsoft as its office software provider, switching to a European open source software instead (Henning 2025). These developments show that access to the technological tools needed to fully avail of UGE in international criminal trials may be hampered by external pressures and geopolitics.

Overall, this article shows that ICC judges are thinking about the new information landscape and how it might impact on the Court and their role as fact-finders, keeping up to date with the latest research and insights from other jurisdictions. The interview data presented in this article presents a positive picture of judges' and the Court's ability

to rise to the new challenges that an increasing reliance on UGE may present in an era of AI.

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