



Human Rights in the Digital Age: CGHR Practitioner Paper #1

Citizen Media Research and Verification: An Analytical Framework for Human Rights Practitioners

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CAMBRIDGE



Human Rights in the Digital Age: CGHR Practitioner Papers

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Series Editor: Ella McPherson

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Acknowledgments

The majority of this paper was written during a research visit to Yale University, following an invitation by the Yale Visual Law Project—special thanks to Rebecca Wexler for facilitating this visit. My gratitude also goes to Madeleine Bair, Caroline Courtney, Scott Edwards, Melanie Penagos, Sam Dubberley and Hannah Waller for helpful feedback and edits.

Cover photo: 27A ParoNacional © Rodrigo Barrera-Sagastume

January 2016

Abstract

This paper examines the role of open source research in human rights fact-finding and seeks to address a gap in the current literature, which lacks a human rights perspective, is dominated by journalistic approaches, or focuses on specific tools. It focuses on citizen media, the visual subset of open source information, and provides a practitioner's perspective that is based on several years of analyzing open source materials for a global human rights group. The paper includes case studies on video and image verification, and identifies best and worst practices.

The author argues that open source content, specifically citizen media, can play a crucial and increasingly important role in human rights documentation, if analyzed using sound and transparent methodologies based on well-established fact-finding principles. It presents, for the first time, a tool-independent analytical framework that will allow both seasoned and new human rights researchers to review and assess open source content. Specific recommendations are offered for human rights organizations, funders, academics, and technology companies in order to realize the full potential of open source content for human rights documentation.

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Introduction

The rise of citizen media—images or video from unofficial observers such as bystanders, citizen journalists, activists or armed actors, usually shared through digital social networks—provides immense new opportunities and challenges for human rights researchers. Citizen media is part of a rapidly growing amount of online open source information, such as publically available documents, statistics, data, news reports or maps, which is relevant for human rights research. Citizen media can be considered the visual subset of open source information, and is the focus of this paper.¹ Even if content is not open source but collected during field missions or through in-country contacts instead, open source information and freely available online tools such as mapping platforms and metadata software can be used to verify it.

Utilizing these sources of information and research tools is becoming an increasingly sought-after skill in many industries, including humanitarian response and human rights research. The similarities to integrating Geographic Information Systems (GIS) into human rights research are apparent. Around ten years ago, Amnesty International and Human Rights Watch originally sought the support of external experts such as the American Association for the Advancement of Science (AAAS) for remote sensing and mapping products.² These human rights groups now have dedicated GIS staff, and a similar trend is likely in open source research.

The shift from traditional systems of information control and distribution, resulting from digital technologies and networks, most obviously affects states but also intergovernmental, humanitarian and human rights organizations. Whether police brutality in the United States, war crimes in Syria or a typhoon in the Philippines, it is likely that someone with a camera and access to the Internet will be present to reveal what would have otherwise gone unnoticed. The exposure of any of these events is no longer dependent on established media or human rights organizations. The availability of camera-enabled cell phones in combination with digital social networks is nothing short of a game changer, especially for human rights research and advocacy, and

¹ For an introductory textbook on open source research more broadly, see Bazzell, M. 2015: Open Source Intelligence Techniques: Resources for Searching and Analyzing Online Information.

² See the work of the AAAS Geospatial Technologies and Human Rights project <http://www.aaas.org/program/geospatial-technologies-project> [referenced 11 November 2015]

offers enormous opportunities if properly integrated with well-established fact-finding methodologies.

Within hours of the chemical weapons attack in the eastern suburbs of Damascus on 21 August 2013, more than a hundred videos were uploaded to YouTube³, showing the horrific impact of this illegal attack. A review of the videos by medical and chemical weapons experts, combined with testimonies from survivors and doctors, allowed human rights researchers to establish basic facts about the attack and the chemical agents used, even before U.N. investigators were able to produce a comprehensive assessment through direct ground access.

Nevertheless, the challenges are enormous, as footage of atrocities with inaccurate context is increasingly circulating on the Internet, especially during times of crisis that are characterized by uncertainty and anxiety.⁴ Such content has the potential to trigger new violence and abuses in fragile communities and exaggerate existing tensions. This risk not only requires extreme caution and responsibility from human rights groups who conduct fact-finding, but also the development of robust and transparent methodologies of citizen media verification tailored towards human rights researchers and investigators.

This primer targets both seasoned and new human rights researchers who would like to integrate citizen media into their research. Most importantly, this paper is intended as a resource for students of human rights who would like to acquire skills in non-traditional human rights research. There is currently a clear gap in the literature on open source human rights research and verification, which is limited to case studies, journalistic approaches or the description of specific tools. This paper is an attempt to address this gap in teachings of human rights practice, with the hope it will complement current syllabi of both university and training courses. The very goal of presenting an analytical framework is to provide documentation and publication strategies that are tool-independent, which is crucial for a field that is emerging so quickly and that relies

³ See, for example: Brown Moses YouTube playlist: Alleged Chemical Attack in Eastern Ghouta August 21st 2013. <https://www.youtube.com/playlist?list=PLPC0Udeof3T4NORTjYmPoNCHn2vCBvvYG> [referenced 17 January 2016]

⁴ For a recent study on the “online misinformation ecosystem” in general, and the role that media plays in contributing to rumor propagation, see Silverman, Craig: Lies, Damn Lies, and Viral Content. How news websites spread (and debunk) online rumors, unverified claims, and misinformation. Tow Center for Digital Journalism, 10 February 2015 <http://towcenter.org/research/lies-damn-lies-and-viral-content/> [referenced 16 November 2015]. As the author states on page 35: “There is a growing online misinformation ecosystem that churns out false information at an increasing pace. Its success often depends on two factors: the ability to cause sharing cascades on social networks and the ability to get online media to assist in the propagation, thereby adding a layer of credibility that further increases traffic and sharing.”

heavily on changing technology. Tools are coming and going, and can become quickly outdated due to changing or new online platforms.⁵ Research (and funding) that is exclusively focused on tools and tool development is thus shortsighted. Nevertheless, the author presents this framework as a basis for discussion with the hope to strengthen it with the increased use by practitioners.

Journalists largely dominate the field of citizen media verification. Both journalists and human rights researchers are truth-seekers, and it is encouraging to see strong collaboration between the fields of journalism and human rights on this topic, in the form of talks, publications and training materials. In fact, human rights practitioners rely heavily on the very tools and techniques used or developed by journalists. However, the practice of human rights research requires a distinct methodology that not only justifies, but encourages, a human rights fact-finding approach. In addition to identifying violations of specific laws, norms and standards, human rights research is normally integrated into an advocacy strategy that seeks specific redress for the identified violations. This advocacy work, which is typically carried out in a very public manner, binds human rights groups—as protection actors—to specific professional standards in regards to their sources and materials. The use of citizen media, which often reveals information on specific individuals in great detail, is no exception.

The main goal of this paper is to provide a methodological approach to open source human rights research and verification. Almost every step of the analytical framework, such as ethics or metadata review, would justify separate papers. The author has thus made an effort to reference additional resources and readings where available.

Citizen Media in Human Rights Fact-Finding

All that is clear is that the field of human rights fact-finding is changing very quickly and that it is assuming an inter-disciplinary dimension that was largely lacking not so long ago (Alston, 2013: 62).

⁵ Tools and functionalities referenced in this paper are up to date as of December 2015.

In May 2015, a Human Rights Watch staffer erroneously tweeted out a YouTube video captured by a drone that he thought showed the impact of barrel bombs on Aleppo—the footage was in fact from Gaza in 2014. As part of a large investigation related to the same conflict, Amnesty International accidentally used a clip of an *edited*—and thus potentially misleading—YouTube video to communicate the research findings.⁶

These two small examples illustrate how even well-established human rights watchdogs, which played seminal roles in establishing traditional and well-tested fact-finding methods, are not immune to mistakes in the digital age. Luckily, human rights fact-finding methodology is not static, but is evolving as information and communication technologies (ICTs) are changing. However, this “third-generation fact-finding” (Alston 2013: 61)—stemming from the quickly changing nature of ICTs, among other factors—still requires the development of well-tested methodologies and analytical frameworks.⁷

In addition to having a responsibility to avoid mistakes, the need for research and resources on the topic of open source research and verification seems clear. First, the media and reporting landscape shifted dramatically since the emergence of traditional fact-finding reports and methodologies by intergovernmental bodies and NGOs in the 1960s-1980s. The use of video to record human rights violations, and even its use in legal proceedings, is nothing new. Past examples include the Rodney King video (1991), the Zoran Petrovic video (1995), and footage showing Congolese militia leader Thomas Lubanga Dyilo commanding child soldiers (2003), which was subsequently used as evidence in his trial at the International Criminal Court.⁸ However, the drastic impact on human rights fact-finding stems from the increased availability of mobile phones and proliferation of digital (social) networks, allowing witnesses to share content with millions in real time. It is safe to assume that technology and infrastructure changes will continue, which will also impact countries that are still characterized by a scarcity of citizen media, such as Mali or North Korea (Koettl 2013a and 2013b).

⁶ Both mistakes were quickly removed and corrected upon discovery.

⁷ According to this categorization by Philip Alston, the first generation of human rights fact-finding describes the work of intergovernmental bodies. The second generation represents the methodologies developed by international non-governmental organizations such as Amnesty International and Human Rights Watch in the 1970s and 1980s. See Alston, P. 2013. Introduction: Third Generation Human Rights Fact-Finding. Proceedings of the Annual Meeting (American Society of International Law), CVII,61.

⁸ Rodney King beating video. Full length footage <https://www.youtube.com/watch?v=sb1WYwlpUtY> [referenced 17 July 2015]; Zoran Petrovic video https://www.youtube.com/watch?v=344e_D-Vc7g [referenced 17 July 2015]; Film evidence for using child soldiers by Lubanga <https://www.youtube.com/watch?v=3ySF8ojE6n4> [referenced 17 July 2015]

Commercial actors are even considering the use of high-altitude balloons, drones and satellites to close digital black holes (Palermo 2014).

For human rights researchers, there are profound implications of sharing potential evidence through digital social networks. Unlike the King and Petrovic videos mentioned above, the source for a lot of content remains unclear. A host of videos on YouTube, for example, are mere scrapes that were re-uploaded, often with the wrong context. This fact requires researchers to learn new tools and methodologies to identify the original source—a sort of basic “social media forensics” which deviates from analyzing traditional photographic or video materials collected during field research.

Secondly, seasoned human rights practitioners have identified a need for further research into new investigative methodologies (Alston 2013: 62). Notable efforts have already been made in regards to geospatial technologies (Bromley 2009; Lyons 2012; Edwards/Koettl 2011; Edwards/Sulik 2010; Wolfinbarger/Wyndham 2011; Wolfinbarger 2015) and quantitative and inferential analysis (Seybolt et al 2013; Root 2013; Price/Ball 2014). However, a gap still exists in regards to the use of citizen media, with existing efforts focusing on activism and advocacy (Gregory 2010 and 2012) and ethics (Bair 2014a; Edwards/Koettl 2016). While these issues are intimately linked to human rights fact-finding, little resources exist on best practices of open source analysis, let alone an analytical framework that is based on a human rights fact-finding approach (which is different from purely fact-checking often deployed in journalism). New academic publications on transformations in human rights fact-finding (Alston/Knuckey 2015) also appear to fall short of providing a methodological exploration of open source research and verification that is geared towards practitioners.

Finally, a welcomed consequence of the use of citizen media in human rights research is that it invites increased scrutiny. Human rights practitioners are thus well advised to proactively develop a sound and transparent methodology, as well as resources that conform with the fundamental principles of human rights fact-finding:

the ability to independently, objectively and impartially collect relevant information, confirm its veracity, and analyze this information to produce credible evidence about violations, their causes and effects, as well as identify their perpetrators (Pillay 2010).

The risks of getting it wrong are high, with a potential to do enormous harm, not only to the work of a specific organization, but to the profession of the human rights investigator as a whole:

For NGOs, the stakes in surviving such scrutiny could not be higher. The credibility of their fact-finding is their stock-in-trade. Broadly stated, the chief objective of human rights NGOs is to promote compliance with international human rights standards. (...) Fact-finding lies at the heart of these efforts, and the fact-finding “works” when it convinces the target audience that the published allegations are well founded (Orentlicher, 1990: 92-93).

Added Value

Analyzing citizen media should by no means be considered a separate endeavor from traditional fact-finding, which is largely centered on witness testimony. In fact, overreliance on social media content can be misleading, due to a potential structural bias in social media networks (Lynch et al, 2014). Its use will be most impactful when integrated into standard fact-finding, accompanied by dedicated resources and workflows for researchers. Most importantly, the comparative advantage of citizen media should be considered, which can be identified as follows:

1. **Access and control circumvention:** Standard publications on fact-finding highlight the challenge of accessing a conflict zone or other human rights hotspots, a problem that is often exacerbated by restrictions on official media outlets (Orentlicher, 1990: 94). Over the last several years, advances in remote sensing have made significant progress in circumventing this obstacle, which is most evident in the heavy reliance on satellite imagery by the Commission of Inquiry on Human Rights in North Korea.⁹

The ubiquity of cell phone cameras and digital networks further helped to address the access challenge, making it easier for activists, journalists and ordinary citizen to circumvent official restrictions on media and freedom of expression. Traditional strategies used by governments (or armed groups) to

⁹ See UN Commission of Inquiry on Human Rights in the Democratic People's Republic of Korea: Satellite images of currently existing political prison camps (kwanliso) in the Democratic People's Republic of Korea. 28 January 2014. <http://www.ohchr.org/Documents/HRBodies/HRCouncil/CoIDPRK/Report/satellite-images/coi-dprk-satellite-images-political-prison-camps-28-jan-2014.pdf> [referenced 13 November 2014]

control information are increasingly failing, thus opening up new opportunities for researchers.

2. **Level of detail:** Citizen media provides an extreme level of detail, and creates a permanent record of that information, if preserved appropriately.¹⁰ A human rights researcher can thus go back in time in order to access that record, which in some cases might be more detailed and accurate than witness testimony. Additionally, it can provide visual documentation of violations—such as torture, extrajudicial executions or enforced disappearances—that would go undetected through remote sensing, another option used to access past records. Examples of details that are highly relevant for human rights fact-finding include geographic features (landmarks, signage or vegetation), insignias, license plates, inventory or serial numbers, or even name badges on uniforms.
3. **Intimidation resistance:** A methodology that is heavily focused on testimony naturally comes with challenges related to witness intimidation, as part of non-cooperation by states and non-state actors (Pillay 2010). An advantage of citizen media is its high level of intimidation resistance—it's difficult to intimidate a YouTube video if the uploader is anonymous. This added value becomes even more important with the emergence of documentation apps that capture relevant metadata and chain of custody records.¹¹ This so-called “point of capture approach” to verification (vs. open source research and content analysis as presented here) also allows for the non-public sharing of materials, such as with the International Bar Association in the case of the eyeWitness to Atrocities app. The generated file can be considered forensically authentic due to the accompanying extensive metadata, while the filmer has the option to delete all traces from his or her cell phone, and never to share the material online. While this approach still has to be proven impactful in real-life scenarios,

¹⁰ The increased use of live video should be closely followed in this regard. While most live streaming apps store the broadcast for later use, it is unclear how permanent such a record is.

¹¹ The most prominent tools are the *CameraV* (<https://guardianproject.info/apps/camerav>) and *eyeWitness to Atrocities* (<http://www.eyewitnessproject.org/>) apps.

the potential impact on both judicial and extrajudicial investigations will be enormous.¹²

Challenges

To be clear, citizen media is not a panacea for all challenges of human rights fact-finding, let alone securing redress. In fact, the challenges of working with citizen media are immense. In addition to the sheer amount of information shared through social media, there are two major obstacles for effectively integrating citizen media in human rights research:

1. The material can easily disappear. Human rights relevant content, and potential evidence, is regularly lost as content is removed for various reasons. The permanent record of a violation or incident, as discussed above, might thus become irrelevant if not secured properly.
2. The material is shared with the wrong context, is old, or is outright manipulated, posing a high risk of inaccuracy.

These two major challenges are addressed through the analytical framework presented below. A more comprehensive review of challenges, including security, ethics or curation, related specifically to citizen video and human rights, have been previously addressed elsewhere (WITNESS 2011).

Analytical Framework

The framework presented here should not be considered a mechanical process or scientific formula. Former UN Higher Commissioner for Human Rights Navi Pillay once said, “*analyzing information is akin to putting together a jigsaw puzzle*” (2010) and nowhere is this more applicable than in relation to citizen media. However, there are numerous techniques that can greatly aid human rights researchers in completing that puzzle. The principal ones are outlined below.¹³ The main purpose of this framework is

¹² Bowcott, O: eyeWitness to Atrocities: the app aimed at bringing war criminals to justice. The Guardian, 7 June 2015 <http://www.theguardian.com/technology/2015/jun/08/eyewitness-to-atrocities-the-app-aimed-at-bringing-war-criminals-to-justice> [referenced 11 November 2015]

¹³ For additional resources, please see relevant online resources: An interactive step-by-step guide focused on YouTube videos: <http://citizenevidence.org/2014/07/01/verifying/>. The Citizen Evidence website is a dedicated resource

to provide human rights researchers with guidance to allow them to integrate new skills into their existing work, independent of specific software or tools. This becomes even more relevant as well-established digital forensics methods, which traditionally deal with original content from a recording device, might be too narrow when analyzing social media content that has been heavily altered during the publishing and sharing process. While a file shared and published through WhatsApp or Facebook, for example, would not be considered authentic and consistent with an original from a digital image forensics viewpoint due to the resulting change in metadata or compression, it might still yield valuable insights for human rights research. However, in order to use these insights publicly in research and advocacy, the underlying methodology of review has to be sound, reliable and transparent.

The framework below does not include a detailed assessment of the application of international human rights, humanitarian, refugee and criminal law, or national laws, which requires a separate, often legal, analysis. This lies at the heart of human rights fact-finding and should form the basis of any research that includes citizen media. For example, a video showing a Syrian armed group shooting down an army helicopter may have immense news value; however, it may not have probative value for a human rights group, as such an event might not violate International Humanitarian Law (IHL). The footage could instead provide valuable context or linkage evidence, i.e. it might establish facts such as the presence of a specific commander or unit at a specific place and date.

Finally, this framework should not be confused with digital forensics analysis. It is the author's opinion that relevant experts with appropriate training should be consulted for more advanced, technical analysis or counterfeit detection, which often requires the use of expensive and proprietary software.

The case studies in the last section detail how the framework below (Table 1) has been applied in real life human rights research.

for human rights researchers and includes a list of tools and further readings. WITNESS Tip Sheet: Authenticating Open Source Video. How to Verify Online Video of Human Rights Abuses.

http://www.mediafire.com/view/cd7b76ydpe22khn/AuthenticatingOpenSourceVideo_2013.pdf Relevant journalistic resources are the two "Verification Handbooks", published by the European Journalism Center <http://verificationhandbook.com/> [all referenced 2 January 2015]

Step	Task
Prerequisite	Self-Care Plan for Secondary Trauma Prevention
1	Material Collection and Preservation
2	Metadata Review
3	Verification of Provenance and Source
4	Content Analysis
5	Optional: Expert Analysis
6	Integration with Other Research
7	Professional Standard Considerations

Table 1: Analytical Framework

Prerequisite: Self-care plan and policies for secondary trauma prevention

Before diving into the details of the analytical framework, a word of caution: the new digital environment comes with new risks to human rights researchers, who spend a significant time analyzing videos or images depicting human rights violations. At the extreme end, this footage can consist of horrific and extremely graphic content of torture, executions or sexual violence. This exposure, whose negative effect is often compared to low-level radiation¹⁴, opens up the risk of secondary trauma for desk researchers, which can lead to post-traumatic stress disorder (PTSD). With a few exceptions (Dubberley et al, 2015), little resources and systematic research exist on this topic. Human rights groups and researchers should thus have the proper organizational and individual systems in place to address this risk, *prior to starting research* - which appears to be a current gap in practice.

Our research shows that human rights organizations are failing in their duty of care to professionals working with this content, and that these professionals are scared about admitting to their managers that they are having a hard time

¹⁴ See, for example: Dart Center for Journalism and Trauma: Working with Traumatic Imagery. Tip Sheet. 11 August 2014. <http://dartcenter.org/content/working-with-traumatic-imagery> [referenced 4 November 2015]

dealing with some of the more distressing images they are seeing day in day out (Dubberley 2015).

Secondary trauma prevention can start with developing individual self-care plans (Rees 2014), but should also include more professional support, similar to options for (returning) field researchers.

Step 1: Material Collection and Preservation

A huge and unique challenge with content shared online is that it can quickly vanish. The video and human rights group WITNESS has preliminarily identified a total of six categories (in addition to unknown reasons) of how human rights footage is removed from the public domain (WITNESS 2015). The first step when analyzing citizen media is to save the file that is being investigated, preferably a copy of the original video, but if it's not available, then the highest quality copy. Further, all available documentation should be collected, including the URL, the exact time of publication and screenshots of the posting.¹⁵ It is important to highlight that saving content is not the same as archiving, which requires a more sophisticated system that includes cataloging and backup considerations, among others. WITNESS has developed extensive resources related to archiving of videos (Ng 2014).

Once the file is saved, efforts should also be undertaken to avoid inadvertently altering the content or the metadata (when dealing with original content that comes directly from the source). Human rights researchers should strive to adopt high standards of handling digital evidence, similar to those used in forensic or criminal investigations (which could include write-blocker software that prevents editing the content that is being analyzed). The preservation of online content also creates important responsibilities and ethical obligations for human rights groups (see step 7 below).

¹⁵ A new tool called Video-Vault, currently available as a beta version for human rights researchers, is automating this process in regard to online videos <https://www.bravenewtech.org/>

Step 2: Metadata Review

In many cases, this step might be irrelevant as social media sites alter or remove a majority of relevant metadata, such as time stamps or GPS coordinates.¹⁶ A thorough visual content analysis (see below step 4) can offset the lack of metadata. However, reviewing any existing metadata is a crucial step and can contribute to highly relevant findings such as establishing the exact time, date and location of an incident. Metadata can also identify the specific recording device, which can be cross-referenced with information provided by the actual source, in case footage is handed over to researchers (instead of being pulled from the Internet), or if the actual eyewitness can be interviewed. Not all content uploaded to the Internet is stripped of its metadata. The photo-sharing platform Flickr, for example, preserves EXIF data (information about an image) of uploaded images. It is thus crucial for researchers to conduct a basic review of metadata, such as EXIF information on images, when available.¹⁷

Even if the metadata is incorrect due to device settings, conclusions can still be drawn from it, such as connecting content from the same device and incident. To give a specific example, five different videos with a time stamp of 1 January 1960, as part of a larger batch of videos, suggest that the five videos came from the same recording device (with an incorrect date setting) and incident, as was the case in a recent Amnesty International investigation. Video files with a timestamp of 1 January 1904 are normally downloaded from YouTube (in this case, the metadata normally also lists “googlevideo.com”).¹⁸

Reviewing metadata—including “public metadata” such as upload time—early in the review process is crucial. On one hand, it might save an enormous amount of time: intact metadata—such as GPS coordinates or timestamp—will make certain steps in the content analysis (step 4 below) redundant. Additionally, determining the exact local upload time on social media sites will help to determine the original source (step 3 below).

¹⁶ For more details on this process from a digital forensic perspective, see Ng, N: *Cell Phone Images in Social Media*. Thesis. Summer 2013.

http://www.ucdenver.edu/academics/colleges/CAM/Centers/ncmf/Documents/Cell_Phone_Images_in_Social_Media_Thesis-Nicholas_Ng.pdf [referenced 14 November 2014]

¹⁷ Using free and specialized software such as *Invisor Lite* (Mac) or *Opanda IExif* (PC), or websites such as www.findexif.com or <http://www.imageforensic.org/>

¹⁸ A free and easy to use software to review video metadata is *MediaInfo*.

“Public Metadata”

Public metadata is publicly visible information such as the upload time or the unique ID that is assigned to any piece of citizen media. This information, such as the timestamps on social media sites, should be thoroughly reviewed. Determining the exact, *local* upload time is crucial, and failure to do so can lead to inaccurate research and confusion. As of 2015, the publishing date on YouTube, for example, represents the US Pacific Time Zone, which includes California where the company's headquarter is based. The result is that some videos can reflect a different date from when it was actually published and when an incident occurred. The most prominent example is the chemical weapons attack in Syria in August 2013. The attack happened early on 21 August 2013, with the first videos on YouTube being published in the early morning hours, local time. However, many videos showed 20 August as the publishing date, due to the ten hour time difference between Syria and the US west coast, prompting a Russian Foreign ministry spokesperson to claim that the attack has been staged, since “reports circulating on the Internet, (...) had been posted for several hours before the so-called attack.”¹⁹ The YouTube Data API allows for the extraction of the exact publishing time and date in Coordinated Universal Time (UTC), which can easily be converted into local time using any online time zone converter. Amnesty International's YouTube Data Viewer provides a simple and user-friendly online form to perform this analysis.²⁰

Twitter is different. A user can choose the time zone in the account settings, which will affect the timestamp of all tweets. Setting the time zone to U.S. Eastern Standard Time (EST), for example, will result in showing the timestamps of all tweets in EST, requiring conversions of timestamps to local time when attempting to determine the exact time of a posting or incident outside the eastern United States.

Facebook is slightly different, and unfortunately not entirely transparent. In contrast to YouTube and Twitter, Facebook's timestamps adjust for the time zone a user is currently in (assuming the time zone settings on the computer are correctly set to the computer's physical location, which happens automatically, but can also be

¹⁹ Russian Foreign Ministry spokesman, Aleksandr Lukashevich, quoted in: Russia Today: Materials implicating Syrian govt in chemical attack prepared before incident – Russia. 23 August 2013. <http://rt.com/news/syria-chemical-prepared-advance-901/> [referenced 23 November 2014]

²⁰ YouTube Data Viewer <http://citizenevidence.org/2014/07/01/youtube-dataviewer/> [referenced 23 November 2014]

changed manually). The actual local upload time can thus be determined by using an online time zone converter (or by changing the time zone on a computer).

Platform	Public timestamp based on
Facebook	Computer settings
Twitter	Account settings
YouTube	US Pacific Time (California)

Table 2: Public timestamps of postings across selected social media platforms

A Facebook post referring to an overnight attack in Syria early in the morning on 24 June 2014 can lead to confusion when looking at it from Washington, DC, since if it was posted around 6pm in the evening on 23 June 2014, the story does not match up.²¹ However, adjusting for time zone differences, the local (Syrian) publishing time is 1:20am in the morning of 24 June, making it consistent with other reports. A challenge with Facebook is that results differ when using different browsers or computers, resulting in inconsistent test results.

Despite some inconsistencies, recognizing these differences and adjustments, and taking them into account when researching specific incidents, is crucial. For example, the exact timing of an attack is critical when determining its legality and considering violations of IHL. Furthermore, identifying the exact local upload time is important to establish the first upload of content, and subsequently the likely original source.

Online citizen media should also be reviewed for any location data. Some social media sites provide the option to manually add location information. However, not a lot of citizen media is geo-tagged. According to research from 2010, only an estimated 3 percent of YouTube videos were geo-tagged (Friedland/Sommer: 2010). Even when a video on YouTube has coordinates associated with it, the location should still be independently confirmed using satellite imagery available through online mapping platforms or applications such as Google Maps or Google Earth. Since the uploader can manually enter the location, this information can be inaccurate or outright wrong.

²¹ Posting by Wesam Hospital in Kafarzeit, Syria, 24 June 2014.
<https://www.facebook.com/weasamhospital/posts/663953530362991> [referenced 25 July 2015]

Step 3: Verification of Provenance and Source

Evaluating the credibility of a source is at the core of human rights fact-finding, and video and photographic material are no exception. Even among new fact-finding methodologies, open source research and verification poses unique challenges, especially when shared via social digital networks, the prevalent distribution system.

In comparison to remote sensing²², a more established but still novel research method in human rights, establishing the original source and provenance of citizen media can be extremely challenging. The limited number of commercial satellite image providers and the cost implications make remote sensing analysis very transparent and easily repeatable—the source for both the imagery and analysis is normally easily traceable and verifiable. In contrast, citizen media is often copied and re-uploaded online, which can turn the search for the original source into a very cumbersome process. It should be considered best practice to track down the original source of the content under investigation, even when there's no difference in the actual content. An example of a violation of this practice—outside the human rights space—is the YouTube playlist of the chemical weapons attack in Syria of August 2013, assembled for the US Senate Intelligence Committee, which included several copies (McMahon 2013).

There are several strategies and tools that can assist with this effort. First, the account history and activity should be reviewed. Newly created social media accounts that only contain one dramatic video or picture should be considered suspicious. A textbook example for this was the account that hosted the hoax “Syria Hero Boy” video, which had been specifically created for this purpose, and only contained a single video.²³

The source should also be reviewed for links to other social media accounts, in order to establish a basic digital profile of the source under review. This information can also be used to potentially contact the source directly, if safe to do so. Tracking down other accounts might also make it easier to contact the source if needed. Additionally, other content posted by the same account holder should be reviewed for

²² Collecting information about the earth from afar, for example through satellite imaging or aerial photography.

²³ Lawaff Law YouTube Channel https://www.youtube.com/channel/UC3u4Ygo_gFbJ1ii9k1tpyEA/feed [referenced 25 November 2014] Note that the video has since been removed. See also statement by director Lars Klevberg: Press release regarding a published video on Youtube and several media channels. <https://twitter.com/LarsKlevberg/status/533385072083501056/photo/1> [referenced 26 December 2015]

geographic discrepancies, and to establish if the uploader actually appears to come from the specific region, city or neighborhood where an incident reportedly took place.

If no additional accounts are listed, further research can still be conducted. Videos and pictures shared via social media normally include a unique identifier contained in the URL. For YouTube, for example, the unique video ID is at the end of any YouTube video link.²⁴ Searching this unique identifier lists other instances where the video or image was shared online, and might provide hints as to who first shared the material. There are also specialized search engines that allow for searching social media content and profiles.²⁵ Another option is to conduct a reverse image search on the profile picture of an account, which can find places online where the same image was posted.²⁶ This might lead to other accounts by the same individual. Many social media and other websites allow for advanced searches, which can help finding additional details about a specific account (Meyers 2015).

Another strategy to track down the original source of citizen media is to conduct a reverse image search with the actual content. It is important to stress that this method can also be applied to online videos. Amnesty International developed a tool²⁷ that extracts, among other information, all thumbnails (a small image preview image) that are created when a video is uploaded to YouTube. Conducting a reverse image search with these thumbnails locates other websites that host the same video. These simple techniques, which do not require any technical skills whatsoever, can be highly effective during research, since the biggest challenge related to verifying human rights relevant citizen media is not technical manipulation, but content that is shared within the wrong context. Analysts encounter this problem on an ongoing basis and examples are numerous. Prominent past cases were a video of a chainsaw beheading reportedly from Syria, which turned out to be from Mexico instead, and a Nigeria video (discussed in detail in the case study below) that was claimed to be from the Central African

²⁴ For <https://www.youtube.com/watch?v=vHIFjuF4Hlo>, the unique video ID is **vHIFjuF4Hlo**

²⁵ See, for example, Pipl.com <https://pipl.com/>

²⁶ The two most prominent sites to perform reverse image searches are Google Images <https://images.google.com/> and TinEye <http://www.tineye.com/>

²⁷ YouTube Data Viewer <http://citizenevidence.org/2014/07/01/youtube-dataviewer/>

Republic. During the 2014 conflict in Gaza, numerous pictures from the 2009 and 2012 conflict, as well as from the war in Syria, were tweeted out.²⁸

When materials are sent directly to researchers, the file name can sometimes provide basic clues about the provenance and source. Images downloaded from certain social media sites but claimed as “originals” can easily be tracked if the filename is not changed, since social media sites—as computer programs in general—are very predictable. For example, an image with the file name **11752526_10152946825742217_7382660443365520847_n** stems from Facebook. The middle number is actually the photo ID, leading to the exact web address of the picture if one simply adds it to the standard photo link on Facebook: <https://www.facebook.com/photo.php?fbid=10152946825742217>. This pattern allows creating simple tables of filenames for images downloaded from social media sites (Table 2), and a determination of the source of the image without ever looking at it.

Facebook Image Filenames	Twitter
1555267_809357785765975_1805289978712435785_n	CBhsEkXUIAAb-7x
1619254_809357802432640_6393861555877834036_n	CCjb_7mW0AA4elj
10424338_809357855765968_3944266258176994756_n	CCooFZVUwAA8Qg4
3 numbers ending with "n"; middle number = photoID	15 characters

Table 3: Filenames of sample images downloaded from major social media sites. Facebook and Twitter follow a standardized system of image file naming.

Finally, an occasionally useful but often overlooked strategy used to track down the original source of removed content is to look at cached websites. Cached websites are basically archived versions of a website, and several tools exist to access these. It is important to note that this does not work with most social media sites such as YouTube or Facebook, which limits its use. However, it can nevertheless yield useful

²⁸ See for an example a picture posted in July 2014 here <https://twitter.com/Pxlestine/status/489855461680627712> and compare with an AP photo from November 2012 here: http://www.washingtontimes.com/multimedia/image/gazajpg_734822/ [all referenced 27 July 2015]

results when looking for removed images. In January 2015, when reviewing images of corpses of a failed coup attempt in Gambia, looking at a cached version of a website allowed Amnesty International analysts to reveal removed content and identify the likely source of the images under investigation.



Same website, different dates: compared to the live website (left), the cached version (right) shows the content from a few days earlier, revealing images that have been removed in the meantime (pixelation in right image added by author).

Step 4: Content Analysis

Once information about the source is gathered, the researcher can focus on the actual content of the material under review. In addition to identifying location and date/time, this step is highly relevant for human rights researchers. It could allow for the extraction of a level of detail that is of extraordinary significance for human rights research, going as far as identifying specific weaponry, units, or individuals, and allowing to potentially draw conclusions of command responsibility in situations of armed conflict.

This process becomes much easier for videos when reviewing them in slow motion. In the case of YouTube videos, simply changing the settings of the YouTube video can achieve this. Alternatively, any video editing software²⁹ by default includes such a feature. A frame-by-frame review will also help to detect potential edits in a video, an important fact that can have significant implications for the analysis of a video.

²⁹ Including the free VLC media player <http://www.videolan.org/vlc/index.html>

Location

A very efficient, although time-consuming, way to confirm the location of an incident is to carefully identify relevant features in a video or picture that can be matched up with satellite imagery, street-view imagery, or other open source videos and pictures, including geo-referenced pictures available on specialized websites.³⁰ The list of features that can help to pinpoint a location is long and includes traffic signs, license plates, names of shops, landmarks, vegetation and terrain, other distinct-looking features such as graffiti or street lamps, or conditions of roads (paved vs. non-paved). Google Earth has the added value of providing historical satellite imagery, allowing a researcher not only to go back in time, but also to look at a scene from slightly different angles, due to the different positions and angles of satellites. This is further aided by the function to change the viewpoint, allowing a researcher to put himself in the perspective of the filmer. In contrast, Google Maps has the added value of historical street view imagery. Editable platforms such as WikiMapia or Open Street Map often provide much more detailed and updated geographic information than proprietary and closed platforms such as Google. Recognizing these different comparative advantages can be helpful during research. Finally, an additional feature to look out for is language and dialect, both written and spoken.

Date

Independently confirming the date of an incident remains one of the biggest challenges when analyzing citizen media. In contrast to location, there are few features that can be used to confirm the date. Indicators to at least approximate the date include weather and clothing, used in combination with databases of historical weather data.³¹ A more effective approach is to look for other open source materials that can corroborate an incident. Shadow analysis can be used to approximate the time of day.

Agency

In addition to place and time, manually extracting features can help with identifying specific actors. Relevant features include uniforms, flags, insignia, weapons,

³⁰ The most prominent being Panoramio <http://www.panoramio.com/>

³¹ For example, Wolfram Alpha <https://www.wolframalpha.com/>

inventory or serial numbers, munitions, license plates or clothing. A useful technique is to compare the extracted features with publically available images to highlight similarities or discrepancies between specific objects. For example, this could entail comparing insignias on uniforms with the official insignias available on public websites of military, security or police forces, or munitions with imagery available on specialized databases and open source content.

Other recording devices

Finally, researchers should pay special attention to detect other recording devices visible in videos or images. This indicates that other materials are available (even if not always available online) documenting the same incident, often from a different angle that can provide new clues about an incident (Hodson 2013; Mackey 2014).

Step 5: Optional: Expert consultations (including counterfeit detection)

Consulting with experts, such as forensic pathologists, weapons specialists, or experts in digital image forensics, is an optional step in the analytical framework, which should be decided on a case-by-case basis. Experts should occasionally be consulted both in regards to the content, as well as the authenticity of the actual file.

Digital forensic experts should be consulted when there is suspicion that pictures, videos or audio have been digitally altered. This is most helpful with material that has not been uploaded to social media sites (a process which normally alters and compresses data), such as digital images and videos collected directly from cell phones of eyewitness by field researchers. Counterfeit detection in digital evidence is a highly technical process that requires specialized training and software, and unfortunately no affordable or open source tools exist to perform clone detection or similar methods. However, human rights researchers can take some basic steps to detect traces of editing in digital images. Using a program such as JPEG Snoop, or reviewing HEX data with a freely available HEX viewer, can reveal if a .jpg image was processed with editing software such as Photoshop (see image case study below). However, please note that processing an image with specialized photo-editing software

does not necessarily mean that the content of the image has been altered—simply resaving the photo in Photoshop in order to decrease the file size is enough to leave traces of the software, for example.

Other experts, such as weapons specialists or forensic pathologists, should be consulted to establish certain facts from the actual content of an image or video. For example, both Human Rights Watch and Amnesty International consulted with chemical and medical experts to review YouTube videos and photos showing the impact of the chemical weapons attack in Syria on 21 August 2013.³² It was this highly specialized expert input that—in combination with traditional research such as interviews of witnesses via Skype—allowed the establishment of specific facts without having physical access to the attack site.³³

Step 6: Integration with other research

Significant effort should be made to combine the facts gathered through the analysis of citizen media with other research findings, derived from both traditional and other innovative methods, such as witness testimony or satellite images. Citizen media can often present direct evidence of specific violations and can at the minimum—by itself—be used to support initial calls for further, independent investigations into apparent human rights violations or war crimes, using a standard public pressure advocacy strategy.³⁴ However, corroboration normally yields the strongest results, and is highly recommended in line with traditional fact-finding. Additionally, as the Nigerian case study below will show, it is in fact the proven and well-established traditional fact-finding methods that often reveal highly relevant findings in citizen media, such as the identification of specific army units. This point cannot be stressed enough, as such findings might go beyond human rights fact-finding and have political or legal

³² Human Rights Watch: Attacks on Ghouta. Analysis of Alleged Use of Chemical Weapons in Syria. 10 September 2013 http://www.hrw.org/sites/default/files/reports/syria_cw0913_web_1.pdf ; Amnesty International: Syria: Possible international armed intervention after alleged chemical weapons attack. 29 August 2013

<http://www.amnesty.org/en/news/syria-possible-international-armed-intervention-after-alleged-chemical-weapons-attack-2013-08-3> [both referenced 23 November 2014]

³³ A useful resource for human rights groups to identify relevant experts is the *On-Call Scientists* program by the American Association for the Advancement of Science. <https://oncallscientists.aaas.org/en>

³⁴ See, for example, Human Rights Watch: Sri Lanka: Execution Video Shows Need for International Inquiry. 26 August 2009. <http://www.hrw.org/news/2009/08/26/sri-lanka-execution-video-shows-need-international-inquiry> ; Amnesty International: "Shocking" Video Shows Armed Group Carrying Out Summary Killings of Men in Syria's Idlib Province, Says Amnesty International. <http://www.amnestyusa.org/news/press-releases/shocking-video-shows-armed-group-carrying-out-summary-killings-of-men-in-syria-s-idlib-province-says> 1 November 2012 [all referenced 25 November 2014]

implications. National legislation, such as the Leahy Law in the United States, prohibits military aid to foreign security forces that are implicated in serious violations of human rights. It is precisely these sorts of details on unit involvement and command responsibility that have serious implications on the vetting process of the Leahy Law.³⁵

Step 7: Professional Standard Considerations

The use of citizen media in public outputs should be carefully weighed, taking into consideration potential risks and ethical concerns, similar to other content such as witness testimony. Larger human rights organizations might have internal documents and guidelines regarding research and public dissemination standards. A useful, general resource is the International Committee of the Red Cross's *Professional Standards for Protection Work*, whose second edition includes a chapter on new technologies (ICRC, 2013:77-102). While this resource addresses the issue of informed consent for online materials, this topic certainly remains a challenge that requires further research and consultations.³⁶ Many individuals depicted in pictures and videos online—or the actual uploader—might not be able to provide informed consent, as “personal data accessible on the Internet is not always there as a result of a conscious choice of the individuals concerned to share information in the public domain” (International Committee for the Red Cross 2014: 96). Human rights groups, as protection and advocacy actors, have to adhere to different standards than journalists.

The issue becomes most pressing when dealing with footage that documents sexual violence, which came to light prominently following an incident in Cairo in June 2014 (Bair 2014a). A crucial consideration for human rights groups should be to blur faces of individuals visible in pictures or videos, in order to protect the identity or to avoid re-victimization (Bair 2014b). In addition to using photo or video editing software, YouTube includes a face-blurring tool that can be used to conceal identities.³⁷ An often

³⁵ U.S. Department of State: An Overview of the Leahy Vetting Process. 9 July, 2013

<http://www.humanrights.gov/dyn/an-overview-of-the-leahy-vetting-process.html> [referenced 21 July, 2015]

³⁶ A notable new effort in this regard is the *Responsible Data Forum*, “a collaborative effort to develop useful tools and strategies for dealing with the ethical, security and privacy challenges facing data-driven advocacy.”

<https://responsibledata.io/>; Additionally, see a good resource on this topic specifically for video: Ethical Guidelines for Using Eyewitness Videos in Human Rights Reporting and Advocacy <https://lab.witness.org/announcing-witness-ethical-guidelines-for-using-eyewitness-footage-in-human-rights/> [referenced 26 December 2015]

³⁷ See more details on this tool at YouTube’s blog: Face blurring: when footage requires anonymity. 18 July 2012 <http://youtube-global.blogspot.ie/2012/07/face-blurring-when-footage-requires.html> [referenced 21 July 2015]

ignored consideration is that identity protection should also be applied to suspected perpetrators of violations, which is especially important for human rights groups that promote the rule of law, including a right to a fair trial.

Finally, special consideration should be given to the responsibility that human rights groups have when archiving content that has been removed from the public domain. Preservation of content as the first step in the analytical process also yields ethical and risk questions. Preserved content that was later removed by an uploader for various reasons, including risk or privacy considerations, raises questions about access to and use of this content for research and public output. Further research into this topic is urgently needed.

Case Studies

Case Study 1: Video³⁸

In 2014, Amnesty International reviewed dozens of videos and images stemming from the escalating conflict in northeastern Nigeria. Human rights groups and news organizations have extensively documented abuses by Boko Haram in the country. But this content proved especially interesting, as the majority of it depicts violations by Nigerian armed forces and the state-sponsored militia Civilian Joint Task Force (CJTF).

The most relevant content related to events on 14 March 2014, when Boko Haram attacked the Giwa military barracks in Maiduguri, the state capital of Borno state. The attack was captured on camera and shared on YouTube by Boko Haram for propaganda purposes. It resulted in the escape of several hundred detainees. The response by authorities can only be described as shocking: Within hours, Nigerian armed forces and the CJTF extra-judicially executed more than 600 people, mostly recaptured detainees, often in plain sight, and often on camera. Thorough research over several months allowed us to connect different video and photographs to paint a

³⁸ A longer and slightly different version of this case study has been previously published: Using UGC in human rights and war crimes investigations. Verification Handbook For Investigative Reporting, Chapter 7.

<http://verificationhandbook.com/book2/chapter7.php>; For more details and insights on this case, see also: Koettl, C: *Using technology to expose war crimes in Nigeria*. 4 June 2015 <http://newafricanmagazine.com/using-technology-to-expose-war-crimes-in-nigeria/> [referenced 10 July 2015]

disturbing picture of the behavior of Nigerian armed forces. For example, one grainy cell phone video showed a soldier dragging an unarmed man into the middle of a street and executing him, next to a pile of corpses.

Video #	File Name	File Type	min:sec	Add Info	Encoded Date	Time (UTC)
15	AB03 Bashir Boko Haram	3gp	05:24		22-Jul-2013	
ame as 2	AB23 vid_20130719_171550(1)	3gp	01:36		19-Jul-1947	
ame as 3	AB61 2014-03-24-351 (2)	mov	00:50		10-Apr-2014	
ame as 3	AB61 2014-03-24-351	mov	00:50		10-Apr-2014	
					15-Jun-2013	LG T
16	AB62 P160613_1158	jpg			15-Jun-2013	LG T
					6-Jun-2013	LG T
17	AB63 P150613_1246[01]	jpg			20-Jun-2013	LG T
					6-Jun-2013	LG T
18	AB64 P060613_1337[01]	jpg			10-Apr-2014	LG T
					10-Apr-2014	LG T
19	AB65 P200613_0916-1	jpg			10-Apr-2014	LG T
					10-Apr-2014	LG T
20	AB65A P060613_1337	mov	02:31		10-Apr-2014	LG T
21	AB66 V150314_1333(4)	mov	00:09		10-Apr-2014	LG T
22	AB68 V060713_0715(6)	mov	00:08		10-Apr-2014	LG T
23	AB69 V060713_0714(3)	mov	00:08		10-Apr-2014	LG T
	AB69 V060713_0714(4)	mov	00:20		14-Mar-2014	9:28
	AB69 V060713_0714(4)	mov	00:20		14-Mar-2014	9:28
	AB70 DSCN0002 (2)	mov	01:28		19-Jul-2013	16:47
	AB70 DSCN0002	3gp	01:28		9-Mar-2012	13:55
	AM2M02 VID-20140314-00097 (2)	3gp	07:48		13-Jul-2013	16:08
	AM2M02 VID-20140314-00097	3gp	07:48		9-Mar-2012	16:47
	AM2M02 VID-20140314-00097	3gp	01:02		9-Mar-2012	16:47
	AM2M02 VID-20140314-00097	3gp	37:59		23-Jul-2013	
24	AMD09 Ngurosoye	mp4	01:02			
	AMD09 Ngurosoye	mp4	01:02			
25	AMM02 bama 3	mp4	02:32			
26	IN03 Baga	3gp	32:51			
27	IN04 bama 2	3gp				
28	IN05 bama 3	3gp				
29	IN10 BOKO HARAM G	3gp				
30	IN10 BOKO HARAM G	3gp				
31	IN10 BOKO HARAM G	3gp				
32	same as 23					
33	same as 4					
34	same as 4					
35	same as 7					
36	same as 7					
37						
38	same as 24					
39						

More than 100 videos and images were analyzed for reports on violations by Nigerian security forces and Boko Haram.

We first performed standard content analysis. This involved extracting the specifications of the road and street lamps, buildings and vegetation, as well as details related to the people seen in the video, such as clothes and military equipment. Reviewing the video frame by frame greatly aided with this process. The geographic features were then compared to satellite images of the area on Google Earth. Based on this work, it was possible to pinpoint the likely location within Maiduguri, a large city of around a million people.

Several months later, additional photographs, both open source and directly collected from local sources, were used to paint a more comprehensive and even more worrisome picture of the incident. For example, at least two of the victims had their hands tied behind their backs. It is noteworthy that several photographs in our possession were actually geotagged. We discovered this by using an EXIF reader to

examine the metadata in the photo. This location data proved a perfect match to the street corner we identified as part of the content analysis of the initial video, highlighting the importance of both content analysis and metadata review in the verification process.

Other videos from the same day documented an even more gruesome scene, which suggested another war crime. They show the killing of several unarmed men. We slowed the videos to perform a content analysis in order to identify distinctive markings on the soldiers and victims, or anything that could indicate location, time or date. This revealed two important details: a soldier wearing a black flak jacket stating “Borno State. Operation Flush,” the name of the military operation in northeastern Nigeria; and, for a split second, an ID number on a rifle (“81BN/SP/407”) became visible. No distinctive geographic features were visible that could be used to identify the exact location.



Examples of various details extracted from the videos, which are relevant in human rights investigations: Flak jackets and military vehicles; tied hands of executed victims; inventory numbers on cars and rifle (colors inverted using VLC Player, for enhancement purposes only).

Amnesty International subsequently interviewed several military sources that independently confirmed the incident, including the date and general location outside of Maiduguri. An Amnesty International researcher was also able to secure the actual video files while on a field mission to the area. This allowed us to conduct metadata analysis that is often not possible with online content, since social media sites regularly modify or remove metadata during the upload process.

The data corroborated that the footage had been created on 14 March 2014. Obtaining the original files is often possible only through well-established local contacts and networks, who might share content in person or via email (ideally encrypted). Savvy news desk researchers and journalists who might be inclined to contact local sources via Twitter or other public platform should consider the risk implications for asking for such sensitive footage from contacts in insecure environments.

In this case, two military sources stated that the perpetrators may be part of the 81 Battalion, which operates in Borno state, and that the rifle ID number refers to a “Support Company” of that battalion. Most important, several sources, which had to remain anonymous, separately stated that this specific rifle had not been reported stolen, disqualifying the predictable response by Nigerian authorities that the soldiers were actually impostors using stolen equipment.

After an initial public statement³⁹ about the most dramatic footage (please note that Amnesty International blurred the faces of both victims and perpetrators in its public release), AI continued its investigation for several months, bringing together traditional research, such as testimony, with satellite imagery and the video footage and photographs detailed above. This citizen media supported the overall conclusion of the investigation that both Boko Haram and Nigerian armed forces were implicated in crimes against humanity.⁴⁰ These findings can have serious implications, as the violations detailed are crimes under international law, and are therefore subject to universal jurisdiction and fall under the jurisdiction of the International Criminal Court.

³⁹ Amnesty International: Nigeria: Gruesome footage implicates military in war crimes. 5 August 2014 <https://www.amnesty.org/en/latest/news/2014/08/nigeria-gruesome-footage-implicates-military-war-crimes/> [referenced 10 July 2015]

⁴⁰ See detailed Amnesty International reports: ‘Our job is to shoot, slaughter and kill’: Boko Haram’s reign of terror in north east Nigeria. 13 April 2015 <https://www.amnesty.org/en/documents/afr44/1360/2015/en/> ; Nigeria: Stars on their shoulders: Blood on their hands: War crimes committed by the Nigerian military. 2 June 2015 <https://www.amnesty.org/en/documents/afr44/1657/2015/en/> [referenced 10 July 2015]

It is important to note that much of this analysis, including repeated slow motion review of horrific execution videos, had been conducted without having proper self-care plans or institutional policies in place to deal with exposure to graphic footage. In hindsight, this should be considered a worst practice, and any analytical process for reviewing graphic citizen media should be embedded within proper self-care planning and organizational support, in order to minimize risk of secondary trauma.

Case Study 2: Image

Note: This case study has been anonymized due to its sensitive nature.

In late November 2014, a human rights researcher received a series of pictures of an imprisoned person. A source, who sent the images via WhatsApp, shared it to support claims of torture in detention, and stated that the images were leaked from the place of detention. One image showed the face and upper body of a person in a prison uniform, with the face being marked with several dark spots resembling bruises. The source later also shared that the pictures had been received five months before they were forwarded to the human rights researcher.

The image of the face with potential bruises became the focus of the research. There was no useful metadata associated with this content, which could have helped with the verification of the image and associated claim. The first red flag was the image size—the image appeared to be cropped. This suspicion was further strengthened when reviewing the exact resolution, which was 465 x 764 pixels. As a rule of thumb, width and height of an image should result in a whole number when divided by eight. Resolutions of most digital cameras are multiples of eight, which can be verified by reviewing a camera's technical specifications. However, there are exceptions to this rule, especially with mobile apps and panoramic functions.⁴¹ In the current case, this check resulted in 58.125 x 95.5 pixels.⁴² A review of the image with JPEGSn00p revealed traces of Photoshop, a second fact that justified exercising extreme caution with the image.

⁴¹ I am thankful to Catalin Grigoras of the National Center for Media Forensics for this insight.

⁴² A resolution of an unaltered image taken with a Canon Rebel T3i, for example, is 5184 x 3456. Divided by eight results in 648 x 432.

After this basic review, the next step was to look for the same or similar content online. A simple online search with the name of the prisoner and the word “tortured” immediately led to an almost identical image posted on a blog—in mid October 2013. This image was not new, but at least 13 months old. The field researcher, who originally received the image and who has in-depth country knowledge and language skills, was able to identify a Facebook page of the prison in question and a series of photographs of the research subject. Among them was the “original” image that served as the basis for the altered version that was shared with the researchers. The image that was posted by prison authorities included a superimposed date (early October 2013), and the prisoner is looking in the opposite direction. The image that was sent to the researchers was mirrored (in addition to being cropped), likely in order to easier avoid detection. Most importantly, in the image that was sent for analysis, the color had been heavily adjusted, resulting in the many black spots in the prisoner’s face. Using free tools and basic online research, we were able to establish the following facts:

1. The image was over a year old and had been previously shared online—it was based on an image posted on the Facebook page of the prison, and was not leaked as believed by the source.
2. The image was cropped.
3. The image had been mirrored and digitally altered.
4. The color of the image was heavily adjusted.
5. The image editing software Photoshop was used to make alterations.

Following these findings, this image was not included in any research outputs, which not only might have done considerable damage to the reputation of the human rights organization that analyzed the image, but might have also had a negative impact on a very sensitive political and legal situation.

Outlook: Realizing the full potential of citizen media for human rights fact-finding

Much progress has been made in the recent past to integrate citizen media into fact-finding. The central actors in the human rights fact-finding space, such as NGOs like Amnesty International and Human Rights Watch and special procedures of the UN

Human Rights Council, regularly reference citizen media in their reporting and occasionally issue dedicated statements in response to the emergence of a new online video. The relevance of citizen media is likely to increase considering the spread of mobile phones and Internet connectivity.

In order to fully realize the potential of citizen media for human rights fact-finding and ultimately for securing accountability, a few central challenges should be recognized and addressed. First, few resources and trainings exist to make the analysis of citizen media a standard skill for human rights researchers. There appears to be a discrepancy between trainings and resources on interviewing techniques and non-traditional research methodologies. Secondly, most efforts for analyzing citizen media are focused on individual images or videos, making them exceptionally powerful pieces of evidence to document single violations, such as war crimes. However, a huge challenge remains in how to analyze large amounts of images or video in a timely manner in order to reveal trends and patterns. This will be important to ultimately better support the documentation of other categories of crimes, such as crimes against humanity, which are characterized by a widespread or systematic nature.⁴³ Looking at the massive number of videos related to the Syrian conflict, the human rights community currently has no suitable tools at its disposal to review, analyze and, most importantly, connect all these videos in order to identify patterns and trends.

The following recommendations are intended to address these key challenges, among others:

To human rights organizations

- Include the fundamentals of open source research and verification in induction trainings for new researchers and campaigners. Considering the increasing relevance of citizen media in fact-finding, combined with lower barriers to spread misinformation and manipulated content, basic skills in this new

⁴³ Several projects from various industries are currently in its infancy to alleviate this challenge. These include efforts by the Syria Justice and Accountability Center; Forensic Architecture (Pattrn, <http://pattrn.co/>); and a major technology company. A notable effort in academia is being conducted by Carnegie Mellon University through its Event Labeling through Analytic Media Processing (E-LAMP) project. See details on this project: Aronson, J; Xu, S.; Hauptmann, A. 2015. Video Analytics for Conflict Monitoring and Human Rights Documentation (Center for Human Fights Science Technical Report). http://humanrightstechnology.org/wp-content/uploads/2015/08/ELAMP_IEEE-MM-article.pdf [referenced 8 November 2015]

research methodology should be seen as an investment into organizational and individual professional development.

- Produce both practical and academic publications on this topic, including case studies, best practices and analytical workflows.
- Develop secondary trauma policies and implement self-care requirements for staff working regularly with citizen media.

To funders

- Provide course development grants to build curriculums and capacity in this field. This should be coordinated with efforts already underway in the journalism sector.
- Give dedicated financial support to the development of more resources for coping with secondary trauma.⁴⁴
- Provide funding to academic and policy research on open source human rights research and verification.
- Support the development of technical analysis tools such as free and open source forensic video analysis software, to enhance and automate the analytical process.⁴⁵ Digital forensic software is very expensive to develop and cheap to copy, incentivizing proprietary solutions, whose use in human rights research creates challenges regarding transparency and replicability of the analysis (Wexler 2015). Further, due to high cost implications and the proximity of commercial providers to intelligence and law enforcement, these solutions appear unattractive to human rights groups. Simple and easily accessible software can aid with analysis, especially while point-of-capture apps (whose development were supported by funders in the past) are not being widely adopted yet.

To academics and scientists

⁴⁴ The Open Society Foundation recently funded the first phase of a project on this topic. However, further funding is still needed to complete this project by the Eyewitness Media Hub.

⁴⁵ The Knight Prototype Fund recently funded a project for automated metadata and image analysis (implemented by journalists). See <http://www.verified-pixel.com/>

- Partner with human rights groups to tackle the challenge of dealing with large datasets and with automating some of the analytical steps that are currently conducted manually.⁴⁶
- Partner with human rights groups, including on joint funding proposals, to develop curricula.

To technology companies

- Be transparent regarding the functionality of your social platforms, such as timestamp or location information.
- Work with human rights groups to ensure human rights documentation is not lost due to violations of terms of service.
- Encourage technical staff to provide pro-bono work in support of human rights organizations working on open source verification, especially in support of automating parts of the analytical process.

⁴⁶ One notable effort is already under way at Carnegie Mellon University
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CITATION: Koettl, C., (January 2016) 'Citizen Media Research and Verification: An Analytical Framework for Human Rights Practitioners', Human Rights in the Digital Age: CGHR Practitioner Paper 1, Cambridge: University of Cambridge Centre of Governance and Human Rights