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RESEARCH STUDY

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Decoding the Terrorist Mind

Building AI-Powered Tools on an Evidence-Based Foundation

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Content:

DECODING THE TERRORIST MIND **4**

THE CHALLENGE: DEPLOYING AUTOMATED SOLUTIONS 7

PART ONE: HASHING AND LOGO DETECTION **8**

PART TWO: BUILDING AN EVIDENCE-BASE 2015-2019 **14**

AUTHENTIC CONCEPTS IN ACTION – 2020-2024 16

PART THREE: LOST IN THE SUPERMARKET – DECOLONISING THE STUDY OF JIHADI CONTENT FOR EVIDENCE-BASED AI. **25**

CONCLUSION **32**

ABOUT THE AUTHORS **34**

REFERENCES **35**

Decoding the Terrorist Mind

Images have long been recognised as a core component in the way terrorist organisations can communicate their intent and the way global audiences understand their actions.[1] This paper presents how the combination of human expertise and AI can accurately identify and analyse visual imagery released by the Salafi-Jihadi movement. Specifically, how, with the help of human verified and curated data and concepts based on the rich ecosystem of Arabic Salafi-Jihadi texts and writings, automated systems can identify, contextualise and interpret Islamic State (IS) visual propaganda for a wider audience and analysts. The resulting artificial intelligence (AI) system by Human Cognition, founded by the authors of this study, enables a quick and comprehensive categorisation of relevant visual output.

In today's world, terrorism continues to pose a significant threat to global security. Traditional counter-terrorism methods, while effective, are limited by the vast amounts of data and intelligence that must be processed quickly. The authors have developed a tool, an innovative system that uses in-house trained artificial intelligence to support the analysis of the motivations of terror attacks by the Islamic State (IS). This tool, the Mujahid Mind AI[2], analyses human curated data from various sources, this AI-powered solution can help identify, predict, and neutralize terrorist threats in ways that human intelligence alone cannot.

As the landscape of terrorism evolves, AI solutions like Mujahid Mind AI offer a way to stay one step ahead, ensuring that counter-terrorism efforts are smarter, more agile, and effective. The future of countering terrorism is not only in the hands of dedicated professionals but also in advanced technologies that deliver authentic interpretations to amplify their capabilities. When these systems deliver precision, authorities can allocate resources more effectively, focusing their efforts on the most credible threats.

This paper outlines a core component and competence of terrorist communications in their use of dedicated photo reports. While releases by other groups including al-Qaeda, Taliban or Hamas have many common elements, this study is focused primarily on an authentic interpretation of IS content, based on a database of IS released images and photo reports that goes back over a decade. Unlike earlier largely orientalist studies of Salafi-Jihadi imagery which have produced naïve and often flawed analysis based on a Western centric interpretation of a fundamentally Arabic centric movement,[3] this work focuses on producing an authentic interpretation of the meaning intended by the producer, backed by written documentation produced by the vast ecosystem of Arabic extremist writings.[4]

In this authentic interpretation, IS photo reports show the application of the otherwise written ideology, that is, in this context, precisely formulated theology that is connecting the Salafi to the Jihadi ecosystems. Often, IS is outspoken of ensuring their actions and their reasoning of violence is understood by their target audience worldwide. The motivations and reasonings, expressed in Arabic writing and visual format, present the practical act as the application of the written layer. The Arabic theology of violence, as described by Rüdiger Lohlker, is projected across language and echoes deep into Europe as of 2025. The stabbing of a 14 year old in Villach, Austria, by a self-declared IS sympathizer who posed accordingly during his arrest who was celebrated as a mujahid within Arabic and German TikTok networks; the car ramming attack in Munich (February 2025, 54 injured and two killed); the IS claimed stabbing in Solingen (August 2024, 3 dead) was claimed as an attack on Christians accused of being part of a global alliance against Islam. The cancellation of Taylor Swift concerts in Vienna, August 2024, was due to an imminent threat by IS-supporters[5] and the foiled attack on the June 2023 Pride Parade in Vienna by IS supporters[6] was framed as an attack on members and sympathizers of the

LGBTQ+ community due to the theological obligation, identified in IS writing, to 'eradicate' such individuals.

In the wake of attacks and exploitation of social media by terrorist groups to distribute their material, Terrorism Studies and policy circles have demonstrated increased interest in the use of Artificial Intelligence, commonly known as AI. Interest ranges from how AI could be used by terrorists to generate content and plan complex attacks, to the role AI could play in identifying potential threats and disrupt propaganda dissemination.[7] As noted in the 2023 update to the UK counter terrorism strategy, AI "could radically speed up the process of threat detection, terrorists are likely to exploit the technology to create and amplify radicalising content, propaganda and instructional materials, and to plan and commit attacks".[8] Like in an attack on a gay couple in Dresden, 2021, the reasoning was the same.[9]

In addition, many social media companies and those selling commercial services have developed forms of automated approaches to limit the spread of 'radicalising content' on digital platforms. This was driven in part by many jurisdictions including the UK and EU enacting regulation regulating to the removal of terrorist content. Tech Against Terrorism has identified over 100 pieces of legislation from 30 jurisdictions.[10] In addition to detecting content, there is an opportunity to deploy automated, machine learning and Artificial Intelligence techniques to support the analysis of terrorist groups. As MI6 chief Sir Richard Moore noted, "AI is going to make information infinitely more accessible".[11] Given the breadth of material extremist movements can produce, the ability to automate the identification, sorting, tagging and even understanding is particularly prescient.

This paper argues that there are significant opportunities to use AI to contribute to the analysis of the Salafi-Jihadi movement. However, this can only be beneficial if AI approaches are based on an evidence-based and authentic interpretation of the Salafi-Jihadi content. To achieve this goal, we argue, it is imperative to decolonise the study of Salafi-Jihadi content. Scholarly attention has frequently viewed Salafi-Jihadi groups though policy-centric, Western lenses. This has resulted in some sections of Orthodox Terrorism Studies (OTS), displaying significant neo-colonialist and orientalist traits.[12] These traits tend to privilege familiar and comfortably western concepts of brand and marketing, Utopia and crime, to the detriment of analysing the explicitly theological concepts that guide the da'wa (missionary work) of the theocentric Salafi-Jihadi movement.

On an epistemic level "decolonization efforts must also confront the persistent colonialities in the production of knowledge".[13] This includes the epistemic violence through which "colonial power is deployed, preserved, and re-negotiated on the ground, with tangible repercussions for individuals and communities".[14] In contributing to the decolonisation endeavour, this paper discusses considerations for developing an automated system for authentic representation of Salafi-Jihadi imagery built using evidence-based and forensic linguistic approaches. The analysis specifically focuses on surfacing the elements the producer seeks to communicate, and the primary target audience is likely to understand.

The paper continues as follows:

The first section demonstrates how even basic automation processes can extract authentic terrorist content from a vast wider stream of Salafi online material.

The second section demonstrates an automated system to deliver authentic concept tagging of Salafi-Jihadi imagery using data between 2015 and 2024. This section focuses on building an authentic representation of what Salafi-Jihadi seek to communicate to their target audience. The results highlight the theocentric nature of their communication, illustrated through analysis of images representing important theological concepts, including bayah, eid al-Fitr, blessed month of Ramadan, and Zakat.

These concepts receive little analysis within the orthodoxy of terrorism studies (OTS), which prefer Western fads and labels such as utopia and brutality. However, this research demonstrates that these are core concepts through which focusing instead on are frequently under analysed in pivotal development provides the understanding of what Salafi-Jihadi material is intended to represent, and therefore what may constitute an authentic understanding when applied within automated processes.

The third section demonstrates a mix of automated approaches, based on the prior learning capable of delivering an authentic representation of contemporary IS output. The process is demonstrated using data from 2020 to 2024.

This section discusses why automated techniques must acknowledge the theocentric nature of the Salafi-Jihadi movement.

Based on these three sections the discussion highlights the need to decolonise the study of Salafi-Jihad imagery and the problem of the orthodox interpretation. The paper concludes:

1. Decolonised analysis of Salafi-Jihadi imagery is possible. Built on a progressive, evidence-based approach, the authentic concepts can be identified that were intended by the producer and likely understood by the primary target audience.
2. Authentic representation of content through automated processes is possible if the system is built on elements such as forensic linguistic analysis. This works if the analysis explicitly focuses on producing an evidence-based understanding of intended meaning by the Salafi-Jihadi producer – by reading as much Arabic texts released by the Salafi-Jihadi groups as possible to grasp the depth of the meaning of the concepts at work.
3. Based on these results, it is worth policymakers, who are often pitched 'AI' or automated systems, reflecting on whether the results can be traced back the to the historic texts of the Salafi-Jihadi movement. If the meaning identified by the AI cannot be located in the historic text, it is unlikely that the AI can be considered legitimately 'evidence-based', nor can it produce an authentic representation of the Salafi-Jihadi movement, no be used to find non-obvious content.

Ultimately the evidence-base has consistently shown that while the West has engaged in a short-term and Western-centric narrative battle for hearts and minds, Salafi-jihadi are engaged in a long-term war for the souls of their primary target audience. AI identification solutions must be able to reflect the intended meaning rather than western notions, and automated moderation systems must avoid the tendency to "propagate historical power relations and patterns of oppression" and deliver "moderation in a fundamentally decolonial way".[15]

The challenge: Deploying automated solutions

There has been much discussion in previous years of using some form of machine learning and AI to detect 'terrorist' images.[16] The hype around AI has flourished with numerous offerings of 'research products' powered by AI available in the field of counter-Terrorism, just as these apparent AI products have sprung up in other fields.[17] However, one report which looked beyond the hype in business start-ups concluded that "many companies want to take advantage of the AI hype," but, "in 40 percent of cases" report authors "could find no mention of evidence of AI".[18]

Similarly, the use of social media has also attracted significant academic attention.[19] The availability of a large volume of social media data, since the Jihadi movement adopted social media has sparked much interest in approaches which focus on options for use of big data style tools, machine learning and autodetection.[20]

The importance of such decolonization has two specific elements to address the risks posed by flawed interpretations being absorbed into AI models.

Perpetuation of flawed analysis

If automation and AI models are trained on datasets which contain artefacts of Western scholarship rather than authentic interpretations, the results will be at best unreliable and at worst entirely misleading. For example, commentators have repeatedly emphasised elements such as offers of ice cream, Nutella, gore porn, Utopia, Crime, kittens or even claiming jihad is pitched as a different brand in other geographic regions. Despite the willingness of Western-centric commentators to make and publish these claims, it should be obvious that this is not what theocentric Salafi-Jihadi groups are really about. As Ralph Peters argued previously, "our phony, one-dimensional analysis of al-Qaeda and its ilk has precious little to do with the nature of our enemies – which we are desperate to deny – and everything to do with us … Thus, we insist, for our own comfort, that our enemies do not really mean what they profess".[21]

Potential impact on minority communities of prioritising a policy lens

If flawed AI models containing artifacts of colonialities, and neo-colonialist traits, are released into digital arenas such as social media they are likely to lead to the moderation of entirely legitimate conversations and result in a disproportionate impact on specific communities of faith, ethnic origin, language or geographic location. Such practices already "unfairly penalize users in the Global South", according to new research at Cornell.[22]

For example, we have already witnessed the massive moderation of Facebook posts containing the word shaheed [شهيد], due to what appears to be a Western bias in interpreting the term solely as 'martyr' for slain fighters and suicide bombers and thus synonymous with terrorist handling of the term, contrary to the common use in Arabic.[23] As further outlined in this paper, the terrorist use of the term is one of greatest importance as the 'martyr', within the theological construct, has given his blood, his life as proof of his firm belief in God. The Arabic word shaheed in non-religious modern Arabic media use refers to victims of – for example – traffic accidents or in social media spaces as victims of a crime etc. This term has to be understood and read within the context of meaning to clearly identify its terrorist use. Colonialities in moderation not only silences innocent and particularly minority voices, but research has also shown that users from the Global South perceive the "underlying human-AI infrastructure to imbibe coloniality in the form of amplifying power relations, centring Western norms, and perpetuating historical injustices and erasure of minoritized expressions".[24]

Part One: Hashing and Logo detection

One means to avoid existing colonialities and such unwanted impact on minority and global south communities is to focus on branded content from illegal groups. Considering the interest in automated techniques, it is prudent to begin with some of the simple programmatic techniques freely available to researchers and practitioners which are particularly powerful when combined with genuine subject matter expertise. This is particularly relevant when sorting large volumes of material to identify the producers or organisational affiliation. To demonstrate the potential efficacy of relatively basic techniques available to researchers to identify material from Salafi-Jihadi groups such as al-Qaeda (AQ) and al-Dawlat al-Islamiyah (IS), this first section examines the use of hashing and image logo matching, on images collected from Telegram over a 12-month period between October 2017 and September 2018 inclusive.

Images were archived in near real-time from human verified jihadi Telegram channels (and groups). This was achieved by monitoring a selection of between 400 and 500 channels and groups archiving the images as they were posted. The archive contained 317,865 images in total.

To quantify the number of unique images in the collection, we used image hashing.[25] As Vishal Monga and Brian L. Evans explain, "In cryptography, hash functions are typically used for digital signatures to authenticate the message being sent so that the recipient can verify its source." Some approaches, such as MD5[26], SHA1[27], and SHA256[28], are "extremely sensitive to the message, i.e. a one-bit change in the input changes the output dramatically".[29] This makes them very effective for some security related functions where the receiver of a message or image must be confident it is exactly what was transmitted – in effect to ensure images which are *exactly* the same.

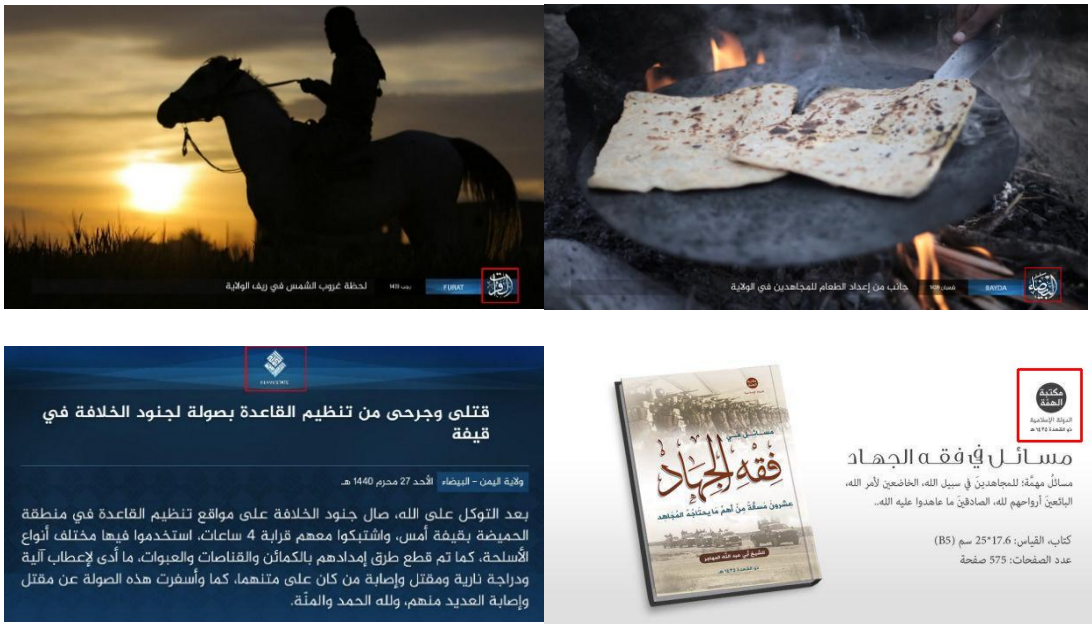
However, some researchers highlight that MD5 and SHA1 are "very sensitive to bit-level change" and so are "therefore not suitable for image hashing", where research is interested in "images which a human eye would recognise as the same".[30] An alternative approach is perceptual image hashing.[31] The perceptual hash approach seeks to ensure "two images that look the same to the human eye map to the same hash value".[32] These approaches must be able to take "into account changes in the visual domain".[33] There are two important elements of perceptual hashing, "Perceptual robustness: Visually identical images have the same or very similar hashes … [and] … Discriminative capability: Different images have different image hashes".[34] As the interest of this research was to identify all images which a human eye would perceive as the same, each image was analysed algorithmically with perceptual image hashing in python, to produce a list of unique images.[35]

Processing all 317,865 images resulted in a list of perceptual hashes representing 63,495 distinct images. The 8,000 most frequently occurring perceptual hashes comprise images which appeared 11 times or greater (representing 12.5% of all images). After an initial review of the images, a series of entities (logos or recurring motifs) were selected and used for image matching via OpenCV bound to python by cv2.[36] This is an algorithmic approach to searching for specific images in other images. This type of approach has been used in a range of medical research fields such as blood disorders and brain tumours and drowsiness detection for drivers.[37] It has likewise been used in software testing, urban planning, agriculture, face recognition and robotics.[38]

As jihadi groups are diligent in attaching logos or motifs to their content, a selection of prominent organisations could be used to automatically sort the images into relevant folders, using normed correlation coefficient. Images matched to a logo with a confidence threshold of 0.7 was assigned to a folder of images produced by that specific group.

Examples of logos used for matching. All of these logos are Islamic State relevant with the exception of Iba Haber.

Images produced by al-Dawlat al-Islamiyya were the most prominent in the ecosystem during this time period.



These sample images highlight via the red square the automatic identification of IS-logos in images. Top left to bottom right: IS image from the province of al-Furat (Iraq) and (top left) al-Anbar (Iraq), province of YemenAmaq attack claim and (bottom right) the banner of a lengthy theological publication "Jurisprudence of jihad."

Content linked to al-Qaeda was also identified in the ecosystem through the same approach. In 2017-2018, the AQ element of the ecosystem comprised many news related items. This included material published by Ebaa (Iba') news. It consisted of photo reports, individual news stories / announcements, similar to those which are prominent within the al-Dawlat al-Islamiyya part of the ecosystem.

Material was available in both Arabic and Russian, along with some in European languages.

This approach successfully provided an automated classification of most (87%) of the images. The sorted images were checked by human reviewers to check for false positives. Using this basic method, the remaining 13% of material had to be sorted manually. From an academic researcher perspective, this basic level of automation has a considerable advantage over counting and coding over 300,000 images to achieve the same result by hand.

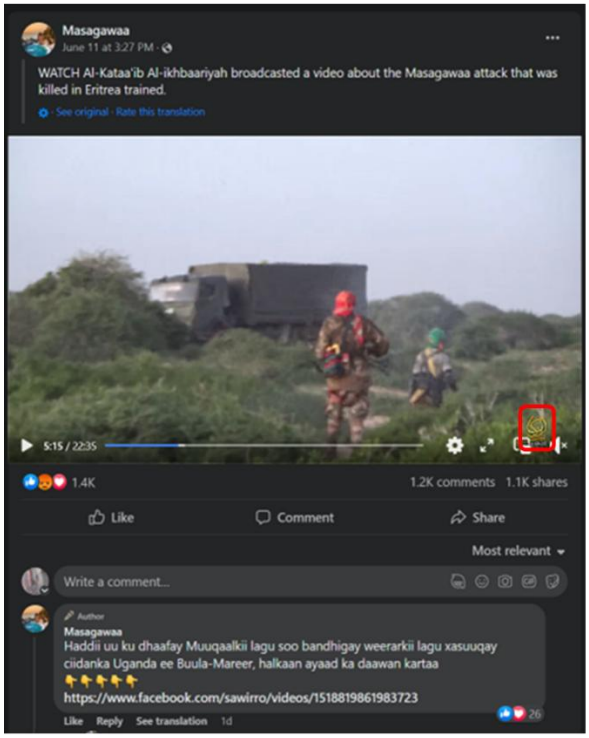
After review of the images not classified by logo detection, it was found 2% (approximately 160 images) were various forms of deliberate spam, including Shiite imagery and sexually suggestive content. These were deliberately off topic, and while this material would have been rapidly removed by Telegram group moderators, because it was collected in near real-time it was part of the original record of content which had been posted.

Another important consideration in classifying material was that based on the human review, around 20% of IS content in the collection stemmed from OSINT or supporter art of various types, such as pro-Jihadi pictures. While logo detection could not classify this material, due to the lack of an identifiable logo or producer's mark, they are an important part of the overall jihadi culture online, as it enables aligned users to contribute to the movement. Furthermore, they are important as many of the media 'foundations' (such as al-Furqan) which are currently deemed 'official' by researchers have been in previous periods relative 'outsiders' in the Jihadi movement. In the case of al-Furqan, it set precedents in the decade of American occupation of Iraq, producing videos and disseminating these via classical vb/bulletin forums, long before it would be considered 'official' IS – or even IS (as it was part of AQ).

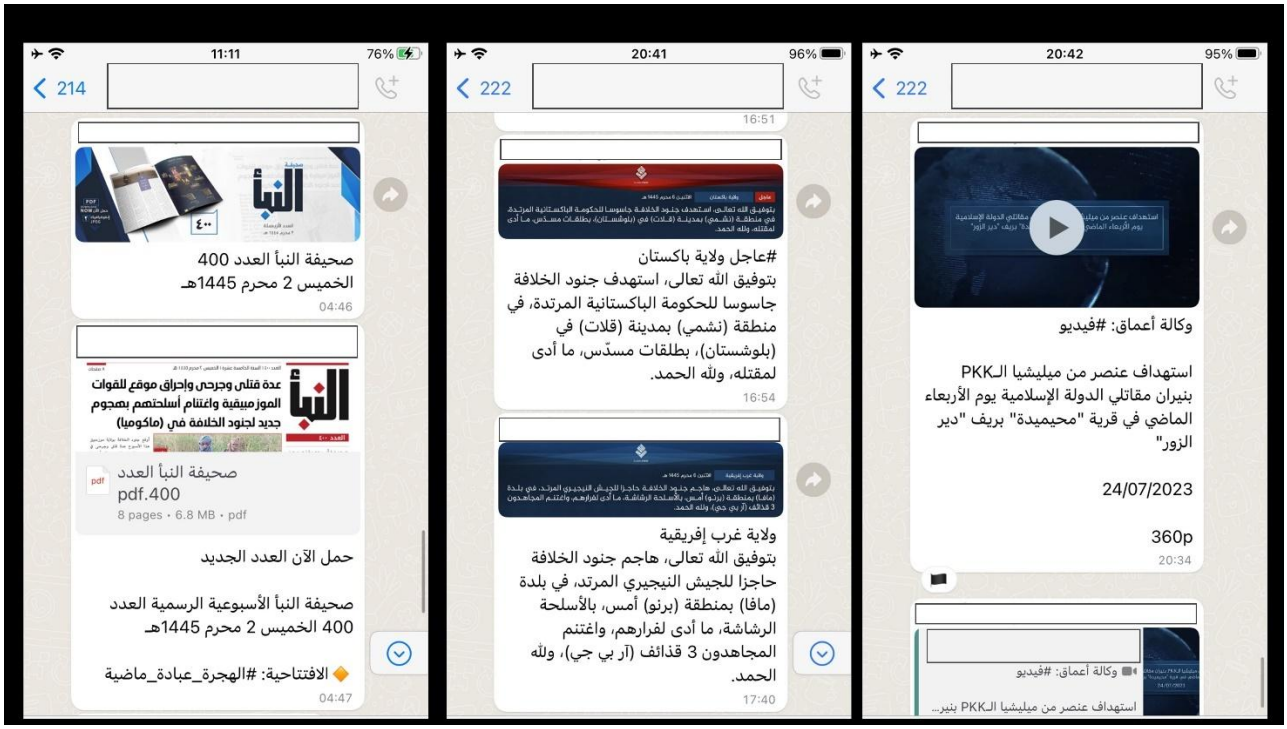
The combination of hashing, logo detection and human coding has advantages, particularly in identifying branded content from a large archive of images shared on social media. Hashing and logo detection can rapidly identify a large amount of branded content from Salafi-Jihadi groups. This method is relatively simple to deploy and can speed up analysis for researchers particularly of branded content.

While the reliance on clearly identifiable markers is a particular limitation of logo detection methods, some of the biggest tech companies such as Meta still have content with clearly identifiable logos on their platforms. This while large tech boasts advanced capabilities which are regularly credited by industry groups including Tech Against Terrorism and GIFCT as driving Terrorists off 'internet giants like

Facebook' and onto 'smaller or niche platforms' or 'websites'. As such, even in 2024, logo detection methods are not without their potential uses for researchers trying to identify content.

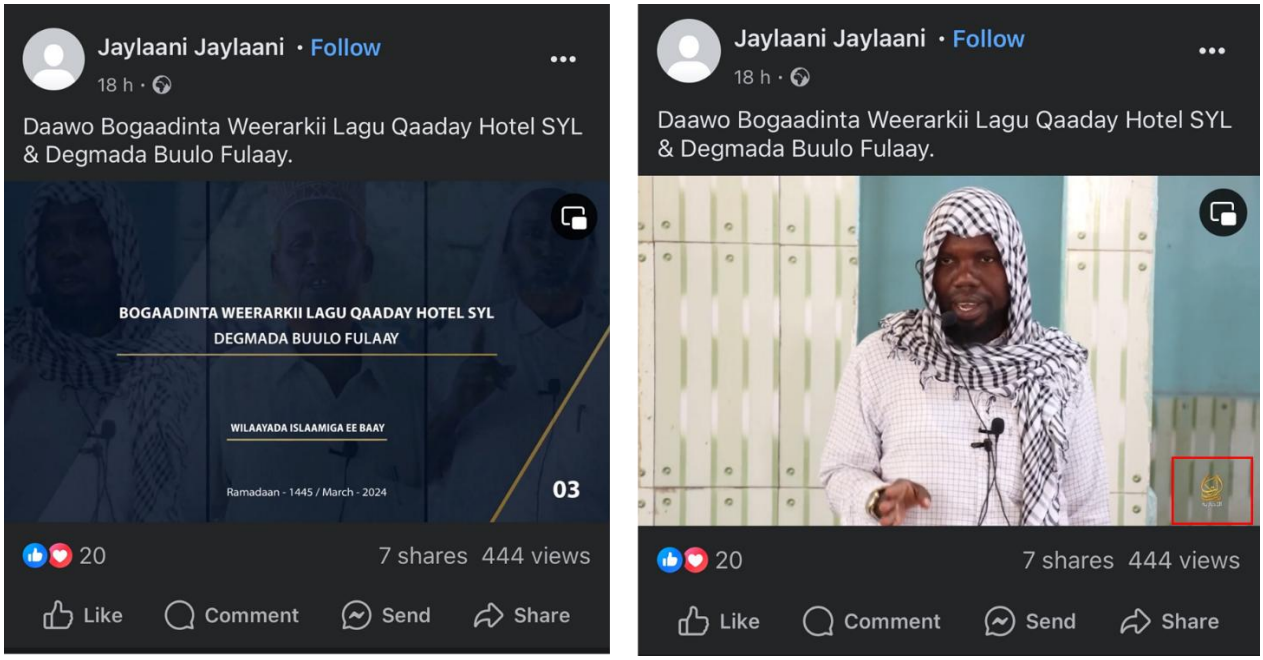


Logos visible on Facebook and WhatsApp – Summer 2023.

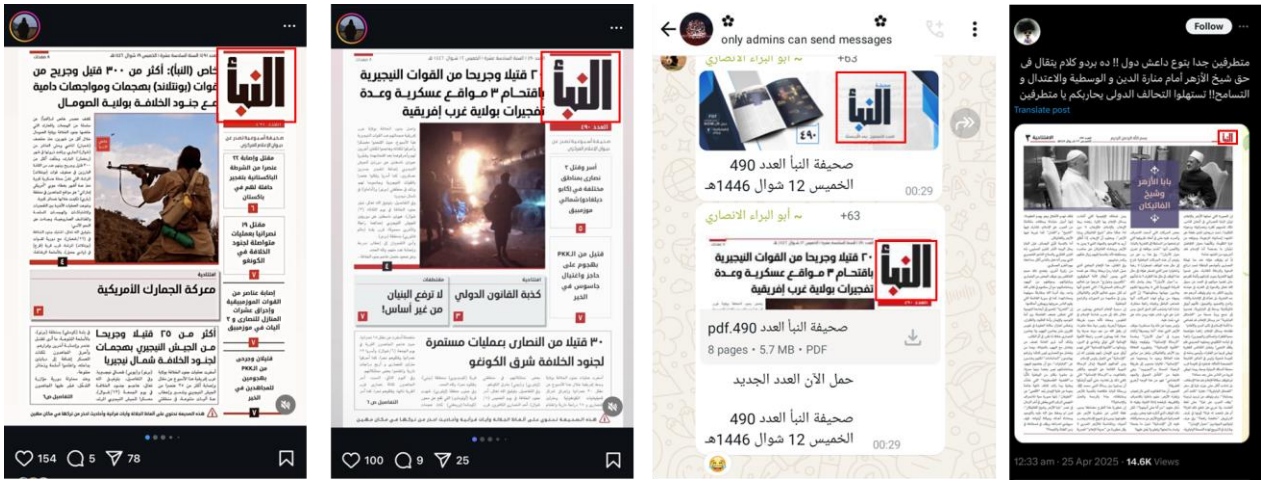


IS content shared on WhatsApp July 2023.

AQ content shared on WhatsApp July 2023



HSM (al-Shabaab) on Facebook - March 2024.



Al-Naba on Instagram, WhatsApp, X – April 2025.

Industry groups and many experts have long held that IS and AQ have been driven from internet giants to the smaller platforms. Policy discussion often revolves around efficacy of technology and emphasises that users hide logos to prevent detection. While hiding logos to avoid detection may reflect the motivation of the user, the focus on hiding the logo creates the impression content would have been detected if the logo were not obscured. This impression, however, is not supported by daily observation. Content is currently openly available, unedited and with logos clearly visible on the largest platforms and thousands of users have found it before platform owners. As such, while more complex methods are available, the use of even entry level logo detection, freely accessible to anyone with a computer, can allow researchers to locate branded content in feeds of content on social media.

Part Two: Building an evidence-base 2015-2019

Computer vision and AI offer many opportunities from identifying the component elements of an individual image, such as the individuals and vehicles (below), to sorting and tagging images at scale and in near real-time.

Automated identification of elements used in IS-images.

It has been argued that for IS' non-Arabic speaking supporters and networks based across the world, the use of visuals can also serve as an effective means of communicating the group's narratives.[39] In pursuing the analysis of images, the dominant view within the Orthodoxy of Terrorism Studies (OTS) is that "visual releases are those through which the gist of the message can be understood by a consumer regardless of the language in which they were written".[40] This has made the analysis of imagery particularly popular avenue for research as it appears to offer the possibility of conducting analysis without the need to understand Arabic. This however shows the power of imagery used by IS and other groups. To those who are well versed and vetted into the large quantities of texts produced, curated and shared by IS codes and references within the images are clear, for example the theological detailed necessity to take spoils of war or loot from your enemy. Non-Arabic speakers can see these elements within the visual setting and potentially are informed by the ecosystem in which they operate – receiving or finding explanatory documents and language-tailored content by IS, which is usually a reduced version of the often detailed Arabic theological-historical documents that are of great importance to the Salafi-Jihadi movement as a whole.

As discussed later in this paper, the problem with the notion of separating language from the understanding of imagery is one of habitus. That is to say, the gist of an image from a Western perspective is very different to the meaning intended by a Salafi-Jihad group and that likely understood by the primary target audience. Instead of an evidence-based analysis of references with cultural significance to producer and intended audience, this gist-based approach has created persistent

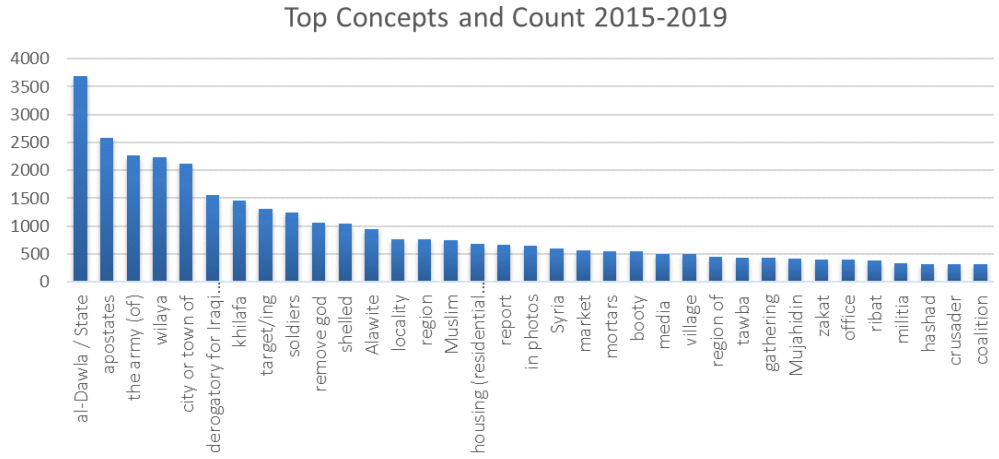
colonialities by viewing material through a Western-centric lens. The result has been a fundamental distortion of the intended meaning entirely separated from the data in the evidence-base of Arabic sources.

While machine learning and AI can be taught to function in many diverse ways, the focus of the method presented here is to deliver an **authentic representation of what a Salafi-Jihadi group seeks to communicate to their primary target audience**.

How to avoid the Western gist

Breaking with the colonialities and gist-based approach popular in OTS, this section examines what the group intended to communicate, by analysing what Salafi-Jihadi and specifically IS wrote in Arabic. The focus is on building an authentic evidence-base of the way IS describe what they intend to communicate to their primary target audience.

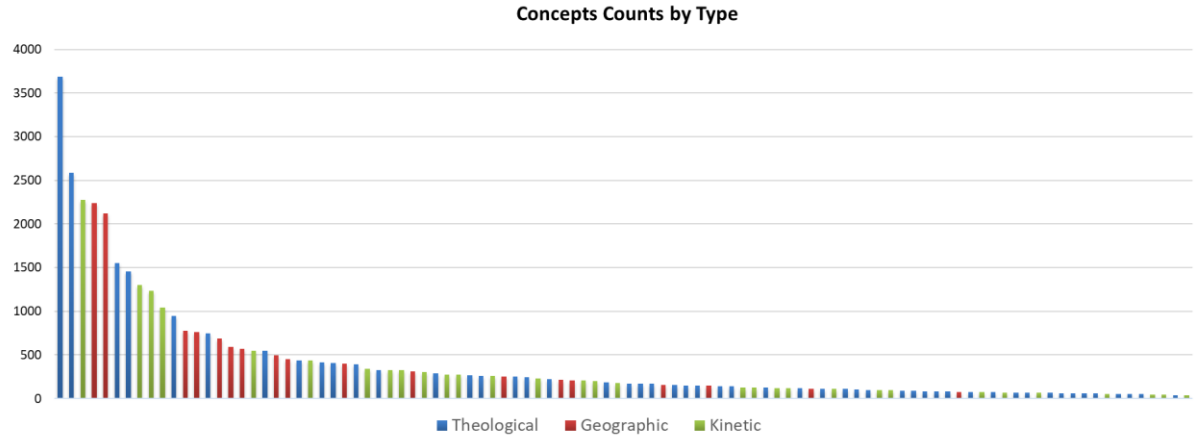
The evidence-base was constructed using just under 19,000 photo images produced by IS between 2015 and 2019, in addition to an archive of textual documents which underpin the Forensic Linguistic approach. Rather than taking the gist of what a researcher claims to see, this research focused on what IS intended to communicate by analysing how IS describe these images, and interprets the meaning of those terms expressed in the archive of Salafi-Jihadi texts. This yielded a corpus of 189,253 words and 36,760 unique terms once Arabic stop words were removed.[41] Graph below shows a translated version of the common terms.



From an evidence-based perspective, the terms used frequently are informative. Many of the words frequently used to describe images relate to theological concepts. Far from being able to 'whittle away' theology as previous OTS analyses have suggested, the data demonstrate theology is a fundamental part of the message being communicated.

Similarly, adherents of the OTS gist-based approach may be surprised that when researchers examine the Arabic used across five years and almost 19,000 images, IS never suggested that an image was intended to represent any form of Utopia. This despite persistent Western claims to be able to identify something that was 'unambiguously Utopian'. Instead of Western labels, IS had a clear message for their primary target audience, based on a theological worldview intimately tied to Arabic language, with concomitant religious and cultural references.

On examination the frequently used terms fall into three categories. First, terms that relate to concepts in Salafi-Jihadi theology including ghanimah, zakat, apostates and ribat.[42] Second, geographic terms both in the sense of place names and generic terms for spaces or places such as village, market, or housing. The final category relates to practical aspects of kinetic activity in the sense of qital, the combat element of Jihad.[43] This includes the kinetic means such as IED, Rockets, Mortar, automatic weapons, and the assault on particular groups, for example, army, or police.



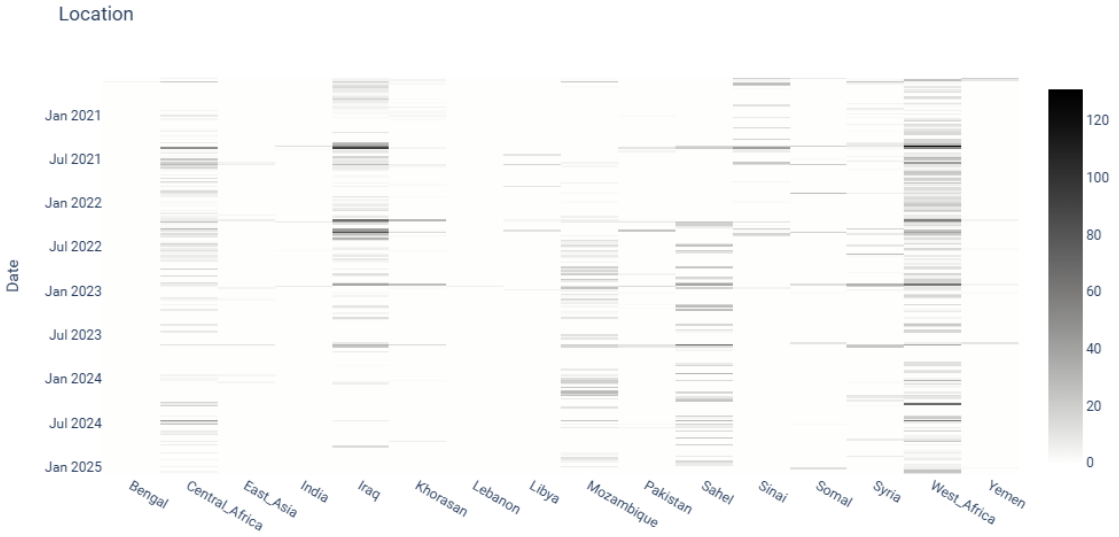
This analysis demonstrates how closely visual images are aligned to the theological constructs which also appear in Salafi-Jihadi texts. The analysis furthermore fails to find any evidence which could validate the predominant Western-centric notion that these images are intended to related to concepts such as Utopia.

Authentic concepts in action – 2020-2024

Preparing the 2020-2024 data for analysis, the photo report images have to be separated from other forms of images. This was achieved through a convolutional neural network (CNN) which clusters images with similar attributes. The CNN mimics human brain processes to 'learn' about content enabling it to cluster content the network understands as similar.[44] Variations of these techniques have been employed in numerous fields including detecting brain tumours, breast cancer, changes in Sea Ice, recognising Arabic handwriting, and the study of microbiology.[45] The CNN produces a multidimensional interpretation which is subsequently reduced and represented here in a two-dimensional image.

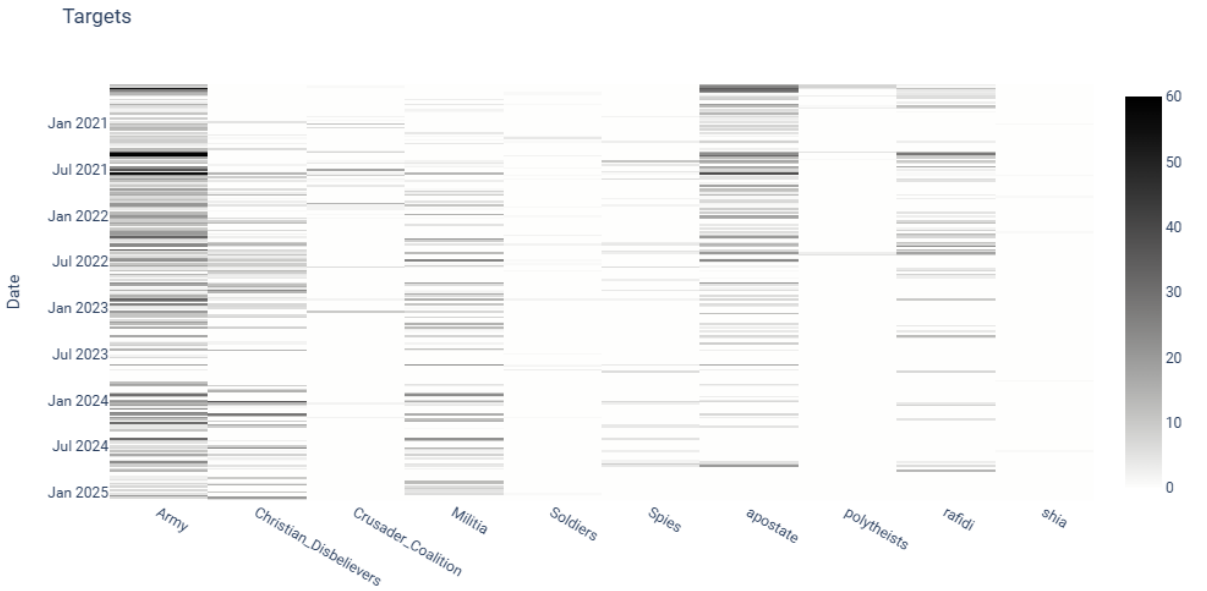
Once the model has been built it is represented in two-dimensions through a combination of Principle Component Analysis and t-SNE.[46] It has long been recognised that the "visualization of high-dimensional data is an important problem in many different domains, and deals with data of widely varying dimensionality".[47] As such, t-SNE was developed "to allow the implicit structure of all of the data to influence the way in which a subset of the data is displayed".[48] Displayed in this format the clusters are easily recognisable to human viewers and organises content in clusters created by the design process adopted by the Salafi-Jihadi movement.

Once the photo reports are separated from Amaq statements, announcements, and banners for media releases such as al-Naba, the automated analysis of content from 2020-2024 was possible using the combination of CNN and synsets developed based on data from 2015-2019 and the textual archive. The result (below) shows the volume of content has fluctuated over time and by location. There had been weeks where photos from many locations had been published, while at others only one or two locations were present.



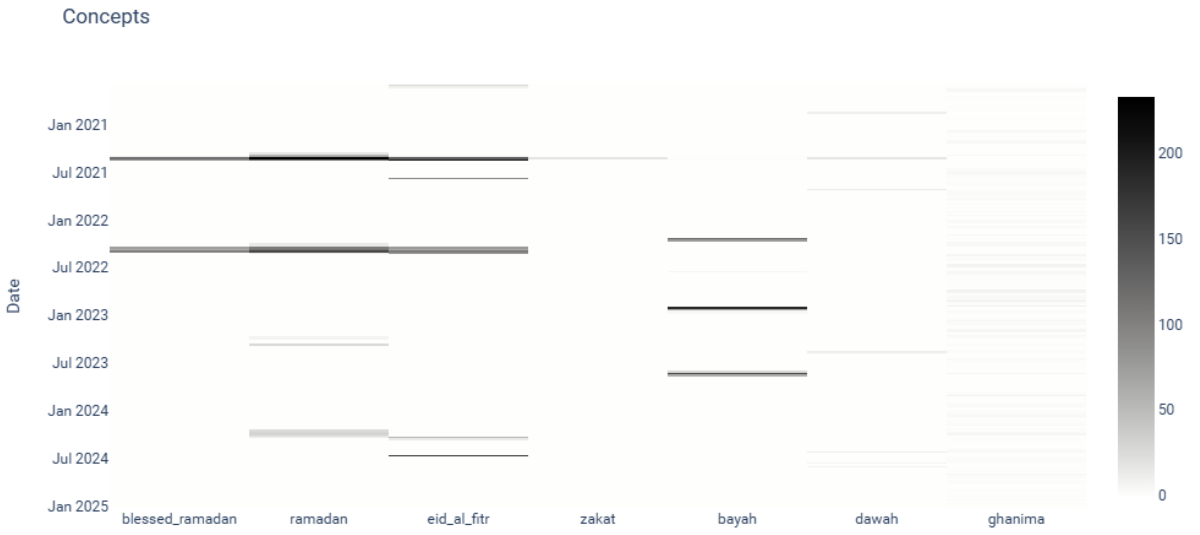
The brighter refers to more photo reports released by IS from different locations during the time indicated on the left and place (bottom), marking the date of the claimed attack on the left and the location on the bottom.

These moments of fluctuation in posting across multiple locations often mark the difference between movement wide events such as bayah or observing ramadan and local importance such as a series of attacks in a single location. The analysis also demonstrates that the targets of attacks when represented over time, fluctuate. There have been points in time where attacks on Army or militia targets have been particularly heavily represented, at others the targeting of spies and apostates is more prominent. Rather than bouncing from one 'new narrative' to another as often noted in Western caricature, the data from 2015 to 2024 demonstrates how the concepts expressed in photo reports are rooted in the theological understanding of the movement.



IS outlines enemies, the targets of kinetic activity in theological terms and according to their doctrine. In photo reports enemies are marked as part of an "army", governmental soldiers, differentiating "militia" members, "spies" or members part of the "crusader coalition." Enemies include those that are defined by doctrine such as rafidi, a derogatory term of Shias, polytheists, an early Islamic reference part of Quran and Sunna to refer to those who believe in more than one God, violating the core tenet of Islam; apostates, a theological framework to identify Muslims accused of violating Islamic tenets to the extend of being excommunicated, which calls for the death penalty.

In addition the theological concepts through which enemies are targets of kinetic activity are identified, photo reports contain clear theological references to concepts obvious to the primary target audience. While a discussion of all the concepts is beyond the scope of this discussion of automated systems, to demonstrate the theocentric nature of content, concepts such as Bayah, Ramadan, Eid al-Fitr, and distribution of zakat, along with the more consistent the taking of ghanimah and giving da'wa.



It is clear from the data presented that a theocentric interpretation is essential for an authentic interpretation of Salafi-Jihadi content. However, not all concepts appear consistently. Some concepts are represented in higher volumes at specific times, while others appear at lower volume throughout the year

Examples of concepts represented in content that appears at high-volume during specific time periods:

- Bayah: the pledge of allegiance to the current caliph/IS-leader. Men are gathering, placing their hands on top of each other and state the pledge (further detailed below).
- Ramadan: the holy month of Ramadan is a month of special religious observance and fasting. IS-images document the strict religious observance of its members and projects outmost piety to the target audiences – which understands the conveyed visual communication.

- Eid al-Fitr: the Feast Breaking the Fast marks the end of Ramadan. IS-images depict their file and rank from various geographies (i.e. fighters in a trench in Syria or a group of men in Nigeria) who together break the fast while on military duty, being on the lookout for enemies or guard duty.
- Zakat: The provision of support to the needy is one of the five pillars of Islam, which has been made obligatory by God on each and every Muslim. Zakat is often given in Ramadan and at Eid al-Fitr.

By contrast, other concepts are represented in images with across greater time period consistence but at lower volume throughout the year:

- da'wa: Missionary work, proselytization, calls to Islam is a fundamental aspect of IS media output. Da'wa is used as a strategy within the context of consolidating and integrating Sunni Muslims in a conquered territory.
- ghanima: the "spoils of war" or "booty" taken during fighting.

Since 2020, the appearance of images representing other concepts can also be seen appearing at specific times. For example, concepts including zakat, dawah and ribat appear around Ramadan, as part of the observant and theocentric focus of Salafi-Jihadi communication.

Bayah

Between 2020 and 2024 bayah is represented in 10.7% of images.

Bayah pledge:

"We pledge allegiance to [Name], to selflessly hear and obey in what is pleasing and displeasing, in times of ease and hardship. I pledge to not dispute the matter of those in authority, except if I see obvious kufr of which I have proof from God. God bears witness to my words. Takbir. Allahu Akbar."

The bayah pledge is fundamentally theological expression of faith, allegiance pledged to the caliph, but sworn to God, as shown by the elements of the bayah pledge:

"to selflessly hear and obey"	Al-sama'a wa-l ta'a, a common Arabic phrase used in the sense of confirming an order (in the sense of "Sir, yes, sir!"), which also used in Arab militaries.
"to not dispute the matter of those in authority"	As decreed by the caliph, such as to heads of provinces, military leaders and administrative heads (for example to direct attacks, distribute relief or maintain critical infrastructure).
"except if I see obvious kufr"	The legitimacy and authority of the Islamic state leadership would be void if they act in contrast to theologically laid out rules and the judicial framework – and thus violating God's laws or divine command. In doing so, they would manifest kufr, or disbelief. In this case, bay'ah is void to the caliph, the human representative tasked to ensure divine law and the duty would arise to replace the leadership with those who are truthful to the methodology and whose belief system and theology makes the Islamic State an Islamic state following the Salafi-jihadi ecosystem of writings and sources.
"of which I have proof from God"	"Proof (Burhan) by God": this is the very cornerstone of the ecosystem of the Salafi-jihadi writings that convey in detail theology, based on

	Qur'an and Sunna. If a Sunni Muslim claims to follow the guidance of Prophet Muhammad and is then accused of violating the rules set by the Prophet, for example by smoking or refraining from the obligatory prayers, then this individual violates the divine commandments as defined by the Qur'an and the tradition and habits of God's Prophet. For extremists, the "proof", as conveyed by God through the Qur'an and through the physical existence of Prophet Muhammad for a limited time on earth, is the ultimate fundament and sets the standards of the specific religious identity within the ecosystem of the Salafi-jihadi space.
"God bears witness"	The pledge of allegiance is bound to human intermediaries: the Caliph and the Islamic State as a system.
"Takbir. Allahu Akbar"	To reinforce and emphasise the statement by re-affirming the power of God – which is answered by "God is the greatest", Allahu Akbar – making this pledge before and to God, thus any violation is punishable by God, the highest authority

Ramadan

16.1% of images represent Ramadan. During Ramadan that fell in 2021CE and 2022CE there was a clear distinction between images described with just the name of the month, which tended to represent combat elements of jihad, and the representation of theological observance which were described as "the blessed month of Ramadan". Combat during Ramadan is an important element for Salafi-Jihadi groups. An al-Naba editorial reminded readers that this "blessed month witnessed great victories in the battles of Muslims against their enemies".[49] The same editorial also claimed "we find that Muslims engage in jihad against the kuffar [disbelievers] more during Ramadan than at other times, because the soil is relieved of the constraints of desires that anchor it to the ground, preventing it from taking courage when called upon".[50] The English translation is handled by Halummu to ensure the al-Naba editorials are accessible to a wider range of audience, not just Arabic speakers.

Combat and suicide-bombing operations during Ramadan.

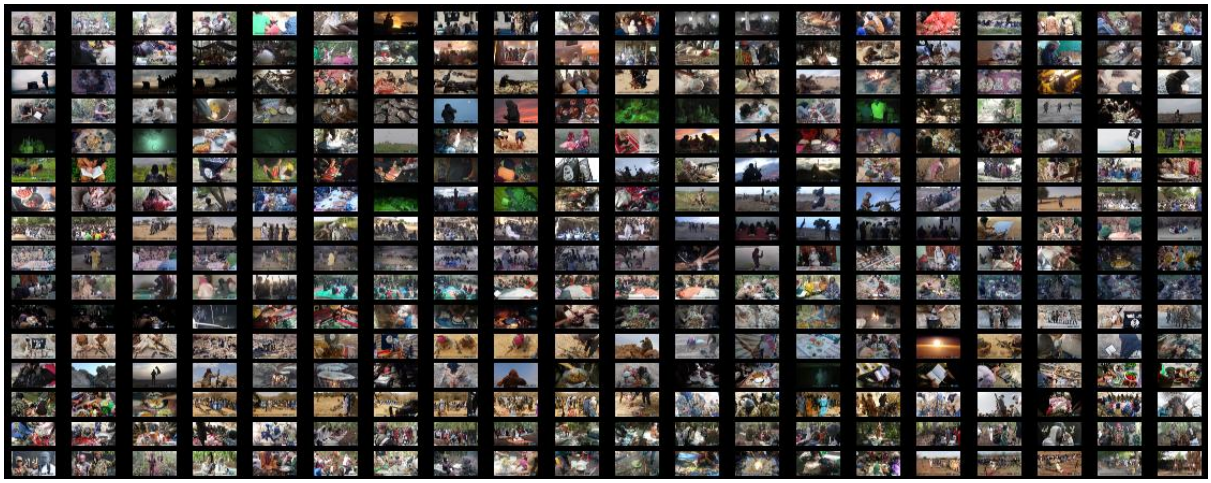
Blessed Month of Ramadan

6.7% of images represent to the target audience the specific theological observance during the blessed month of Ramadan. As the editorial in al-Naba 434 noted "Ramadan is a station that charges us with iman [faith], through fasting, prayer, reading the Qur'an, jihad and other acts of obedience".[51]

Sample images showing the observance of religious duties during the "blessed month of Ramadan" which include guard duties and protecting the borders of the Islamic State.

Eid al-Fitr

Eid al-Fitr, the 'festival of breaking the fast', marks the end of the holy month of Ramadan. Eid al-Fitr is an important theological event amongst Muslims which includes specific prayer often performed in groups or in congregation. Examples of the images marking Eid al-Fitr include many of the behaviours and rituals associated with the day, IS intends to demonstrate their following the rituals of Eid al-Fitr through the images of prayer, food preparation, and reading Quran.



While discussion of this event is almost entirely absent from existing scholarship it is represented in 15.8% of photo report images since 2020.

Zakat

Zakat has only been represented in 0.2% of photo report images since 2020. Zakat is one of the five pillars of Islam, which has been made obligatory by God to each and every Muslim to carry out. Zakat is one of the five fundamental obligations of Islam.[52] As described by Johari et al. it is an obligatory form of worship (Ibadah) commanded in the Qur'an:

"… so establish Salat [prayer] and give Zakat, and hold fast to Allah …" (al-Qur'an 22:78)[53]

Zakat is defined as "that portion of a man's wealth is designated for the poor" (Azeez, 2003). In addition, it is also defined as, "a compulsory levy imposed on Muslim so as to take surplus money or wealth from the comparatively well-to-do members of the Muslim Society and give it to the destitute and needy" (Zaim, 1989).[54]

Zakat in action, IS supporting Muslims in need by reallocating wealth, food, basic needs.

Da'wa

Like zakat, da'wa (dawah) is an important concept in Islam but has been represented less frequently since 2020, with da'wa represented in 1.1% of images. Missionary work, proselytization, calls to Islam is a fundamental aspect of IS media output. Da'wa is used as a strategy within the context of consolidating and integrating Sunni Muslims in a conquered territory.

Especially in Syria and Iraq, IS opened da'wa offices and offered the Sunni Muslims the opportunity to submit themselves to the theological and realpolitikal parameters of IS. Especially lower ranks of the Iraqi army for example had been given the chance to repent and 'revert' to the true 'Sunni Islam' IS claims to be fighting for as was outlined in IS videos[55] as well as some of the photo reports. The da'wa offices had not been restricted to post-territorial operations within population centers but had been established for the long-term objective of continually advertising IS slogans and – most importantly – establishing centers for children to be educated in the IS curriculum of the theology of violence. The early days of the da'wa offices had been characterized by their name at the time "center for da'wa and mosques." As IS consolidated their territorial rule within Iraq and Syria, including within the urban spaces, Sunni mosques became a change-over, implanting IS-preachers and – more important – replacing curricula with IS-teachings.

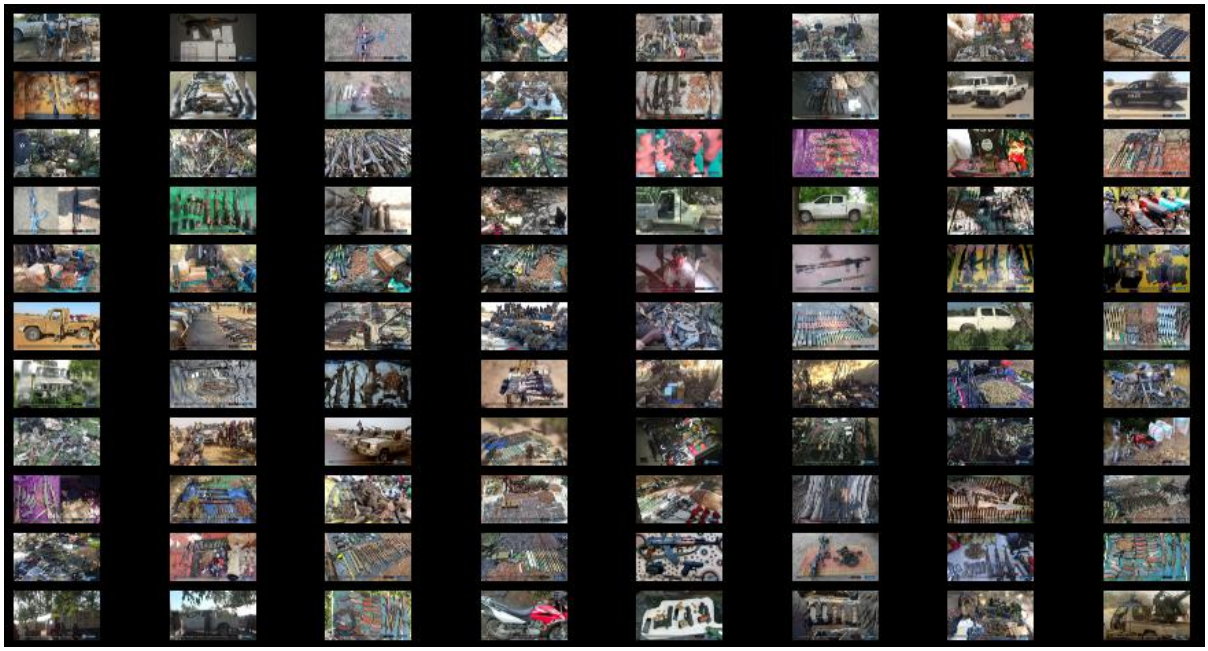
Samples of missionary (da'wa) operations by IS – personal sermons in mosques, education for children, dissemination of books and articles and billboards.

More commonly depicted in earlier IS material, Da'wa operations include(d) setting up billboards in the occupied territories, outlining the proper sharia law conform clothing and behavioral conduct for

Muslimas as well as images of defiance, claiming "we shall be victorious despite the global crusader coalition." The footprint on education also means that specific theological writings as part of the da'wa curriculum are kept in online libraries and distributed in print throughout the territorial caliphate. These writings, as the one shown above, feature writings by Muhammad ibn abd al-Wahhab (d. 1792), outlining the obligations for every Muslim that must be upheld to maintain one's status as a Sunni Muslim and as a servant of God. This writing concerns obligation, that must be known – and maintained – by every Muslim and Muslima.[56] The booklet is published and shared by IS within their networks electronically and was handed out in print in unedited as well as abridged versions as documented in the photo reports. Such documents feature a core IS-slogan on its cover, claiming that IS is the "caliphate, set upon prophetic methodology" – following and implementing prophet Muhammad by the letter, including all aspects of soft and hard power.

Ghanimah

Ghanimah, the spoils of war, (represented in 4.7% of images) is a core theological element in the ecosystem of Salafi-Jihadi writings. The "spoils of war", "loot", "booty" has operational value for modern-day jihadis. The question always revolves around the issue on how such spoils should be divided amongst the fighters or groups, without violating sharia law or the example of Prophet Muhammad and his companions – Arabic sources to bolster jihadi arguments and handling are provided in the texts and videos to pitch to their target audiences to be acting accordingly with divine commandments.



Militant and paramilitary groups in general like to showcase their spoils of war, either displaying vehicles or with the seized material laid out on a rug, blanket or tarpaulin. This allows the group to demonstrate what they have taken and is part of the theological division of seized material.

As the brief overview of these concepts demonstrates IS and the Salafi-Jihadi movement communicate around theological concepts which have clear intended meaning which would be familiar to the intended target audience. The images in photo reports within a category are visually similar to each other, i.e those representing zakat look similar to other images representing zakat, while being distinct

from those representing concepts such as ghanima. This demonstrates the ability of an automated system to identify content representing similar theological concepts.

Part Three: Lost in the Supermarket – Decolonising the study of Jihadi Content for evidence-based AI.

While the system demonstrated in this paper can identify authentic concepts in Salafi-Jihadi content, the ability to develop automated systems will result in little if any progress if the underlying evidence-base and conceptual understanding of extremist movements is missing. For the Salafi-Jihadi movement this requires coming to terms with their core purpose – as members of the movement understand it – a religious movement governed by a particular interpretation of theology. Movement in this direction means decolonising the study of the movement, removing the artefacts created by Western-centric research and habitus.

Of the many colonialities, two are particularly challenging for automation and AI. First, inferring success or failure from the number activities observed by Western eyes. Second, the ability to produce an authentic representation of the data built on evidence-based analysis.

Lack of Authentic Evidence-based Analysis

While many in the transatlantic orthodoxy of terrorism studies, to use Maarten Boudry's words, are in disbelief about belief, there is a growing recognition outside of that transatlantic mainstream that theology is at the core of the Salafi-Jihadi movement.[57] What this means is that while the 'embedded academics' within OTS and much of Western policy circles coalesce around understandings of Soft Power and a short-term narrative-focused battle for hearts and minds, Salafi-Jihadi groups are engaged in a long-term war for the souls of their target audience.

The process of extracting meaning from content, some have claimed to be able to 'whittle away' the theology to uncloak an essentially 'western' meaning in the data. This contrasts with an authentic interpretation focuses on evidence-based analysis of what Salafi-Jihadi seek to communicate with their primary target audience and their theocentric worldview. This means focusing on what Salafi-Jihadi mean in their own terms rather than what outsiders seek to impose on it.

The attention given by OTS researchers to Salafi-Jihadi images is in part because "the gist of the message can be understood by a consumer regardless of the language in which they were written".[58] Unfortunately, the OTS gist approach has often transformed the meaning from one immediately recognisable to the intended audience, to one that sits comfortably within Transatlantic academic and policy circles. Often leading to the creation of academic artifacts which result from an attempt to fit theologically based Salafi-Jihadi content, into Western-centric and frequently concepts rooted in a (post-)Westphalian worldview. Tracking of so-called 'narratives' within visual content has thus become an exercise in measuring changes in what researchers say they see when viewing material through a Western lens rather than an evidence-based assessment of the meaning intended by Salafi-Jihadi groups. This produces colonialities around how knowledge is produced, introducing a potential preference for findings which support existing assumptions and policies rather than authentic analysis.[59]

Western scholarship and specifically OTS is replete with colonialities and category errors such as 'Utopia'. Despite the clarity and consistency of Salafi-Jihadi writing about their purpose, OTS researchers have claimed to see a 'utopian prospects', 'utopian idealism', or jihadi presenting evidence of a 'socio-economic utopia' in the material produced by the movement.[60] In fact, despite the Western centric and neo-colonialist claims of some OTS scholars, the evidence-base shows Salafi-Jihadi groups explicitly deride any idea of Utopia as a 'naïve notion' and regularly remind supporters not to fall for attractions in this world (Dunya).[61] Categorising Salafi-Jihadi content as offering a form of 'Utopia' is not supported by the data in the evidence-base but continues to be accepted within OTS in line with the way Richard Jackson has shown "knowledge subjugation takes place in terrorism studies".[62]

Nowhere is this more evident than what Rex Tillerson referred to as the "false utopian vision" produced by IS.[63] The conceptualisation of some form of "backward-looking Utopia" is a caricature asserted in various forms within the Transatlantic Orthodoxy of Terrorism Studies (OTS) and has been applied to AQ and IS alike.[64] For example, it has been claimed that "Al-Qaeda will be defeated when its supporters see that its violent strategy will never realize the utopian vision".[65]

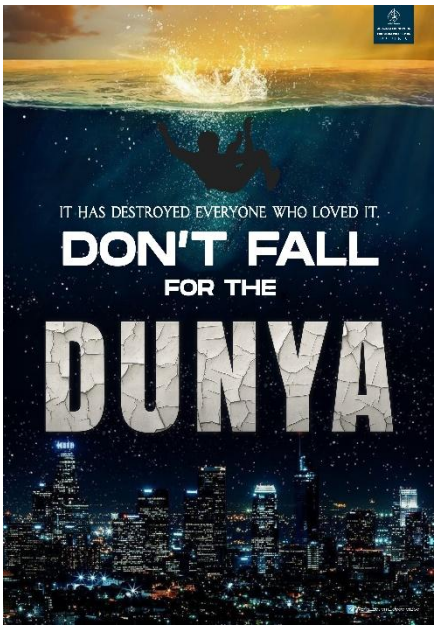
The problem with such claims is that it cannot be demonstrated by reference to the hundreds of thousands of pages of Arabic text, and many weeks' worth of audio-visual material produced by either IS specifically or the wider Salafi-Jihad movement that they intend to offer supporters a form of Utopia. Instead, it can only be asserted after imposing western labels onto Salafi-Jihadi content.

There is often a form of rhetorical prophylaxis which contends a group does not have to say it is utopian to be labelled as such. This attempted defence of terms such as utopia only serves to emphasise that such claims rely on externally imposed labels and interpretive constructs rather than interpreting the content in its own terms.[66] It ultimately boils down to 'Jihadi may write and say explicitly what they mean, but we as educated Western-centric experts know that what they meant to say … and it is the exact opposite'.[67]

Using external labels perpetuate Western-centric category errors. These false constructs range from a form of "socioeconomic utopianism"[68] to claiming Salafi-Jihadi attempted to "construct a comprehensive image of utopia", whether that 'Utopia' is described as "backward-looking", "Islamic", "Islamist" or "Caliphal".[69]

Some examples of Western centring go further, ignoring the explicit jihadi rejection of life as a temporary abode, and claiming to detect the 'hidden' utopian messages even in material that says the exact opposite. From their Western-centred vantage point researchers concluded "It was almost as if the pictures glorifying brutality were there to throw us off the trail, and to let the much larger utopian narrative directed at the disaffected Muslims in the West get through … Like a coded message, the siren song 'Join us in Utopia!' - a dominant unrealistic narrative that also has been noted by Winter – is hidden in plain sight from those who are blinded by the images of savagery".[70]

From an evidence-based perspective, there are no hidden messages of Utopia, Salafi-Jihadi focus on raising the religion in anticipation of reward in the afterlife.[71] To focus on this world would be to stray from the path of Jihad, as they understand it.



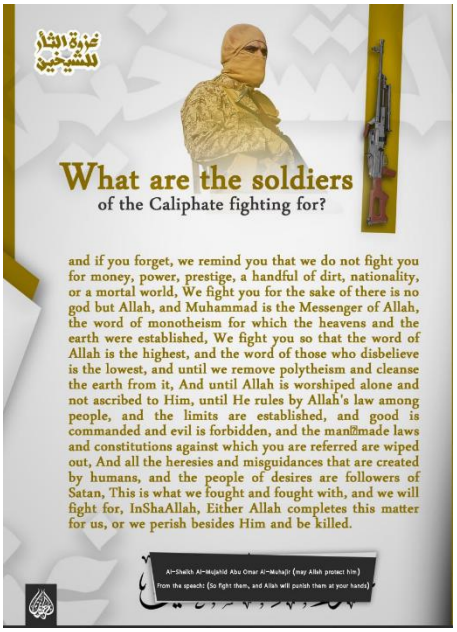
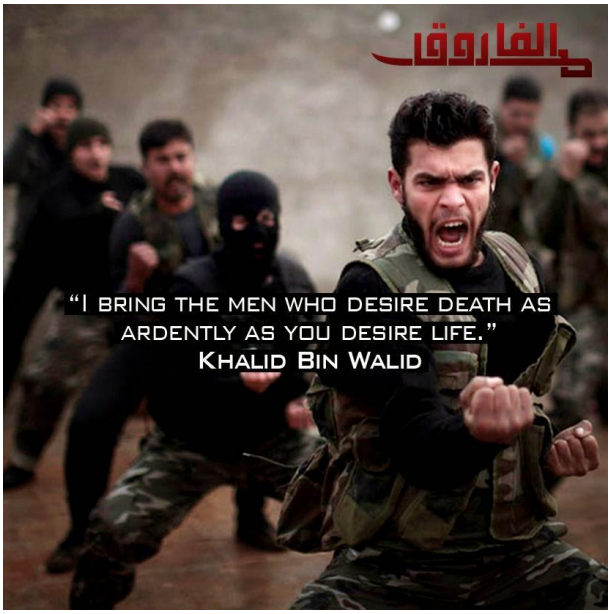


Image samples in English: a snippet of a speech by former IS-spokesman Abu Omar al-Muhajir emphasizing the fight for the rule of divine law (right) and a poster warning of the dunya (worldly life as opposed to the afterlife within the theological framework of who can attain entry to paradise and who cannot).

As Abu Omar al-Muhajir said in a speech, later translated into multiple languages, "we do not fight you for money, power, prestige, a handful of dirt, nationality, ***or a mortal world***".[72] An al-Naba editorial highlighted "the people of luxury … are attached to the enjoyments of this world" and due to the attachment to worldly luxuries fail to act in a way that will result in receiving "ever-lasting bliss of the Hereafter".[73] This contrast between focusing on this world rather than the hereafter is frequently highlighted in Salafi-Jihadi networks through a phrase attributed to Kalid ibn al-Walid, "I bring men who desire death as ardently as you desire life".



The quote by Khalid ibn al-Walid appears in an image above produced by AQ aligned al-Faruq and shared on social media by Ahmad Khan Rahami.[74] *Rahami, who allegedly used bomb designs from AQAP magazine Inspire, was convicted of eight counts of transporting and setting explosives in New York relating to bombings in September 2016.*[75]

Despite the clarity with which Salafi-Jihadi express their theocentric worldview, OTS privilege Western notions and labels like forms of Utopia. As Ralph Peters noted, "We are in the unique position of denying that our enemies know what they themselves are up to". The result is a form of "knowledge subjugation" where suppressions and exclusions are required to maintain the dominant OTS discourse.[76]

Recognising the theocentric worldview of Salafi-Jihadi groups within AI and automated systems calls for a significant rethink of many OTS claims about the meaning and purpose of those groups. This means shifting from the unjustifiable focus within the Transatlantic academic literature on non-Arabic releases by IS and al-Qaeda (AQ). In addition, an evidence-based approach requires a shift in focus ways from (pre-)crime, computer games, Nutella, kittens, rap, rape, gore-porn and even eating Ice cream while basking in the imagined ecstasy of a physical world utopia, whether Caliphal, socioeconomic nor Islamist.[77]

Potential impact on minority communities of prioritising a policy lens

The second coloniality is rooted in the understanding of Terrorism as a form of theatrical performance which exists only when it is observed by a Western audience. It has led numerous researchers in the transatlantic orthodoxy of Terrorism Studies to assess the activity of Salafi-Jihad groups based on what it is possible for those researchers to observe and more specifically count. The western-centred view of terrorism is closely interwoven with a Western policy lens. The resulting problems, as noted by Richard Jackson, include "dominance of state-centric, problem solving approaches within terrorism studies and the close ideological and organizational association of key researchers with state institutions – with the concomitant problems of 'embedded expertise', ahistoricity and heavy reliance on secondary sources replicating knowledge that by and large reinforces the status quo"[78]

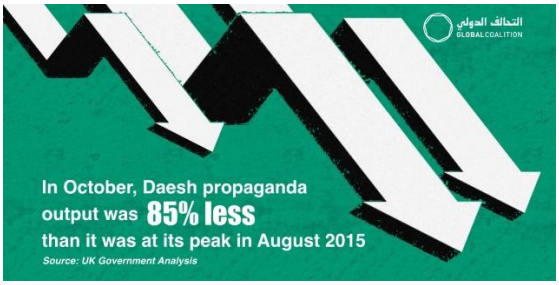
One problematic result is that when Western researchers do not see what they deem a relevant 'performance', they interpret this as a sign nothing is happening. Conclusions drawn from such observations include, Jihadi are struggling, groups are in decline, have collapsed or are even defeated. As has been discussed in a previous paper, claims AQ, IS and Taliban have been defeated have appeared repeatedly in Western commentary, even while all groups continue to fight.[79] The primary flaw in such assumptions is that Jihadi groups are not principally interested in performing for a western audience. They seek to spread their form of Islam to a primary target audience which is frequently not Western. Jihadi groups dedicate significant effort to behaviours which are not viewed by the Western analysts as performative terrorism, but these acts are important to Salafi-Jihadi groups and crucially are recognisable to the primary target audience.

The Transatlantic reliance on the connection between visibility to Western eyes and assessments of strength has produced a superficial two-dimensional understanding. As Mohammad-Mahmoud Ould Mohamedou put it, this type of analysis "knows only two directions, that of rise or fall, victory or defeat, new or old. Who's up-and-who's-down scorekeeping accounts".[80] Lower counts of content being interpretated as a sign an organisation doing worse, that they have collapsed, or have been defeated.

The second flaw in this approach is that such scorekeeping research tends to favour existing assumptions and policies.[81] What Rüdiger Lohlker referred to as, "an empty fog of words without inner content".[82] Specifically in preferring existing policy assumptions, this type of research lacks internal logic or consistency. For example, when researchers counter fewer IS content releases this was claimed to

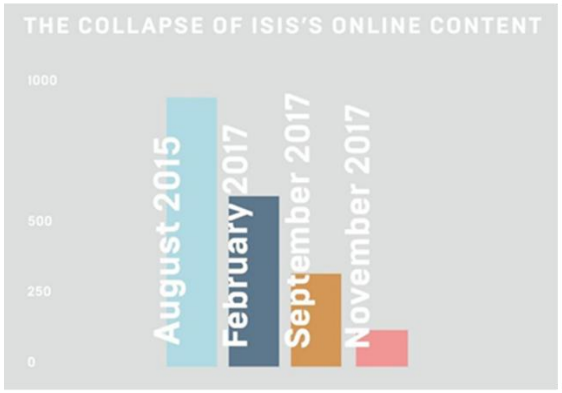
show "official propagandists are *really* suffering".[83] An OTS study concluded fewer images "suggest that the group's production capacity is under significant pressure".[84] However, while lower content indicates 'significant pressure', the same study states that increased content would **not** indicate that "the Islamic State is doing a better job at communicating".[85]

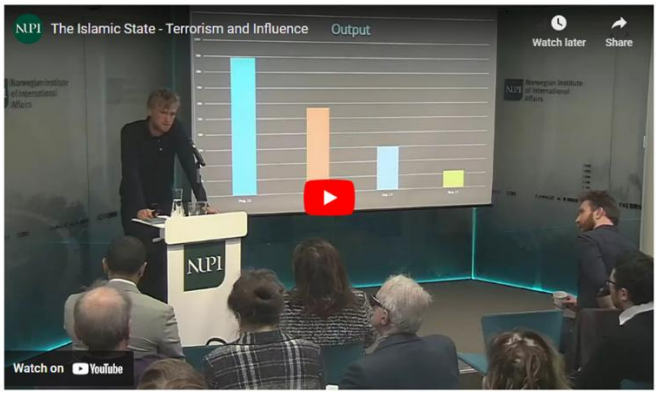
Over the history of the Salafi-Jihadi movement content production has frequently fluctuated with peaks occurring around events of importance to Salafi-Jihadi groups rather than a two-dimensional 'better' or 'worse' interpretation.[86] This means that while there have been points in time between which a "huge and steady decrease" could be observed, there have been subsequent occasions when the fluctuating nature of Salafi-Jihadi production created increases in content.[87] These fluctuations posed a significant challenge to the dominant academic discourse and Government communications that have pursued a narrative of continuous decline.



As Richard Jackson has noted previously, "It is fair to say that the vast majority of terrorism research attempts to provide policy-makers with useful advice for controlling and eradicating terrorism as a threat to Western interests". This problem-solving approach can "be a real problem when it distorts research priorities, co-opts the field and turns scholars into 'an uncritical mouthpiece of state interests'."[88] With reduced content production being used by Government sources as a proxy for battlefield success against IS, the ability to demonstrate a continuous decline became a research priority amongst some OTS researchers. However, as discussed in greater detail elsewhere, the approach adopted to deliver such findings was flawed and lacked credible statistical methods.[89] For example, commentary claiming "the destabilization of the Islamic State's territorial strongholds is correlated to a decrease in the volume of media production" never even attempted to calculate correlation, while other studies mixed media types to create the impression of continuous decline, resulting in entirely unscientific analysis.[90]

In the worst cases, when the impression of continuous decline could not be backed by data, large amounts of data were omitted from the graph. For example, the appearance of continuous linear decline could only be created if data from 24 months in total was excluded from graph depicting production between 2015 and 2017, including all reference to 2016.





One example of this manipulation, (above left) published in Wired and heavily promoted by the UK Foreign Office, used a time axis which excluded 2016 thus creating the image of linear decline.[91] This same technique is employed in a presentation at the Norwegian Institute of International Affairs (above right).[92] In both examples only a few months have been cherry-picked, with a 10% difference between the longest and shortest month. Seventeen months are missing between the first two time points, six months between second and third, and one month between the last two.[93] Had a genuine time-series analysis been conducted, the time periods have been of equal size and there would have been no data omitted. The result would have been a graph showing fluctuation in content production rather than continuous decline. This would have significantly weaken the claim in policy circles that losses on the physical battlefield were being echoed in the online battlefield.

These examples demonstrate the imperative that AI and automated solutions do not incorporate the colonialities inherent in many problem-solving elements of OTS. Specifically letting go of Western-centric problem-solving interpretations with their tendency to adopt a western policy lens and concomitant preference for western perspectives, language and labels. If AI is used to draw conclusions based on a Western habitus it will merely be using complex technology to repeat many of the earlier colonialities, perhaps with a nicer looking dashboard.

An authentic evidence-based approach means examining the purpose of the movement based on what the movement intends to communicate, while resisting the potential for the distortion of research priorities and undue attention to state interests. This requires academic analysis to recognise fluctuation around key events, because those points matter to the movement - not because the movement focuses on producing content to perform for the sake of Western observers. Events have specific meaning and the movement documents these events based on their importance to Salafi-Jihadi groups and their primary target audience.

The development of AI must avoid the combination of what Mohammad-Mahmoud Ould Mohamedou calls 'scorekeeping approaches' and the reliance on Western-centring labels of Salafi-Jihadi content. If the study of terrorism is not decolonised, the field will be destined to continue to privilege familiar and comfortably western concepts of brand and marketing, to the detriment of the explicit theological concepts that guide the da'wa (missionary work) of the Salafi-Jihadi movement. It will continue what Ralph Peters referred to as "one-dimensional analysis" through which for our own comfort, we insist "that our enemies do not really mean what they profess".[94] Such processes undermine the potential for automated systems to deliver authentic results and perpetuate the risks to minority communities.

Centring Theology

Decolonising the study of terrorism will reduce the suppression and exclusion of "subjugated knowledge" that has been required to maintain the dominant OTS discourse, creating space for an authentic evidence-based approach to the Salafi-Jihadi movement.[95] Specifically centring theology in the understanding of the movement.

Unpacking the (neo-)colonialist mindset within OTS discourse, includes recognising what Ahmed Ajil refers to as the "colonialities". The "narratives, ideologies, and patterns of thought that posit the Arab-Muslim Other as intellectually inferior, culturally retrograde, and a threat to the security and safety of the white body".[96]

The importance of theology rather than a Western lens is not a new observation, but one which has frequently been marginalised or subjugated. Lorne Dawson has lamented that many "scholars of terrorism are unwilling to seriously entertain the idea that religion can be the source of terrorism" for reasons "that are widely accepted, yet deficient when pressed".[97] Adam Hoffman similarly argued:

> "Ignoring the religiosity of ISIS and other Islamist movements is characteristic of many Western commentators and analysts, but discomfort in the face of religious belief is a major obstacle in the analysis of movements which see religion as the overall framework for interpreting and justifying their actions".[98]

Following a similar logic, Rüdiger Lohlker argued:

> "The possibility of a Jihadi theology seems to be unimaginable by mainstream Jihadism research that is stuck with the idea that religion is not important at all for a thorough understanding of Jihadism, since it is not important for Western(ized) researchers".[99]

As Jeffrey Bale outlined, often stems from a "the phenomenon of 'mirror imaging,' in which the analysts … simply project their own characteristic motivations and modes of thinking uncritically and therefore naïvely onto others instead of carefully examining and trying to empathize – albeit not sympathize – with the actual beliefs, cultural values, and motivations of their adversaries".[100]

Richard Jackson in his critique of orthodox approaches to Terrorism Studies noted that as "knowledge about terrorism always reflects the social-cultural context within which it emerges"[101]. To avoid the undue impact of the western context, Ahmed Ajil has argued for greater reflexivity amongst researchers, suggesting they focus not just "the workings of our social world but also […] on how this knowledge is produced".[102]

From an authentic evidence-based perspective, this means the habitus of the subject - the groups we label Terrorists and their primary target audience - is vastly more important than the western lens frequently adopted by OTS.[103] The authentic theocentric representation means abandoning the identification of ever shifting new trends and endless new, entirely inauthentic 'narratives' based on what the Western-centric researcher claims they see, hear, and interpret, often wrapped-up in a western habitus and at times, neo-colonialist mindset. Ultimately, sheading the Western-centric policy lens and associated colonialities will reduce the potential that automated tools will perpetuate epistemic violence and injustice by focusing on an authentic theocentric representation of Salafi-Jihadi content.[104]

AI or automated system capable of delivering an authentic understanding Salafi-Jihadi groups must be built on the recognition that for Salafi-Jihadi God is all-knowing and there are no areas of human life beyond God's law. All areas of life are part of living in service of God. One need only review Yusuf ibn Salih al-Uyayri's 'The Islamic Ruling on the Permissibility of Self-Sacrificial Operations', or Hussain bin Mahmood's 'The Issue Of Beheading' to see that God's law and warfighting are inseparable in a Salafi-Jihadi habitus.[105] Equally, English speakers can hear Anwar al-Awlaki in his own words explain the detailed rationale for choosing a short life of struggle, sacrifice, and submission to the will of God in the mortal world, in hope of reward for an essentially infinite length of time in paradise.[106]

As a result, embracing the habitus, the particular Salafi-Jihadi understanding of theology, and the concepts which pertain to it, will inevitably have a critical role in the design of an automated system. Part of that habitus is being able to operate and connect networks of meaning in the primary language of the Salafi-Jihadi movement, Arabic.

We argue, following the work of the late Ruven Paz;

> "Western analysts can learn more about modern Jihad by reading the lips of Jihadi clerics, scholars, operatives, commanders, leaders, as well as the response of their growing audience. Improving their ability to do so, and above all in the original language, must be a priority".[107]

Conclusion

This paper has demonstrated the need of a evidence-driven, multifaceted approach to analysing the visual propaganda of the Salafi-Jihadi ecosystem using automated techniques.

Decolonized analysis of Salafi-Jihadi imagery is achievable. By adopting a progressive, evidence-based methodology, it is possible to identify the authentic concepts intended by the producers and understood by their target audience, moving beyond Western-centric interpretations. Authentic representation through automation is possible when properly curated based on the texts published alongside the visuals by terrorist groups. Automated systems, particularly those built on forensic linguistic analysis and focused on understanding the intended meaning derived from extensive study of Salafi-Jihadi texts, can provide an accurate representation of their content.

Policymakers should critically evaluate AI systems. When considering AI or automated systems for counter-terrorism, policymakers should ensure that the results can be traced back to the historical texts of the Salafi-Jihadi movement. If the AI's interpretation lacks grounding in these texts, its evidence-base and authenticity are questionable. The Salafi-Jihadi movement is engaged in a long-term ideological war. Unlike the West's potentially short-term narrative battles, these groups are focused on a long-term effort to influence their primary audience's beliefs. AI solutions must reflect this intended meaning, not Western biases.

Flawed AI models trained on Western-centric or faulty interpretations risk perpetuating biases, silencing minority voices, and disproportionately impacting specific communities. Basic automated techniques like hashing and logo detection, combined with subject matter expertise, are effective for identifying branded content. Analysis of a large dataset of images from jihadi Telegram channels between October 2017 and September 2018 demonstrated that these methods could classify a significant portion (87%) of the material, highlighting their value for researchers. The research presented has also demonstrated that, while this type of entry level identification is available, researchers can still easily locate branded content with logos clearly displayed on major platforms.

The paper has demonstrated that automated systems can identify authentic concepts within Salafi-Jihadi content. Each category when viewed through the images contained in photo reports offer visual similarity within a concept category. In addition, those categories can be tied to the same concepts expressed in writing, audio and video material released by the Salafi-Jihadi movement, thereby providing policy makers and analysts with an authentic interpretation of intended meaning.

In essence, the paper concludes that while AI offers promising tools for analyzing terrorist propaganda, its effectiveness hinges on a deep, unbiased understanding of the source material, necessitating a decolonized approach rooted in the authentic theological and linguistic context of the Salafi-Jihadi movement. Furthermore, even simpler automated techniques can provide significant analytical advantages when combined with expert knowledge.

In short, what matters for policy-makers and analysts alike is

1. Authentic representation of content through automated processes is possible if the system is built on elements such as forensic linguistic analysis. This works if the analysis explicitly focuses on producing an evidence-based understanding of intended meaning by the Salafi-Jihadi producer.
2. A sober analysis of Salafi-Jihadi imagery is possible. Built on progressive, evidence-based approach, the authentic concepts can be identified that were intended by the producer and likely understood by the primary target audience.

3. As policymakers are often pitched ‘AI’ or automated systems, it is worth those policymakers reflecting if the findings of the AI can be traced back the to the historic texts of the Salafi-Jihadi movement. If the understanding cannot be located in the historic text, it is unlikely that the AI can be considered legitimately ‘evidence-based’ nor can it produce an authentic representation of the Salafi-Jihadi movement

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