



CMAC
Center for Mind and Culture

FOR RELEASE MAY, 2019

Counter-Trafficking Top 40

Tech Against Child Trafficking

BY **Marqueze Kennedy**

FOR INQUIRIES:

Kippy Rudy, *Chief Development Officer*

Ali O'Hare, *Projects & Development Manager*

Nicole Smith, *Administration & Communications Coordinator*

admin@mindandculture.org

857-254-4400

www.mindandculture.org

RECOMMENDED CITATION

Center for Mind and Culture, May, 2019, "Counter-Trafficking Top 40"

Introduction

Child trafficking has been a problem for centuries. The technological advancements of the internet era, however, have brought with them an alarming growth of trafficking. Traffickers now use technologies such as social media, untraceable cryptocurrency, and the dark web to conduct their criminal activities. Though these technologies are used by criminals to lure and exploit vulnerable children around the world, many innovative technologists have made efforts to fight child trafficking by building tools to catch and prosecute traffickers, and to protect vulnerable children.

The ways these technologies are being used range from anonymous and secure crime reporting to using AI to scan and scrape CSAM (Child Sexual Abuse Material) from the web at a level of speed and accuracy far beyond human capability. The range of these technologies is truly remarkable. Though some of these technologies are run by private organizations that are completely independent of any user base, many of these tools need to gather a large audience and user base in order for them to become effective. Many of them create platforms to empower ordinary people who want to fight child trafficking in their own communities. The goal of this white paper is to present a comprehensive list of existing technologies being used to combat child trafficking. By providing this unique resource, we hope to help consolidate core knowledge and thus enable law enforcement, government agencies, and nonprofit groups to select and combine strategies with maximum effectiveness.

Categories

Anti-child trafficking technologies use different methods to address distinct aspects of the problem. Here, we provide an overview of the five basic categories into which these different technologies fall. Below, we organize our presentation of specific tools according to these categories.

Image Recognition

These services and organizations are using technology such as facial recognition and video fingerprints to identify victims, recognize skin tones and unclothed children in CSAM, scan for images of missing children in advertisements, and collect images for law enforcement.

Awareness

Through games, virtual reality videos, and apps, organizations are able to immerse users in human trafficking stories and train them how to identify and combat trafficking. In some cases, professionals even get access to case management software and existing documentation to help them identify victims faster.

Reporting

From truckers in America to trafficking in Nigeria, reporting allows citizens to help law enforcement fight human trafficking. These apps and websites have functions allowing users to report suspicious activity or trafficking situations, and provide insight into ongoing cases.

Database Management

Global data hubs serve as collaborative networks where information about traffickers, offenders, wages, stakeholders, rescued children, vulnerable areas, and geographic-specific information can be gathered and analyzed. The technology behind these databases includes user-uploaded content, biometric technology, and tracking new mentions of specific names on the dark web.

Deep Learning & AI

This includes a variety of services and organizations diving deeper into the technologies capable of preventing human trafficking, such as chat bots simulating victims to gather information on buyers, mapping and clustering dark web sites, and using algorithms to identify bitcoin users based on the sex advertisements they click.

Table of Contents

Image Recognition

1. Thorn
2. VICS
3. F1 Video Fingerprinting
4. PhotoDNA
5. Traffic Jam with FaceSearch
6. TraffickCam
7. Baobeihuijia
8. Child Exploitation Image Analysis (CHEX-IA)
9. Project Arachnid
10. NYU & Griffeye Collaboration
11. CEASE.ai

Awareness

12. BAN Human Trafficking
13. Lifeboat ACT!
14. (Un)Trafficked
15. Operation Red Alert
16. Child Trafficking Awareness
17. Sweat & Toil
18. Stop CSE
19. Trafficking in Trinbago
20. Lighthouse

Reporting

21. The STOP App
22. NAPTIP
23. Truckers Against Trafficking
24. CyberTipline
25. Emerald Citizen

Database Management

26. Child MISS
27. Child Labour Tracking System
28. Counter-Trafficking Data Collaborative
29. Rescue Forensics
30. InHope ICCAM
31. DarkCloud

Deep Learning & AI

32. UC Berkeley Anti-Trafficking Algorithms
33. Freedom Signal and Project Intercept
34. Child Rescue Coalition
35. Hyperion Gray Production
36. Spotting Trends
37. SIGHT
38. Sweetie 2.0
39. Sheepdog Bloodhound Internet Safety
40. Microsoft Cognitive Services

Image Recognition

	Thorn	VICS	F1 Video Fingerprinting	Photo DNA	Traffic Jam	Traffick Cam	Baobei-huijia	CHEX-IA	Project Arachnid	NYU & Griffeye	CEASE.ai
General											
Trafficking Type	Child	Child	Child	Child	Child	Sex	Child	Child	Child	Child	Child
Region	US & Canada	International	International	International	US, UK, Canada	US	China	US	Canada	US	
Sector	NGO	Private, Government	Private, Government	Private, Government	Private	Private, Government	Private	Government	Government	Private	Private
Target Audience											
NGO											
Private					•						
Government		•	•	•	•			•		•	•
Public Use					•	•	•				•
Demographic											
Digital											
Platform					App	App	App				
Tested						•					
Operating System					Online	Android, iOS	Android, iOS				
Installs						10,000+					

Thorn

Trafficking Type: Child
Region: US and Canada
Sector: NGO

THORN

Thorn is a nonprofit organization founded in 2012 that seeks new ways to use innovative image recognition technology to combat child sex trafficking. Though Thorn has collaborated with a variety of other organizations on multiple products, the two main tools promoted on their website are Spotlight and Safer.

Spotlight is a tool specifically geared toward law enforcement. It speeds up the victim identification process so that these agencies can spend more of their time finding victims. Spotlight has claimed a “63% reduction in critical search time” and “9,380 victimized kids identified in total.” Thorn states that these numbers likely represent the “low end” of their impact due to only having a 25% response rate from the organizations that use this product. Spotlight is used “in all 50 states and Canada,” and is free for law enforcement agencies.

Safer is a tool specifically geared toward companies as a “simple, cost-effective, and easy to integrate” way to keep their platforms protected from CSAM. Safer works by combining five tools (Hashing, Matching, Reviewing, Reporting, and Law Enforcement), which companies can use individually to add to their already existing systems or as a complete package.

Website: <https://www.thorn.org/>



VICS

Trafficking Type: Child
Region: International
Sector: Private, Government

VICS is a private, open source, standards-based protocol developed by Project Vic and is “actively managed by technical experts from the community.” Changes are collected by community experts and through a value consensus are implemented into the ever-evolving model. Using “advanced data algorithms, massive amounts of data and a distribution network to get this information to front line investigators,” Project VIC aims to increase the fight against child exploitation online using the latest innovations in today’s technology.

Website: <https://www.projectvic.org/technology/>

F1 Video Fingerprinting

Trafficking Type: Child

Region: International

Sector: Private, Government

Friend MTS 

F1 Video Fingerprinting is specialized forensic technology donated by Friend MTS, a company specializing in content protection, that generates unique video fingerprints of child pornography video clips. These “video fingerprints” are hashes that can then be used to identify copies or partial copies of the illegal material that are hidden in formats that are much harder to reach. The finger-printed clips can then be matched across a large database of other video material. This strategy has helped in “saving law enforcement valuable time and enabling online services to filter and block distribution.” This technology was also donated to the International Centre for Missing & Exploited Children to disrupt the distribution of graphic child pornography online.

Website: <https://www.projectvic.org/technology/>



PhotoDNA

Trafficking Type: Child

Region: International

Sector: Private, Government

PhotoDNA is a tool that was developed by Microsoft in 2009 and is currently being used by organizations worldwide to identify CSAM in online videos. PhotoDNA was originally created only for identifying still images, but as a large amount of child exploitative content switched from images to video, Microsoft decided to adopt its current technology to tackle child exploitation in video formats as well. PhotoDNA works by creating a hash out of selected key frames from a reported video and then comparing that hash to known hashes of images already identified in their database. Once a match is found it can be reviewed by agents who confirm the video is removed and law enforcement can make further decisions concerning the violation. This technology is available for free to any organization interested in using it.

Website: <https://news.microsoft.com/on-the-issues/2018/09/12/how-photodna-for-video-is-being-used-to-fight-online-child-exploitation/>



Traffic Jam with FaceSearch

Trafficking Type: Child

Region: US, UK, Canada

Sector: Private

Traffic Jam is facial recognition software designed to help law enforcement combat sex trafficking. It is developed by Marinus Analytics, a woman-owned company dedicated to researching how “AI can turn big data online into actionable intelligence.” The software itself is actually a suite of tools that is capable of “searching millions of data points in seconds to point detectives to the highest value targets.” Traffic Jam applies the latest innovations

in “facial recognition, artificial intelligence, and geospatial analysis to the most accurate human trafficking data available.”

One of the premier tools within the Traffic Jam suite is FaceSearch, a facial recognition tool that can take old or current photos of missing children from social media and use them to scan the internet for recent ads with matching photos. This can help save law enforcement valuable time in searching and identifying victims of sex trafficking. Traffic Jam is available on both mobile and online platforms.

Website: <https://www.marinusanalytics.com/traffic-jam>

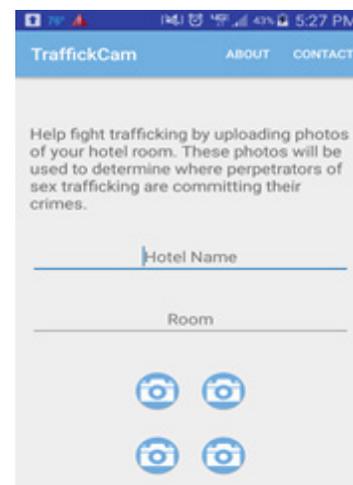
TraffickCam

Trafficking Type: Sex

Region: US

Sector: Government, Private

TraffickCam is a tool created by the Exchange Initiative in 2015 that allows users to upload photos of their hotel rooms to “a database of hotel room images that investigators can efficiently search, in order to find other images that were taken in the same location as an image that is part of an investigation.” The app is not just for users who have experienced human trafficking themselves, but for anyone who has ever spent time in a hotel room. As more images are uploaded to the database, it becomes easier for law enforcement and NGOs to identify possible criminal activity. Created by Nix Conference & Meeting Management, the mission of the Exchange Initiative is “to provide resources, information and networking solutions to combat sex trafficking in the United States.”



Website: <https://traffickcam.com/>



Baobeihuijia

Trafficking Type: Child

Region: China

Sector: Private

Baobeihuijia is an organization in China that helps return missing and abducted children to their families. Created in 2007, the company has helped return 1,891 people to their families. Through their website and mobile app, photos of missing persons can be uploaded for a match to be identified.

The company made headlines in 2017 when Chinese internet giant Baidu used their AI driven cross-age facial recognition software to find a man 27 years after he was taken from his family. The program analyzed thousands of images on the Baobeihuijia database and found a matching image, even after nearly three decades. A blood test later confirmed the analysis. Although it is unclear how regularly it is successful, combining Baidu’s facial recognition software with Baobeihuijia’s database provides a potentially invaluable tool for locating abducted children.

Website: <https://www.beijing-kids.com/blog/2017/04/29/could-baidus-cross-age-facial-recognition-ai-help-end-child-abductions/>

Child Exploitation Image Analytics (CHEX-IA)

Trafficking Type: Child

Region: US

Sector: Government

CHEX-IA
Child Exploitation Image Analytics
FACE RECOGNITION EVALUATION

Developed by the Department of Homeland Security, CHEX-IA “aims to help investigators in dealing with huge amounts of graphic and violent images of child abuse that they collect. Automatic facial recognition can help these investigators locate both the victims and the perpetrators more quickly.” CHEX-IA allows other facial recognition software to be submitted for testing “on datasets of seized images of child exploitation to see which works best” and then imports the highest-performing algorithm into current forensic tools used by law enforcement agencies. The project started in 2015 and as of March 2018, it “outperform[s] all other algorithms against this very difficult data set.”

Website: <https://www.fedscoop.com/dhs-facial-recognition-technology-child-exploitation/>



Project Arachnid

Trafficking Type: Child

Region: Canada

Sector: Government

Project Arachnid is a tool that helps reduce the amount of CSAM online by scraping through websites “previously reported to Cybertip.ca as well as URLs reported directly into the Arachnid API.” The software determines whether or not a specific website contains this illicit material by “comparing the media displayed on the URL to a database of known signatures that have been assessed by analysts as CSAM.” Once detected, a notice is sent to the provider requesting that the material be removed. With detection rates continually increasing, Project Arachnid is currently detecting “100,000 unique images per month.”

Website: <https://projectarachnid.ca/en/>

NYU & Griffeye Collaboration Project

Trafficking Type: Child

Region: US

Sector: Private



Due to the rising number of child sexual exploitation materials on the internet, researchers at the NYU Tandon School of Engineering have partnered with Griffeye, a digital intelligence company that works with law enforcement agencies around the world, to develop tools to help law enforcement identify and rescue children exploited online. A huge impediment to addressing child sexual exploitation is that law enforcement officials have to

analyze millions of photos and thousands of hours of video in order to identify all the material necessary to build their court cases.

In response to this challenge, the researchers at both NYU and Griffeye have developed tools that are “automating the analysis of video by using advance machine learning techniques to identify both nudity and children.” These tools detect skin tones, even in low light, and target specific regions of the body to see if the individual is clothed or not. The system also detects the individual’s facial features to determine whether they are an adult or a child.

According to Professor of Computer Science and Engineering Nasir Memon, “even today’s most advanced existing digital forensics tools fall short in their ability to quickly identify children and analyze content to determine whether it meets criteria for child sexual exploitation material.” The algorithms NYU and Griffeye have developed “accurately detected explicit images 83% of the time and were 96.5% percent accurate in distinguishing children’s faces from adults’. If a video is determined to contain both nudity and children, the system will automatically assess the body motions to determine whether the content is explicit.” This technology will be integrated into Griffeye Analyze, a digital “investigation platform” to be used by law enforcement to help combat child sexual exploitation. Different organizations involved with Project VIC will also have access to this software.

Website: <https://engineering.nyu.edu/news/new-forensics-tools-will-speed-identification-and-rescue-children-pictured-child-sexual>



CEASE.ai

CEASE.ai

Trafficking Type: Child

Sector: Private

CEASE.ai is an artificial intelligence program built by Two Hat Security that scans, identifies, and flags new images containing child abuse with high accuracy. The platform is designed for use by both law enforcement and social media platforms. It will enable law enforcement officials to “identify and rescue victims of child abuse faster, reduce investigator’s manual workload, and protect investigator’s mental health and reduce trauma.” CEASE.ai works as an “easy-to-use plugin” that runs through suspected material and eliminates all non-CSAM so that investigators can then upload case images that do contain CSAM, and, “run their... lists to eliminate known material, then let the AI identify, suggest a label, and prioritize images that contain previously uncatalogued CSAM.”

For social media platforms, CEASE.ai’s goal is to protect “brand reputation by detecting illegal content,” maintain the platform as a “safe online space,” and “reduce moderator PTSD from exposure to damaging content.” Images found by these social platforms can then be reported to law enforcement in to help reach victims even faster.

Website: <https://www.twohat.com/cease-ai/>

Awareness

	BAN Human Trafficking	Lifeboat ACT!	(Un) Trafficked	Operation Red Alert	Child Trafficking Awareness	Sweat & Toil	Stop CSE	Trafficking in Trinbago	Lighthouse
General									
Trafficking Type	Child	Child	Child	Sex	Child	Sex	Child	Child	General
Region	Europe, US	US	India	India	Ireland, UK	US	International	Trinidad & Tobago	US
Sector	Government, NGO	NGO	NGO	NGO	Private	Government	NGO	NGO	NGO
Target Audience									
NGO									
Private									
Government									
Public Use	•	•	•	•	•	•	•	•	
Demographic	Youth	Youth	Adult	Adult	Adult, Youth	Adult		Adult	Working Professionals
Digital									
Platform	Game, App	Game, App	Game	VR Film	App	App	Online	App	App
Tested	•	•	•					•	
Operating System	Android, iOS, Online	iOS, Online	Online		iOS	Android, iOS		Android, iOS	Mobile, Online
Installs	1,000+					1,000+		100+	



BAN Human Trafficking

Trafficking Type: Child

Region: Europe, US

Sector: Government, NGO

BAN Human Trafficking, created by Balkans Act Now!, is a game that teaches users to spot the signs of human trafficking and to respond appropriately to these often difficult and uncomfortable events. Users play as one of 6 characters, 3 male and 3 female, each of whose storylines deal with a human trafficking issue. Users make a series of decisions in response to each character’s situation, and the game informs users about the consequences of their actions and the laws surrounding them.

Website: <http://banhumantrafficking.com/en/>

Lifeboat ACT!

Trafficking Type: Child

Region: US

Sector: NGO



ACT! is a game created by The Lifeboat Project to increase awareness of human trafficking. Developed in a partnership with Engineering and Computer Simulations, this one-of-a-kind educational gaming app is designed for junior high and high school students. In the game, users pick from an array of characters (only one at the moment, though more will be added in the future) whose storylines thrust users into various scenarios where human trafficking activity may be taking place. The game’s main focus is to teach the player to identify the signs of human trafficking. At the end of the storyline, players are given contact information if they suspect someone they know is in a human trafficking scenario.

Website: <http://www.lifeboat-act.com/#home>



(Un)Trafficked

Trafficking Type: Child

Region: India

Sector: NGO

Created by the Kailash Satyarthi Children’s Foundation, (Un)Trafficked is a choose-your-own-adventure game that follows a girl in India whose family sends her away to make money. “As the story proceeds, users inhabit many other characters, from money-minded agents to the apathetic police, and get a glimpse of how other people’s decisions push the young girl into a life of misery.” The game emphasizes that child trafficking has become a major problem, in part because many do not want to deal with it or they are ignorant about it. The purpose of this game, which can be completed in 5 minutes, is to raise awareness concerning “the sexual abuse and exploita-

tion of children in India.” Users can log in with their Facebook account for a tailored experience. At the end of the game, users are invited to pledge to make a difference.

Website: <https://bharatyatra.online/untrafficked/>

Operation Red Alert

Trafficking Type: Sex

Region: India

Sector: NGO



**OPERATION
RED ALERT**

Operation Red Alert began in 2014 with the goal of ending sex trafficking in India by preventing girls from ever entering it. In partnership with Oculus VR for Good and filmmaker Jayisha Patel, they are making a VR film titled “Notes To My Father.” “The result of a passion for research combined with a passion for storytelling,” the film tells the true story of a daughter and father and teaches that “working together is the only solution to prevent sex trafficking.” Using Oculus VR, viewers can immerse themselves in the story of trafficking victims like never before. The research used in the film won the ESOMAR Paper of the Year award. “The film was showcased at the Oculus House Event during Sundance Film Festival, January 22nd 2017, and made its World Premiere at SXSW Film Festival on March 14-16.” Those who want to attend a viewing of the film or organize a viewing event can request so on the filmmakers’ website.

Website: <http://mychoicesfoundation.org/redalert/our-campaigns/a-note-to-my-father-2/>



Child Trafficking Awareness

Trafficking Type: Child

Region: Ireland, UK

Sector: Private

The Ineqe Group is a dynamic company specializing in safeguarding and protecting children, both offline and in the digital world. The Child Trafficking Awareness app is designed to protect children through education and training about trafficking signs and signals – the company is based in Ireland and the app is only available through the UK iTunes store. “The goal of the app is to raise awareness and inform by providing a short course about human trafficking.” Each module takes only a few minutes to complete.

In addition to their Child Trafficking Awareness app, the Ineqe Group have developed an app specifically for schools where students can access course material and be safeguarded at the same time. The app promotes parental engagement and content management, and has a school newsfeed. Some of the key educational topics the app addresses are bullying, exploitation, and sexting.

(UK Only) Website: <https://itunes.apple.com/gb/app/child-trafficking-awareness/id561921103?mt=8>



Sweat & Toil

Trafficking Type: Child
Region: US
Sector: Government

“Sweat & Toil is a comprehensive resource developed by ILAB documenting child labor and forced labor worldwide. Data and research in this app are taken from ILAB’s three flagship reports: *Findings on the Worst Forms of Child Labor*, *List of Goods Produced by Child Labor or Forced Labor*, and *List of Products Produced by Forced or Indentured Child Labor*. This app fits these three information-packed reports the size of a phonebook in the

palm of your hand.” With this app, users will have the ability to: “1. Check countries’ efforts to eliminate child labor, 2. Find child labor data, 3. Browse goods produced with child labor or forced labor, 4. Review laws and ratifications, and 5. See what governments can do to end child labor.” The goal of the app is to educate its users “about child labor or forced labor around the world.” Anyone with an interest in these issues – governments, business, academics, civil society, or consumers – can use it as a source of information to begin asking questions, taking action, and demanding change. ILAB also made their “data available to developers to use in their own applications, data visualizations, and mashups with other data sets through [their] API.”

Website: <https://www.dol.gov/general/apps/ilab>

Stop CSE

Trafficking Type: Child
Region: International
Sector: NGO



Stop CSE is a site that contains multiple resources for those seeking to prevent child sexual exploitation. The network “links professionals involved in creating the best response for children and young people and their families who have become subjected to child sexual exploitation.” The website includes resources that help users spot the signs of abuse and report incidents. It also includes real stories of victims and offers advice and support for victims.

Website: <http://www.stop-cse.org/>



Trafficking in Trinbago

Trafficking Type: General
Region: Trinidad and Trinbago
Sector: NGO

This app is designed specifically to help combat trafficking in and near Trinidad and Trinbago, a popular shipment point for guns, drugs, and children. With this app users will “have access to resources such as the Trafficking in Person Act, information on how youth are targeted as victims of trafficking, and

how to respond to this serious violation of human rights.” The app also contains an emergency report system where users can quickly report a possible trafficking event to nearby authorities.

Website: <https://www.prweb.com/releases/2014/04/prweb11735391.htm>



Lighthouse

Trafficking Type: General

Region: US

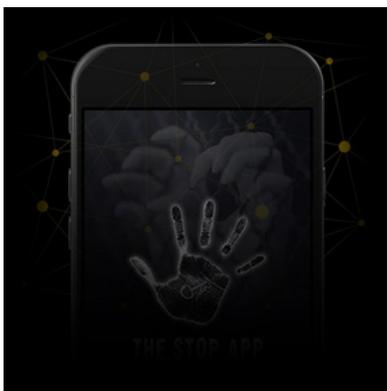
Sector: NGO

Lighthouse is a tool specially designed by AllieS Against Slavery to help professionals who often deal with exploited and vulnerable communities to identify victims of trafficking faster and more accurately. Driven by up-to-date and accurate data, the app “works alongside other case management software or documentation systems” already being used by professionals in various fields. Many of the questions from Lighthouse are “based on real experience and feedback from leaders in the field” and are designed “to elicit trust and response from the person being screened.” A demo of the application can be scheduled from their website.

Website: <https://alliesagainstslavery.org/lighthouse/>

Reporting

	The STOP App	NAPTIP	Truckers Against Trafficking	CyberTipline	Emerald Citizen
General					
Trafficking Type	General	General	General	Child	Sex
Region	UK	Nigeria	US	US	US
Sector	NGO	Government	NGO	Government	Government, Private
Target Audience					
NGO					
Private					
Government					
Public Use	●	●	●	●	●
Demographic	Adult	Adult	Adult	Adult	Adult
Digital					
Platform	App	App	App	Online	App
Tested	●	●	●		In Development
Operating System	Android, iOS	Android	Android, iOS		
Installs	1,000+	100+	5,000+		



The STOP App

Trafficking Type: General

Region: UK

Sector: NGO

This app was created by the organization Stop the Traffik, which seeks to dismantle human trafficking through community empowerment, big data management, and anti-trafficking expertise. An individual can use the app to safely and securely report situations they believe to be related to human trafficking. The information supplied by users is uploaded directly to the Centre for Intelligence-Led Prevention to be “analyzed alongside global data on human trafficking and modern slavery.” “This data is used to build intelligence on global trends and hotspots of human trafficking, which enables us to disrupt, prevent and predict this criminal activity.” This app is for anybody who thinks they may have information on human trafficking-related crimes and wants to do their part to report it.

It is important to recognize that Stop the Traffik is a “UK registered charity and is registered as a Data Controller with the Information Commissioner in the UK” and that they “will always abide by European data protection law.” No personal data is shared with law enforcement inside or outside the UK unless approved by the “appropriate judicial authority.”

This app is not meant to replace reporting a crime to the local authorities. If there is an active situation where someone may be in harm’s way, users are instructed to report the crime to the authorities before entering their information into the STOP app. As a charity, Stop the Traffik is mainly supported through donations. Many of those who work for the organization are volunteers and some software and hardware have also been provided free of charge.

Website: <https://www.stophetraffik.org/>



NAPTIP

Trafficking Type: General

Region: Nigeria

Sector: Government

Nigeria’s anti-trafficking agency, the National Agency for the Prohibition of Trafficking in Persons (NAPTIP) launched this app, also known as iReport, which allows users “to report cases of human trafficking in the country.” Nigeria is a major location in Africa for the enslavement of young women and children, who are often trafficked to destinations in Europe. “The International Organization for Migration said around 11,000 women and 3,000 children who arrived by sea in Italy in 2016 were from Nigeria.” Because Nigeria is such a hotbed for human trafficking, NAPTIP is an important step in the country’s fight against the perpetrators of these violations.

Website: <https://www.naptip.gov.ng/>

To Download: <https://play.google.com/store/apps/details?id=ng.gov.naptip.app.android&referrer=ng.gov.naptip.app.android>



Truckers Against Trafficking

Trafficking Type: General

Region: US

Sector: NGO

Truckers Against Trafficking is nonprofit organization that equips truckers with tools for reporting human trafficking. Through their partnership with law enforcement across the nation and their grassroots approach to saturating the industry with their training materials, the organization empowers truckers to close loopholes to traffickers who exploit U.S. highways. The organization has created an app that “seeks to educate, equip, empower and mobilize community members (Specifically those in the trucking and travel industry) to combat domestic sex trafficking. It also provides access to both call and/or email the national hotline to potential instances of trafficking, in addition to other useful resources.” There are three main buttons for reporting suspicious activity, recognizing trafficking red flags, and an about section to learn more about human trafficking.

The reporting function gives the user multiple options on how they would like to report suspicious activity by calling, texting, or emailing the human trafficking hotline in the United States, Mexico, or Canada. The app includes tips on reporting these activities, such as encouraging the user to take photos, explaining what other details they should include, and advising them to inform the manager at a truck stop or travel plaza so they can assist in stopping the activity. The red flag function allows users to notice possible trafficking situations based on both regular scenarios and those that are specific to the trucking industry.

Website: <https://truckersagainstrafficking.org/>



CyberTipline

Trafficking Type: Child

Region: US

Sector: Government

CyberTipline was created by the National Center For Missing and Exploited Children. The website’s primary functions are to serve as a platform for reporting images of child exploitation online and to help search for missing children. The website lists the different ways children are typically exploited online and training and legal resources on how to combat these issues. Users who may have a sexually exploitive image of themselves online that they are unable to remove get support from the organization and can also file a “self report” on CyberTipline. Users can also request to receive AMBER alerts to be notified whenever children in their area go missing. The website includes a 24-hour tipline for those who would rather call than fill out a report online.

Website: <http://www.missingkids.org/gethelpnow/cybertipline>

Emerald Citizen

Trafficking Type: Sex

Region: US

Sector: Government, Private



Emerald Citizen is an app developed by US Ignite that trains local citizens to notice the signs of sex trafficking and send relevant information to a data repository. The data repository is only accessible for “authorized law enforcement,” who use the information to build legal cases. The goal is to “help increase the coverage in a community.” Since there are not enough law enforcement officials to handle all the possible data, citizens are now able to help fight these local injustices.

Website: <https://www.us-ignite.org/apps/emerald-citizen/>

Database Management

	Child MISS	Child Labour Tracking System	Counter-Trafficking Data Collaborative	Rescue Forensics	InHope ICCAM	DarkCloud
General						
Trafficking Type	Child	Child	General	Sex	Child	General
Region	India	India	International	US	International	International
Sector	NGO	Government, NGO	Government, NGO	Private	Government, NGO	Private
Target Audience						
NGO						
Private						•
Government						•
Public Use			•		•	
Demographic			Adult, Youth		Adult, Youth	
Digital						
Platform			Online		Online	
Tested						
Operating System						
Installs						

Child MISS

Trafficking Type: Child

Region: India

Sector: NGO



Child MISS (Management Information System and Service) “is an online comprehensive Child Tracking System for effective data management, monitoring and reporting, done through the effort of a group of experts from pertinent fields and end-users.” The experts from the organization Youth at Risk, who focus on helping children in India, use this system to protect at-risk children. This system is a “web-based software tool, to assist both government and non-governmental organizations to document all their services and follow up in a single window system to enhance their mission for children at risk more effectively and efficiently.” The system maintains accurate data through biometric technology. Child MISS provides a repository of vital information for at-risk children “to make the outcome of all actions in relation to the child visible, ensuring that stakeholders play their role and execute their responsibility at all times and the knowledge about children within the juvenile justice system is available at every level from the micro to macro level.”

Website: <http://childmiss.org/>

Child Labour Tracking System

Trafficking Type: Child

Region: India

Sector: Government, NGO



The Child Labour Tracking System was created because there was previously no accurate data on child labor being recorded in India. The data that was recorded was often inconsistent between different departments. The only system in place was the National Tracking System for Missing and Vulnerable Children. The Child Labour Tracking System in the state of Bihar, India – which has the highest ratio of minors to adults in the country – keeps a database of traffickers, wages, stakeholders, enforcement, vulnerable areas, employers, and much more. Rescued children are registered within the system and given unique identification. Fake and repetitive claims are also checked. The Child Labour Tracking System consists of police, labor officers, and NGOs. They may be working on a mobile-based app with PENCIL.

Information: <https://pencil.gov.in/uploads/ppt/Bihar.pdf>

Website: <https://www.cpmis.org/clts/>



Counter-Trafficking Data Collaborative

Trafficking Type: General

Region: International

Sector: Government, NGO

The Counter-Trafficking Data Collaborative “is the first global data hub on human trafficking, with data contributed by organizations from around the world.” They have data from almost 200 countries and over 90,000 cases. The site provides geographic-specific information such as what the most popular form of trafficking is in a certain region, the age and gender of the victims, and how these victims are being controlled. Their data set is also available for others to download and use in their own projects.

Website: <https://www.ctdatacollaborative.org/>



Rescue Forensics

Trafficking Type: Sex

Region: US

Sector: Private

Rescue Forensics is a company located in South Carolina that seeks to transform the way human trafficking investigations occur. Their Crunchbase profile describes them as a “digital forensic that archives massive quantities of data from classified advertisement websites specializing in commercial sex ads for law enforcement agencies to use in anti-trafficking investigations.” Founded in 2010, the company has since been acquired by IST Research.

Website: <https://www.crunchbase.com/organization/rescue-forensics#section-overview>

InHope ICCAM

Trafficking Type: Child

Region: International

Sector: Government, NGO



InHope is an online hotline service that seeks to ensure that illegal material, specifically CSAM, is investigated and the information gained is distributed to both law enforcement and the internet service provider hosting the content. InHope’s collaborative global network allows for CSAM material around the world to be reported and for action to be taken almost immediately, regardless of location.

Website: <http://www.inhope.org/gns/who-we-are/at-a-glance.aspx>



DarkCloud

Trafficking Type: General

Region: International

Sector: Private

DarkCloud is a dataset that closely monitors activity on the dark web and keeps information updated daily. The project's goal is to help organizations that are fighting against illegal activity, such as human trafficking, to understand and monitor activity that occurs on the dark web. Their website claims that “the DarkCloud Darknet dataset, with millions of pages from the Tor hidden services and updated daily, will get you instantly tapped in and deliver you the opportunity to learn, prevent, detect, and investigate.”

One of the dataset's highlighted features grants users access to their API in order to “integrate darknet and darknet markets into their own services.” Upon request, the service also delivers data snapshots and notifications for any “specific person (nickname, phone number or bitcoin address), city, organization, or event” mentioned in new activity on the dark web. Users also gain access to both a “full text search” in order to explore documents full of extracted information and the darknet search engine where users can search with “advanced query features.” More DarkCloud information and pricing is available on their website.

Website: [Darkcloud.io](https://darkcloud.io)

Deep Learning & AI

	UC Berkeley Anti-Trafficking Algorithm	Freedom Signal & Project Intercept	Child Rescue Coalition	Hyperion Gray Production	Spotting Trends	SIGHT	Sweetie 2.0	Sheepdog Bloodhound Internet Safety	Microsoft Cognitive Services
General									
Trafficking Type	Sex	Sex	Child	Child	Sex	Child	Child	Child	General
Region	US	International	International	US	US	US	International	International	US
Sector	NGO	NGO	Government, Private	Private	Private	NGO	Private	Private	Private
Target Audience									
NGO					•				
Private		•							
Government			•		•	•			
Public Use								•	
Demographic								Adult	
Digital									
Platform									
Tested									
Operating System								Online	
Installs									



UC Berkeley Anti-Trafficking Algorithms

Trafficking Type: Sex

Region: US

Sector: NGO

In 2017, Rebecca Portnoff, a doctoral student at UC Berkeley, “developed two algorithms aimed to scan through online sex advertisements and find human trafficking circles.” She used her algorithms on the website Backpage, which was known for hosting online sex advertisements. Portnoff constructed her algorithms to discriminate between consensual advertisements and those related to human trafficking. Portnoff said the goal was to bring together the ads that were comprised by a single individual in order to help U.S. authorities focus on those who are being trafficked.

The first algorithm “links advertisements to a single writer using stylometry, which is the study of people’s writing styles.” The idea is that the writing style of one individual can be traced across a multitude of ads in order to identify which individuals are being trafficked. “The second algorithm allowed Portnoff’s research team to link Backpage advertisements to bitcoin transactions.” Through this method, they could then trace which advertisements were being bought using the same bitcoin account. Portnoff and her research team tested her algorithms over a small set of Backpage advertisements and found “one bitcoin wallet that spent a little over \$150,000 for over 5,000 sex advertisements posted on Backpage, most of which were in the Bay Area and advertised Young Asian women.” Portnoff and her team also worked with the NGO Thorn and “hope to integrate their algorithms into this platform.”

Website: <http://www.dailycal.org/2017/08/20/uc-berkeley-graduate-student-fights-human-trafficking-algorithms/>



Freedom Signal and Project Intercept

Trafficking Type: Sex

Region: International

Sector: NGO

Freedom Signal and Project Intercept are tools developed by Seattle Against Slavery. Freedom Signal is a platform consisting of six pillars used to combat sex trafficking online. The platform utilizes “online search result ads in response to sex buyer searches to stop buyers before they engage, social media ads targeting likely sex buyers online for deterrence messaging, chatbots that simulate a trafficking victim via text message to deter, delay, and gather data on sex buyers, victim outreach via text message to ads where sex is sold online, deterrence websites that illustrate the harms and consequences of buying trafficked sex, data analysis to increase the accuracy and effectiveness of buyer disruption.” Using platforms such as Google, Bing, Instagram, and Facebook, their program allows them to test and promote their deterrence model “with private sector businesses.”

Project Intercept, born out of such a platform, uses chatbots that pose as decoys on prostitution ads to gather data “about how, when, and where people are attempting to buy sex online.” The program uses language AI that was molded by “survivors of trafficking and prostitution” with the goal of confusing buyers and “decreasing the

confidence necessary for buyers to follow through on their exploitation or violate the law.” “The platform also allows for the reporting of crimes directly to law enforcement, with features in development to flag and alert law enforcement in cases of sex offenders, violent felons, or parolees attempting to buy sex.” This technology is currently being used nationally to fight sexual exploitation and is now moving into the international sphere.

Website: <https://www.seattleagainstslavery.org/technology/>

Child Rescue Coalition

Trafficking Type: Child

Region: International

Sector: Government, Private



The Child Rescue Coalition is a collaborative among “child exploitation investigators, police officers, digital forensic experts, prosecutors, child welfare agencies and corporate and private philanthropy” that work together to solve the issue of child sex trafficking on all fronts. Their technology, which has been used by law enforcement in every state and in over 90 countries across the world, focuses on “identifying, monitoring, and ranking the online criminal behavior of child predators on peer-to-peer file-sharing and chat networks.” Some of the system highlights include “providing law enforcement with real-time investigative and prosecutorial assistance” as well as “analytics that target the offenders at greatest risk of presently abusing children.”

Website: <https://childrescuecoalition.org/>



Hyperion Gray Production

Trafficking Type: Child

Region: US

Sector: Private

Hyperion Gray Production has a whole suite of products, one of which specializes in dark web investigations. This product, Avatar, helps law enforcement catch criminals on the dark web by shedding light on these hidden areas of the internet. In January 2018 they counted, mapped, and clustered 6,608 dark web sites. The map has 3,747 web sites as of March 2019 with embedded images disabled “in order to avoid the need to make redactions.” Users need to accept a disclaimer to view the map, which may include mature and/or offensive material.

Website: <https://www.hyperiongray.com/products/>

<https://www.hyperiongray.com/dark-web-map/>



Spotting Trends

Trafficking Type: Sex
Region: US
Sector: Private

In 2018, at Facebook’s annual child safety hackathon, multiple engineers from tech giants all around Silicon Valley came together to design new tools to fight child sexual exploitation. Spotting Trends designed a technology that uses “clustering analysis to keep tabs on traffickers” as they find new locations on the internet to conduct illegal activity. With large online prostitution marketplaces like Backpage being taken down, traffickers move to new areas of the internet which then need to be found. The Spotting Trends team was given the opportunity to present their work at the Dallas Crimes Against Children Conference.

Website: <https://techcrunch.com/2018/05/24/facebook-child-safety/>

SIGHT

Trafficking Type: Child
Region: US
Sector: NGO



Sovereign Intelligence Against Human Trafficking (SIGHT) is a nonprofit organization that seeks to “leverage the power of data science, artificial intelligence, and human collaboration to put a stop to human trafficking.” SIGHT uses deep machine learning technology to scrape petabytes worth of data from the dark web and turn that into actionable information usable by “victim service organizations, academic researchers, legal teams, and law enforcement agencies” to help them ensure they have the “best new data.”

SIGHT is currently working with the “Data Science Institute at UNC-Charlotte and a number of nonprofits and NGOs in [the] Charlotte, N.C., area to expand the scope and the nuance of a taxonomy of human trafficking entities and ontologies in online spaces.” They plan on using this data to better understand the different interconnected aspects of human trafficking and how it develops over time. The project’s goal is to use data to help law enforcement and policy makers make informed decisions in the fight against human trafficking.

Website: <https://sightfoundation.ai/>



Sweetie 2.0

Trafficking Type: Child
Region: International
Sector: Private

Sweetie is a 10-year-old virtual Filipino girl, created by Terre des Hommes, that has been used to unmask “over 1,000 offenders of webcam sex with children in just two months.” The project was created due to the booming industry of webcam child sex tourism where men seek children online and ask them to perform sexual acts

through their webcams for money. Research has shown that “at any time of day, an estimated 750,000 men are looking for online webcam sex with children.”

The initial campaign to raise awareness about this issue and research new ways to track these predators was massively successful. Government organizations around the world have already started using the data collected by the project to implement new regulations. Building upon their original approach, Terre des Hommes has begun working on Sweetie 2.0 which will include “a new advanced method to solve the problem of worldwide webcam child sex structurally.”

Website: <https://www.terredeshommes.nl/en/sweetie-20-stop-webcam-childsex>



Sheepdog Bloodhound Internet Safety

Trafficking Type: Child
Region: International
Sector: Private

Sheepdog Bloodhound Internet Safety, founded in 2016, is an online organization that describes themselves as bloodhounds acting as sheepdogs, “protecting the sheep against the wolves.” Their goal is to make the internet a safer place by “searching for victims and identifying predators” and their crimes against children. Many of the posts also include AMBER alerts, online safety tips for parents, and tools that children and parents can use to help protect against predators online. The organization is listed as a NGO and Law Enforcement Agency on their Facebook page.

Website: <https://www.facebook.com/sheepdogbloodhound/> (Active)

<https://www.sheepdogbloodhound.org/> (Under Reconstruction)



Microsoft Cognitive Services

Trafficking Type: General
Region: US
Sector: Private

During Ignite 2018, Microsoft announced a “\$40 million, five year project” meant to help fund development in AI specifically geared towards humanitarian efforts around the world. Among these humanitarian efforts are “predictive analytics and bot frameworks” that bring a deeper understanding to the issue of human trafficking. Microsoft is already using its technology to combat this issue, but depending upon its success, more money may be funneled into this project to turn it into a major service.

Website: <https://codematters.online/is-humanitarian-action-leading-the-development-of-micro-softs-ai/>