

IN FOCUS

by Maria Eira and Emma Kristina Persson



How can AI combat online sexual exploitation and abuse of children?

The human behind the badge and the AI behind the human
 From an exclusive interview with a law enforcement officer about her 10 years working on child sexual exploitation and abuse cases, learn how artificial intelligence is used in the investigation process and why it is crucial for both revolutionizing investigations and for the wellbeing of investigators themselves

It is 6:00 a.m. and darkness still blankets the peaceful suburb as the team of officers assembles outside the house of a suspected child sexual abuser. The tension rises as they approach the front door – Detective Sherry Torres stands in front – a position of greater stress and, of course, greater risk. They know the suspect owns a gun.

But she has seen the children in the pictures; and worse, heard them in the videos. They are in need of rescue, and she is determined. She knocks on the door – it is the protocol, to avoid breaking it down if possible – and sure enough, the suspect answers in a groggy state. He does not stay groggy for long upon seeing the officers in their tactical gear.



Join the AI for Safer Children Global Hub

If you are in law enforcement and would like to learn more about the AI tools and techniques available to fight child sexual exploitation and abuse online, join us and become part of the AI for Safer Children community. Complete in the questionnaire below or scan the QR code to join the Global Hub.

<https://forms.office.com/r/NjAUz0ZmZX>



Police Detective Sherry Torres served 19 years as a law enforcement officer in the United States and was a member of the North Florida Internet Crimes against Children Task Force for 10 years. Sherry Torres is still contributing to the field as the Training Manager at Griffeye, the company that develops a tool that supported her in doing the job.

“And his wife comes in wondering, ‘what’s going on?’” said Detective Torres. “I can see that she’s scared, and the suspect takes off running.” The team chases him down and makes the arrest.

This was just a normal day for Detective Torres, only one part of the long process of investigating an online child sexual exploitation and abuse case. And the worst is yet to come.

After arresting the suspect and securing the site, the officers work quickly and efficiently to gather any evidence they find. Detective Torres and her team interview the suspect and any potential witnesses, and seize several electronic devices including computers, thumb drives, camera memory cards and mobile phones.

Gone are the days when child sexual abuse material was captured on Polaroids, 35mm film, or DVD collections concealed under attic floorboards. Modern technology has seen the amount of this material skyrocket, exacerbated by the [COVID-19 pandemic and the rise of new gaming technology](#) - recent estimates put the occurrence as high as one in ten children. In the United States alone, child sexual abuse material reports numbered [100 thousand in 2008 and increased to nearly 30 million in 2021](#).



➤ **Figure 1: About 1 in 10 children will be sexually abused before they turn 18. That includes about 1 in 7 girls and 1 in 25 boys.**

And someone has to review all these files.

Detective Torres pauses as she describes to us how it was seeing these files for the first time, when she joined the unit.

“I still remember the first [child abuse] file that I ever saw,” she said. Before joining the Internet Crimes against Children Unit ten years ago, her colleagues brought her into a room and had her view “the worst of the worst” to test her reaction and see if she could handle the job.

“As soon as I saw it, I felt sick,” she said, but Detective Torres wanted to prevent more children from being abused like the child in that video.

“Any display of weakness on my part, whether emotional or mental – especially as a female in law enforcement during that

time – you didn’t show it to others,” she said.

“That first video was” – she begins, but her eyes constrict as well as her words – “really bad.” It takes a few moments before she continues.

After starting work in the unit, Detective Torres experienced what is called “unwanted recall”. Every time she closed her eyes to sleep, a reel of all the videos and images she had seen that day would start to replay in a loop in her head. Many investigators experience this unwanted recall as a vicarious trauma, as though by watching child sexual abuse material, “it’s almost like you’re there and you’re a witness to it.”

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“I’ve seen really terrible things that people do to other people over my career,” she said. “But I didn’t know people did that to children.”

Detective Torres named a few healthy habits like exercise, work-life balance and having a good support system that

help her to deal with the difficult dimensions of this job, and then, “technology - having the right tools.”

While at the scene, Detective Torres finishes seizing and documenting evidence - gathering as much information as possible to strengthen their case. Back in the office, she prepares for the digital forensic examination. This is where the ‘right tools’ for processing the exorbitant amount of seized data are crucial.

She begins by using software to eliminate known material which prevents investigators from seeing the same traumatic images that are commonly shared and re-shared on the internet. The software she uses also cuts down the bulk of files by removing non-pertinent material. This includes, for instance, things like Hollywood movies or random icons, which are not relevant for child exploitation cases.

“With these techniques, a case with 1.5 million pictures and videos then becomes 300,000,” Detective Torres explains, “which still sounds like a lot,” but is made more manageable with advanced technologies.

This is where she turns to artificial intelligence. AI

techniques such as a child sexual abuse material classifier can automatically sort the materials according to their probability of containing child abuse – from low to high probability. She will focus her efforts on the latter. Facial recognition then allows her to search for videos and images in this group that are possible matches for the suspect and the children known to be accessible to that suspect.

Through these techniques, Detective Torres finds an image from the seized files depicting child sexual abuse material in a setting of relevance and uses AI to find visually similar pictures that bring investigative leads.

She remembers her first case when she had no advanced software to help her, which meant that she had to go through these files manually – one by one. “For 30 work days straight, that was my entire day,” she said of the time it took her to review all the material for that case.

“I went into the office, loaded the evidence and then looked at each file one at a time. Then I would go home. Then I would come back to the office and repeat the same thing. There was no break.”

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Besides helping her find the right evidence, these AI tools have inbuilt safeguards protecting investigators' wellbeing, so the ones flagged as child sexual abuse material are immediately pixelated until she must look at them. Other features include muting audio or even simply converting images to black and white.

"It minimizes the mental impact of the violence in those files. Seeing the videos in color and hearing the sound makes the review of that material more traumatic for the investigator."

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The AI tools she uses significantly cut forensic backlogs from over 1.5 years down to 4 to 6 months.

These features help distance disturbing images from reality, but only slightly. Because, in the end, AI tools cannot replace human investigators, who still have to look at the files they are investigating.

Detective Torres also uses the software to look for more files linking evidence to specific dates or victims, helping build a case against the suspected offender. As she knows from experience that there are many other potential victims, she uses text analysis to quickly flag suspicious conversations in the suspect's chat histories involving the grooming or luring of other children.

"The technology just really makes it easier both for mental wellness and also for finding that critical evidence - the needle in the haystack," said Detective Torres.

In fact, the AI tools she uses significantly cut forensic backlogs from over 1.5 years down to 4 to 6 months - time that can make a world of difference for victims.

Using these technologies, however, requires specialised training. It takes about three years on average for a law enforcement officer to be properly trained to use these tools and learn efficient investigative methods. This is right about the time they burn out. Detective Torres also thought about moving to a different unit during the first few months, but she knew she would not be able to investigate other types of crimes knowing that children were being abused in such horrific ways.

"I just would not be able to do that, knowing what I already know is happening," Detective Torres said. Like most people - even police officers - she did not know about the extent or severity of child sexual exploitation and abuse until she joined the Internet Crimes against Children Unit.

Safeguarding the children is what motivates her every day. "We've kept in touch with some of the children that we've safeguarded and it's rewarding to see them in a better environment," she said. But "they're still not going to be the same as a child who's never experienced child sexual abuse."

Detective Torres continued, "in my opinion, it's the hardest job in law enforcement". But with the support of the 'right tools', she has been able to do this job for 10 years - identifying indecent images and tying

the suspect to those images and the devices on which they were found.

Detective Torres' experience is not the same everywhere. In many countries, investigators are still working as she was years ago, opening folders and files one-by-one and watching video-by-video. The resulting high turnover rate from such mentally strenuous work decreases the chances that knowledge, experience and technological know-how is reached, much less passed on.

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There are many currently accessible tools but there is little to no divulgation of their potential within law enforcement.

ABOUT THE AUTHORS
Maria Eira is the Information and Technology Fellow at the Centre for AI and Robotics of United Nations Interregional Crime and Justice Research Institute (UNICRI). For the past 3 years she has been providing technical advice to the ongoing projects of the Centre, related with the benefits and risks of AI and emerging technologies, particularly on the issues of crime prevention, criminal justice and rule of law. With a background in Biomedical Engineering Maria holds a Master in AI and Cognitive Science from Tilburg University where she has been a teacher assistant of Machine Learning and Data Processing classes. Prior to joining UNICRI, she has worked as a Human Interface Engineer in the research and development of augmented reality glasses, and also in the development of hardware solutions for space industry.

Emma Persson is coordinating the *AI for Safer Children initiative*, a project aimed at leveraging the positive potential of AI for law enforcement worldwide. She specialized in emerging technologies after completing two master programmes in international relations and international law at King's College London and Leiden University respectively, and continues to work towards responsible AI innovation in the international environment.

Technology providers are overwhelmingly eager to work with police, but are hindered partly due to a lack of communication between them, for reasons such as limited resources and classified information.

To bridge this gap between law enforcement and technology providers developing such AI tools, the UNICRI Centre for AI and Robotics have joined efforts with the Ministry of Interior of the United Arab Emirates to launch the *AI for Safer Children initiative*.

This initiative was created both to promote knowledge of these technologies and the widespread nature of online child sexual exploitation and abuse, as well as support law enforcement agencies to solve cases faster and safeguard children while protecting their officers through a platform called the Global Hub cataloguing over 60 currently available AI tools - including the tools used by

Detective Torres - as well as a learning section and communication section to help build and share experiences.

Detective Torres remembers that it was a fellow examiner who introduced her to her first AI program so that she did not need to "scrub" through videos manually.

"When the technology made it easier, I thought to myself that I was going to be OK, and resolved to continue the important work to fight these crimes against children."

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- Hate speech and misinformation in pandemics: anti-scientific propaganda during the Covid-19 crisis.
- The role of social media hate and disinformation in war and political propaganda campaigns.
- The role of AI in disinformation.
- Tools to monitor and respond to misinformation, disinformation, and hate speech – including the role of media.
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