Background Research: AI in the Context of Trafficking in Persons and Migration Management

Background

Women are disproportionately affected by the global scourge of human trafficking. According to the 2022 Global Report on Trafficking in Persons, female survivors experience extreme forms of violence at the hands of traffickers at a rate three times higher than males. Recent advances in artificial intelligence offer promising new ways to detect, counter and respond to trafficking in persons and migration management. At the same time, AI-powered technologies also present new risks related to privacy, gender bias and the potential for abuse/misuse. Below are descriptions of eight promising ways AI can be used to combat trafficking in persons and migration management, as well as associated risks and challenges.

1. **AI-powered Geo-mapping to Identify Trafficking Hotspots**

   AI algorithms can be trained to identify types of structures/locations associated with a heightened risk of labor abuses and human trafficking. This can empower authorities to more efficiently detect potential trafficking hotspots.

   Case Study:

   In a recent study conducted in Pakistan, India, Nepal and Bangladesh, the University of Nottingham used AI to map labor abuses in the Brick Belt, an area extending across all four countries. This region is home to various brick kilns which illegally exploit children and trafficked persons for forced labor. Researchers were able to train the algorithm to recognize sizes, shapes, and shadows normally associated with brick kilns, helping local authorities pinpoint suspected locations of trafficking and labor abuse.

   Risks:

   Using AI to identify types of locations at risk of human trafficking carries a risk of over-generalizing and targeted harassment. For example, the above study risks labeling all brick kilns, including those engaged in legitimate labor practices, as trafficking hotspots. Such generalizations could lead to harassment of businesses by law enforcement and local authorities.

   Sources:

   https://www.adfsolutions.com/news/how-ai-is-helping-law-enforcement-combat-human-trafficking
   https://www.forbes.com/sites/cognitiveworld/2020/04/14/ai-is-helping-us-combat-the-economic-problem-of-human-trafficking/?sh=3158a6d5752c

2. **AI-powered Facial Recognition to Identify Trafficked Persons**

   AI-powered facial recognition technology can help uncover the identities of trafficked persons, enabling authorities to conduct more targeted search and rescue operations. This is especially useful in cases of sex trafficking, where the majority of victims are women and girls.

   Case Study:

   In 2022, police in Nevada, USA received a tip that a woman featured on an escort website was underage. The woman's personal information on the website was fake, but the photos were real. Authorities were able to upload the woman's photograph onto Clearview, a Facial Recognition tool that offers law enforcement agencies access to a database containing more than 20 billion facial images collected by publicly available means, such as images people upload to social media. Within seconds, the individual was identified as a 16-year-old female juvenile who was being sex-trafficked. She was soon rescued and the trafficker was apprehended.

   Risks:

   AI models and data used in facial recognition have been known to exhibit biases, resulting in wrongful arrests due to algorithmic misidentifications. This bias disproportionately affects marginalized groups,

including women, BIPOC and LGBTQ+ individuals, who are already more likely to be subjected to surveillance and discriminatory practices. Use of facial recognition technology can also lead to privacy intrusions. Facial recognition data can be misused by authorities and/or stolen by third party actors in order to track individuals' locations and behaviors for illicit purposes.

Source: https://www.freethink.com/hard-tech/facial-recognition-finding-human-trafficking-victims

3. **AI-powered Support and Rehabilitation of Survivors**
AI can be used to provide survivors with much-needed counselling services, greatly speeding and improving the recovery and rehabilitation process.

Case Study:
In India, IBM researchers built an AI-powered framework to help CSOs identify match survivors of trafficking with experienced mental health professionals well-suited to provide them with counselling. Many survivors of trafficking report mental health issues such as post-traumatic stress disorder, acute anxiety, suicide and depression, and these conditions can lead to subsequent re-trafficking. Local CSOs traditionally match survivors with mental health counsellors by manually reviewing resumes and interviewing counsellors. This process is not only time-consuming, it is also further complicated by the inherent biases of the reviewers. To make the process more efficient, researchers developed an AI-powered predictive model that uses multiple-choice questions, text and audio analyses to match survivors of trafficking with the mental health counsellors best able to help them. This greatly improves the speed and success rate of survivors' recovery and reintegration.

Risks:
Civil rights advocates have raised concerns about the risk of causing harm to marginalized communities, increasing unwarranted government surveillance capabilities, and violating citizens' privacy rights in the name of data collection for support and rehabilitation.

Sources:
https://www.ibm.com/ibm/responsibility/initiatives/stories/IBM-Volunteer-India-AI-2019.shtml

4. **AI-powered Stylometry to Identify Serial Traffickers**
Many traffickers lure their victims through online advertisements for jobs, companionship, escort services, etc. AI-powered stylometry uses machine learning to detect complex language patterns (word repetition, punctuation, emojis) that can help identify the writing style of a trafficker and thereby track future ads created by them. This capability could help authorities uncover the identities of traffickers responsible for placing multiple ads, even if the ads all contain different fake phone numbers and emails

Case Study
According to New Delhi-based researcher Mondira Datta, a recent study showed that an AI-powered stylometry algorithm was able to identify which ads were written by traffickers in 90 out of 91 cases. Based on an initial sample of a trafficker's writing style, the AI algorithm identified other ads written by the same author.

Risks:
Using AI-powered stylometry to identify traffickers carries a risk of wrongful apprehensions, because it may incriminate the authors of legitimate advertisements and online materials that share similarities with the writing style of traffickers.

Source: http://rmebrk.kz/journals/6014/66586.pdf#page=58

5. **AI Chatbots to Expose Traffickers**

AI chatbots can be used to impersonate minors, acting as bait to lure and expose traffickers. This can be an especially effective way to expose child predators and, according to a recent UN report, most victims of child trafficking are girls.

Case Study:

Gracie AI, developed by US-based anti-trafficking group Street Grace, is an artificially intelligent online presence with more than 112 distinct personas designed to impersonate minors selling sex, intercept predators & collect data on their behavior. Predators click on fake ads leading them to a text chat with Gracie, whom they believe to be a minor. When the predators solicit underage sex from Gracie via text, Gracie automatically transmits a warning & the predators' information to law enforcement.

Risks:

The use of AI chatbots to lure individuals into committing a crime could be construed as entrapment. Additionally, this same approach could also be used by traffickers to lure victims. For example, traffickers could create chatbots that target women and girls on social media, using localized language and conversational styles designed to appeal to them. Such chatbots could, under false pretenses, lure unsuspecting victims to voluntarily meet with traffickers.

Sources:

https://www.inspiritai.com/blogs/ai-student-blog/the-need-for-artificial-intelligence-in-human-trafficking-research
https://www.un.org/sustainabledevelopment/blog/2016/12/report-majority-of-trafficking-victims-are-women-and-girls-one-third-children/

6. **AI-powered Risk Assessments and Early Warning Systems**

AI-powered early warning systems can provide real-time alerts that empower law enforcement agencies to better respond to human trafficking threats. Machine learning and AI tools have also been used to identify high-risk activities associated with global sex trafficking, which disproportionately affects women and girls. This approach focuses on differentiating deceptive recruitment tactics from consensual sex work, a crucial distinction to target anti-trafficking efforts effectively.

Case Study:

The Polaris Project, a leading organization dedicated to eradicating human trafficking, uses AI-driven data analysis to assess and respond to sex and labor trafficking in real-time. In 2017, Polaris analyzed a decade's worth of data from the U.S. National Human Trafficking Hotline. It found 25 different types of trafficking, each with its own distinctive business model. This approach enabled the Polaris Project to identify trends and high-risk areas, empowering local police departments to more robustly prevent and respond to incidents of trafficking.

Risks:

Early warning systems require periodic calibration and adaptation to changing versions of AI tools. The resources required to frequently update AI-powered early warning systems and to re-train users could be a significant burden for CSOs and local authorities with limited budgets.

Sources:

https://snorkel.ai/using-ai-to-unmask-sex-traffickingsupply-chains/
https://polarisproject.org/our-work/
https://polarisproject.org/wp-content/uploads/2017/03/Typology-of-Modern-Slavery-Summary.pdf

7. **AI-powered Financial Transaction Analysis to Disrupt the Flow of Trafficking Funds**
Human trafficking annual proceeds are estimated to be in excess of $150 billion. Yet traffickers have become skilled at hiding the proceeds of their activities in a way that avoids detection of financial institutions, working across various entities and payment methods. The resulting black market is far too sprawling and complicated to be manually monitored.

Case Study:
The Wolfsburg Group, a global association of banks operating in Asia and beyond, has recognized the need for its members to use AI-powered tools for analyzing financial transactions across entities, and for better public-private partnerships and information-sharing in order to combat the growing sophistication of financial activity by traffickers.

Risks:
Traffickers may attempt to manipulate or mask transactions to avoid detection by AI-powered analysis tools. Additionally, since the use of AI in financial transaction analysis is subject to local regulations that vary from country to country, banks attempting to use AI for analyzing trafficking-related transactions would have to navigate a complex web of compliance and regulatory frameworks.

Sources:
https://www.usnews.com/news/best-countries/articles/2019-07-30/commentary-use-ai-to-stop-human-trafficking
https://www.openaccessgovernment.org/analytics-ai-tackle-global-human-trafficking/157377/

8. **Natural Language Processing (NLP) Algorithms to Identify Signs of Trafficking**
NLP algorithms use AI to interpret and comprehend human language. NLP can be used by investigators to detect patterns in large text-based datasets that may indicate signs of trafficking.

Case Study:
Twitter is home to millions of ads for escort services. Among these are 'micro-clusters,' i.e. ads that appear nearly identical to each other with only slight differences. Such micro-clusters are often signals of human trafficking. In 2021, researchers at Carnegie Mellon and McGill University built an NLP algorithm called Infoshield to identify micro-clusters of escort ads and flag them to law enforcement authorities for investigation. Infoshield was able to accurately detect human trafficking ads with 84% accuracy.

Risks:
Older NLP algorithms have a language bias because they have been trained primarily on European languages. They may therefore be less accurate when used to analyze content in non-Western geographies. However, open-source NLP models by major tech platforms are constantly being updated to expand their language base and include more and more dialects and languages from the Global South.

Sources:
https://www.openaccessgovernment.org/analytics-ai-tackle-global-human-trafficking/157377/
http://catvajiac.me/files/infoshield.pdf
https://www.ml.cmu.edu/news/news-archive/2021-2025/2021/april/machine-learning-aialgorithm-uses-online-ads-identify-human-traffickers.html