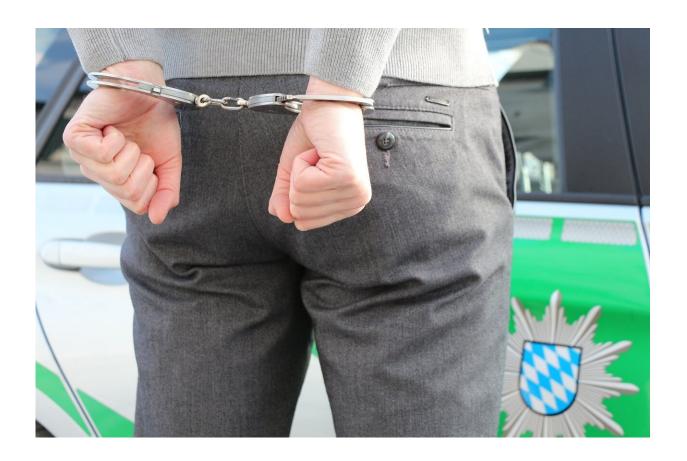# New analytics tools detect and disrupt sex trafficking activities

January 9 2023

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Groundbreaking modeling detailed in new research in the *INFORMS Journal on Applied Analytics* is being credited with helping lead to the arrest of dozens of suspects in human trafficking rings in Alabama.

The modeling focuses on data collection and analysis of online sex ads, which led to the identification of trafficking locations and subsequently the arrest of suspects. Using the tools developed in this study, the research team assisted in operations leading to more than 100 arrests in Western Alabama since February 2021.

"Our approach focuses on developing models to predict clusters of online sex ad data based on text and image content, distilling clustered data to identify networks that are active in a target location specified by users, filtering sex ads that are likely to correspond to spammers and advising law enforcement agents on interdiction efforts," says Nickolas Freeman of the University of Alabama, the lead author in the study.

Sex trafficking is a form of human trafficking that involves sexual exploitation and is facilitated using online classified advertisements. Every year, millions of individuals spanning all ages, races, genders and nationalities are victims of human trafficking across the globe.

The study, "Collaborating with Local and Federal Law Enforcement for Disrupting Sex Trafficking Networks," utilizes data collected from more than 10 ad sites and includes text and image details from more than 30 million ads.

"We maintain a secure web portal that summarizes recent activity on popular sites that target a location within its jurisdiction. Once we identify a subset of suspect networks, we use the details provided in the portal to more closely investigate movement patterns, identify prominent sites that are being used by the associated individual(s), and identify key phrases, images, and phone numbers that are being used," says Burcu Keskin, also of the University of Alabama and a co-author on the study.

Using these insights, the researchers assist in monitoring the target sites during operations to determine if any of the target individuals are

working in the proximity of the area covered by the detail. Once a post matching the criteria for one of the suspect networks is observed, law enforcement agents attempt to set up an encounter.

In addition to identifying and rescuing sex trafficking victims, which affect the supply side of the market, the researchers also participate in significant operations targeting the demand side.

"Our exposure to and analysis of this ad data provides insights regarding characteristics that differentiate real ads from fake ads. Scam ads typically target suspects with the intent to obtain cash, gather credit card information or steal identity information. Based on our experience, we have helped our law enforcement partners build 'realistic' ads that are posted on popular online platforms for sexual advertisements," says co-author Gregory Bott of the University of Alabama.

"Based on our analysis, we have seen significant increases in average call volume from approximately 40 calls per day without our assistance to more than 106 calls per day in a recent operation. Higher call volumes from suspects translate to more arrests and more effective demand reduction."

This work is designed to help overcome challenges in an ever-changing online marketplace. The research team continues to work with law enforcement partners in Tuscaloosa as well as Birmingham and Long Island, New York. The process can easily be scaled to accommodate additional partners.