

Beat: Technology

## Follow the BITCOIN to Find VICTIMS OF HUMAN TRAFFICKING

### New Machine Learning Algorithms

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**USPA NEWS** - A Team of University Researchers has devised the first Automated Techniques to identify Ads potentially tied to Human Trafficking Rings and link them to Public Information from Bitcoin (the Primary Payment Method for Online Sex Ads)....

A Team of University Researchers has devised the first Automated Techniques to identify Ads potentially tied to Human Trafficking Rings and link them to Public Information from Bitcoin (the Primary Payment Method for Online Sex Ads). This is the First Step toward developing a Suite of Freely Available Tools to help Police and nNnprofit Institutions identify Victims of Sexual Exploitation, explained the Computer Scientists from the New York University Tandon School of Engineering; University of California, Berkeley; and University of California, San Diego.

Human Trafficking is a Widespread Social Problem, with an estimated 4.5 million People forced into Sexual Exploitation, according to the International Labor Organization. In 2016, the National Center for Missing and Exploited Children estimated that 1 in 6 endangered runaways reported to the Group were probably Sex-trafficking Victims.

The Internet has enabled and emboldened Human Traffickers to advertise Sexual Services. Law Enforcement efforts to trace and disband Human Trafficking Rings are often confounded by the Pseudonymous Nature of Adult Ads and the tendency of Ring Leaders to employ Multiple Phone Numbers and Email Addresses to avoid detection. Adding to the difficulty : Determining which Online Ads reflect Willing Participants in the Sex Trade and which reflect Victims forced into Prostitution.

The Research Team's Approach relies on two Novel Machine Learning algorithms. The first is rooted in Stylometry, or the Analysis of an Individual's Writing Style to identify Authorship. Stylometry can confirm Authorship with high confidence, and in the case of Online Trafficking Ads, allows Researchers and Police to identify cases in which separate Advertisements for different Individuals share a single Author: a Telltale Sign of a Trafficking Ring. By automating Stylometric Analysis, the Researchers discovered they could quickly identify Groups of Ads with a common Author on Backpage, one of the most Popular Sites for Online Sex Ads. (Since this research was conducted, the adult advertising section of Backpage was discontinued; however, the Researchers noted that Adult Ads remain prevalent, now appearing in multiple Sections of the Site.)

After identifying Groups of Ads with a single Author, the Researchers tested an Automated System that utilizes publicly available Information from the Bitcoin Mempool and Blockchain (the Ledgers that record Pending and Completed Transactions.) Because Backpage posts Ads as soon as Payment is received, the Researchers compared the Timestamp indicating Submission of Payment to the Timestamp of the Ads' appearance on Backpage. All Bitcoin Users maintain accounts, or 'wallets,' and tracing Payment of Ads that have the same Author to a Unique Wallet is a potential Method for identifying Ownership of the Ads, and thus the Individuals or Groups involved in Human Trafficking.

The researchers intend to refine their Strategies in collaboration with law Enforcement and Nonprofit Organizations. This Work was supported by Grants from the Amazon Web Services Cloud Credits for Research Program, Giant Oak, Google, the National Science Foundation, and the U.S. Department of Education. The researchers also wish to acknowledge Chainalysis for providing access to its Platform for analyzing Transactions on the Bitcoin Blockchain, and Thorn.

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