
Tracking Human Trafficking with Crowdsourcing

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Abstract

Human trafficking for the purposes like forced labor or commercial sexual exploitation has sustained to be one of the threatening problems worldwide for a long time. In this paper, we show that this problem can be addressed by harnessing the power of crowdsourcing in an efficient way. We propose a dynamic model that allows the crowd volunteers to collect suspicious features for the identification of human trafficking.

Author Keywords

Crowdsourcing; Human Trafficking; Distributed Processing

ACM Classification Keywords

H.1.2 [User/Machine Systems]: Human information processing; H.3.4 [Systems and Software]: Distributed systems; H.5.3 [Group and Organization Interfaces]: Computer-supported cooperative work

Introduction

Human trafficking is a form of human trading for the purposes of commercial exploitation of the victims in different forms. It has become a serious threat to the mankind for diverse reasons. The major victims of human trafficking are women and children. The latest report published in June 2016 by the US Department of State reveals a dramatic increase of the number of prosecutions, convictions and

victims of labor trafficking over the last few years [3]. In fact, the number of countries suffering the worst from such problems (placed in Tier 2 Watch List and Tier 3) are more than seventy to date. Unfortunately, human trafficking has become one of the highest sources of illegal income around the world in the last few decades, second only to the drugs trafficking [1].

There are very limited studies that deal with the problem of identifying human trafficking with computational models. A few of the previous studies have attempted to address this problem by recognizing several human trafficking indicators [6]. Such indicators are used as the suspect pointers to human trafficking activities and can be classified as early or late indicators. Some computational models have been proposed in the last few years that employ these indicators for detecting and profiling human trafficking suspects. These include formal concept analysis lattice [6], temporal concept analysis lattice [6], concept lattice diagram [4, 5], etc. These models basically help to gain insights from the various static activities (although temporal) of human trafficking suspects. However, these works are mainly based on human-centred knowledge discovery in suspicious activity police reports or social media activities. On the contrary, we propose a dynamic model that exploits the power of crowdsourcing to track human trafficking activities in real-time.

Basic Terminologies

In this section, we introduce some basic terminologies that will be used throughout the paper. Our model is based on the the concept of crowdspeying, which is a kind of collaborative crowdsourcing activity for the purpose of spying on lawbreakers [2]. In crowdspeying, both the explicit and implicit nature of actions are combined. We assume that crowdspeying is confined to an online social network between the participating people. A node is basically a partic-

ipating entity in the crowdspeying operation (therefore it also includes the spied node). The private relation R is used to denote the connection between multiple nodes (like hyper-arcs).

- **Open crowdspeying:** Open crowdspeying is an activity where the nodes participating in crowdspeying are independent of any relation, i.e., the private relation set R is null.
- **Automatic crowdspeying:** The crowdspeying activity which is not guided by any mechanism design is an automatic crowdspeying.

Proposed Approach

Spying to recognize human trafficking is highly demanding for its distributed power of information sharing. It has already been argued in an earlier study that crowdspeying should be open for recognizing human trafficking [2]. This is because open crowdspeying is useful for rapid transfer of information albeit it includes the risk factors. We propose a model where the crowd workers can participate in a social network unanimously and post suspicious reports. These suspicious reports are mainly based on a few pre-defined features collected with time. An example of a suspicious activity along with the relevant features that could be helpful for tracking the potential human trafficking is shown in Fig. 1.

The proposed mechanism is open and automatic and it is all about collecting pre-defined temporal features and cross-verifying it online unanimously. If at any place any suspicious activity is detected by any crowd worker, he is

expected to take a snap of the event and post it. The image will be segregated into multiple smaller images for collecting the following relevant features with the help of open crowdsourcing.

- Nearest landmark
- Street number
- House number
- Car number
- Current time

Now, based on the geographic location (taken from the GPS of crowd workers) the features will be distributed and get verified by more number of crowd workers. After collecting opinions from the neighboring nodes, it simply becomes a problem of judgment analysis. The working mechanism behind the proposed model is entirely based on volunteering. Monetary incentives are inappropriate because of the higher risk of spamming.

Challenges

Our initial attempts reveal that the crowd workers are less interested in getting involved in open crowdsourcing activities due to higher chances of threats. It is a challenging task to encourage the participation of the crowd workers by ensuring their safety. However, the real challenge is involving the right crowd, who want to participate in crowdsourcing for detecting human trafficking, and connecting with their real needs. It is also interesting to study what are the needs of that crowd, what is the extent of risk they are willing to take, what is the level of protection they are going to require, and what are the appropriate tools for the task. There are some active communities around the world (e.g., the

teams in National Human Trafficking Resource in USA, registered charities like Croydon Community Against Trafficking (CCAT) in UK, Cyber Police in India, etc.), who are involved in recognizing and fighting against human trafficking. Communities of victims and relatives of victims may also be involved for the said purpose. Over the above, International law enforcement associations with an interest in human trafficking, non-governmental organizations (NGOs) working with victims, and other pressure groups are also potential candidates to form crowdsourcing communities.

The study of open and automatic crowdsourcing activity in the form of a network model might also be useful for gaining additional insights about the leader nodes. We are still unable to work on real-life scenarios due to many other challenges like neighbor verification and spammer identification. It is also interesting to incorporate the control over the nearby closed circuit television (CCTV) cameras in the proposed crowd-powered model. But, this approach highlights that crowd-powered models can be effectively used for trafficking human trafficking with appropriate mechanism design.

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Figure 1: The photo of a launch boat suspected to be involved in human trafficking. The important features to be reported here are the number (or any other identification details) on the boat, location of the photographer, and nearby landmarks, if any. The time of taking the photo is also an important feature to be considered.