Chapter 14
Using Knowledge Management and Machine Learning to Identify Victims of Human Sex Trafficking

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ABSTRACT

Social media and the interactive Web have enabled human traffickers to lure victims and then sell them faster and in greater safety than ever before. However, these same tools have also enabled investigators in their search for victims and criminals. Authors used system development action research methodology to create and apply a prototype designed to identify victims of human sex trafficking by analyzing online ads. The prototype used a knowledge management approach of generating actionable intelligence by applying a set of strong filters based on an ontology to identify potential victims. Authors used the prototype to analyze a dataset generated from online ads

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from southern California and used the results of this process to generate a revised prototype that included the use of machine learning and text mining enhancements. An unexpected outcome of the second dataset was the discovery of the use of emojis in an expanded ontology.

INTRODUCTION

Trafficking humans for sexual exploitation is a fast-growing criminal enterprise even though international law and the laws of 158 countries criminalize sex trafficking (Equality Now, 2017). The Equality Now (2017) *Sex Trafficking Fact Sheet* lists these statistics:

- Sex trafficking is a lucrative industry that makes an estimated US$99 billion a year.
- About two million children are exploited every year in the global commercial sex trade.
- Women and girls make up 96 percent of victims of trafficking for sexual exploitation.

Further, human trafficking is not just a third or developing world problem. The National Human Trafficking Resource Center hotline lists 5784 human sex trafficking cases reported in the United States during 2016 (NHTRC, 2018a). Additionally, the National Human Trafficking Resource Center has reported that California had 1050 of these cases (NHTRC, 2018). (Note that this chapter and research uses a sample set from California, United States and so statistics, policies, and laws used in this chapter are focused on this region)

The U.S. Government defines human trafficking as inducing others to perform a commercial sex act by force, fraud, or coercion; as inducing a person under 18 years of age for such an act; and/or as recruiting, harboring, transporting, providing, obtaining a person for labor or services through the use of force, fraud, or coercion in order to subject them to involuntary servitude, peonage, debt bondage, or slavery (National Institute of Justice, 2012). However, the Department of Homeland Security (DHS) has more recently shortened the definition of human trafficking to a contemporary form of slavery that involves the illegal trade of people for exploitation or commercial gain (Department of Homeland Security, 2014). Further clarifying this definition, California's Department of Justice (DOJ) has stated that human trafficking is a contemporary form of slavery that involves controlling a person through force, fraud, or coercion to exploit the victim for forced labor, sexual exploitation, or both (Harris, 2012). While slightly different, all three definitions