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Caught in the Web: The Importance of Ethical Computing Illustrated via an Exploration of the Online Recruitment of Women and Girls into Sex Trafficking

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Caught in the Web:
**The Importance of Ethical Computing Illustrated via an Exploration of the
Online Recruitment of Women and Girls into Sex Trafficking**

By
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An Honors Thesis Submitted in Partial Fulfillment
of the Requirements for Graduation from the
Western Oregon University Honors Program

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ABSTRACT

As people around the world increasingly migrate online to open communication, share information, and exchange money, goods, and services, the extensive power and possibilities offered by the Internet have never been more apparent. While enriching many lives in unprecedented ways, the Internet has also introduced new opportunities for harmful practices such as seen within the realm of modern slavery, and particularly within the sex trafficking industry. The goals of this thesis are to understand the ways in which traffickers utilize the Internet to recruit women and girls for the purposes of commercial sexual exploitation and to explore the vital role of technologists in creating safer online spaces. Social media platforms, employment opportunity pages, and the deep Web are areas of vital importance in these considerations, and they will be given particular attention here. The Internet has played a role in entrapping many of the tens of millions of people currently enslaved around the globe, but it is also providing the framework to recover victims as well as identify responsible parties. This thesis will analyze the online recruitment of women and girls into the sex trafficking industry to allow for a clearer understanding of the dangers and possibilities that technology has introduced, with the hopes of contributing to the larger humanitarian goals of combatting human trafficking and creating safer and more mindful software products and systems.

BACKGROUND INFORMATION

Human trafficking is not new. The involuntary enslavement and trade of humans, usually for the purposes of forced labor or sexual slavery, has existed since the dawn of civilization and well before recorded history, predating the modern terms used to describe it by thousands of years. What is new, however, is the immense and continuously expanding network of networks known as the Internet, which established the first link between computers in October 1969 (Leiner). The unfathomable implications of that connection, both good and bad, have changed our world in ways that no one could have imagined at that time. Leading up to and especially following this event, technologists of all kinds have risen to the challenge of developing faster, more powerful, and more accessible machines, operating systems, software applications, and network protocols that allow us to utilize the Internet in an ever-expanding and incredibly creative number of ways. Many of these applications have been profoundly beneficial - even life-saving - but this has not been the only case, and it is imperative that the developers of these tools consider all aspects of their technology, including the potential for and consequences of its abuse.

Since its first connection in 1969, the Internet has spread around the globe, connecting even some of the most remote locations, and opening up the gateway to exchange communications, information, and money at the blink of an eye. It has drastically influenced how we learn, who we meet, how we shop, what we buy, how we interact with each other, how we express ourselves, how we travel, how we earn money, and how we spend our time. Software engineers and Web designers have

developed tools to accomplish nearly any online task one could imagine although they aren't always willing or able to anticipate the many ways their tools might be used (or misused). Even so, from how we figure out the name of "that actor from that movie" to the transactions taking place each second at the New York Stock Exchange, the Internet has shaped and reshaped the way our world works, and in only a few decades.

With such an impact, it is understandable that the Internet is also changing the human trafficking industry in profound ways. Human trafficking, which is also referred to as modern slavery, is used as an umbrella term for "the act of recruiting, harboring, transporting, providing, or obtaining a person for compelled labor or commercial sex acts through the use of force, fraud, or coercion" (U.S. Department of State, 29). It should be noted that "transportation" as referred to above includes but is not limited to the movement of persons both within and across borders. Globally, human trafficking comprises an illegal industry that generates about \$32 billion each year (Pundina, 1) and held a conservatively estimated 20.9 million people captive in 2015 (ILO, "Global" 13). Trafficking occurs all around the globe – certainly including in the United States – and constitutes the fastest-growing criminal industry in the world (Couch). Its growth is currently tied with that of illegal arms trafficking and second only to drug trafficking (Case, 1).

Although awareness, legislation, and resources around identifying and preventing human trafficking have significantly increased in recent years, there is little to no data to show that trafficking rates have declined. The International Labour Office noted the difficulties in obtaining definitive estimates when they explained, "The 2012

estimates cannot be compared to those from 2005 for the purpose of discerning trends over time... What can be said is that ILO has produced a more robust estimate in 2012, based on a more sophisticated methodology and more and better data sources” (“Global” 17). In other words, there has not enough comprehensive and verifiable information collected over a long enough period of time to give accurate estimations about trends in the growth or decline of human trafficking.

There are three main categories of trafficking, including State-imposed forced labor (about ten percent or 2.2 million people), forced sexual exploitation (about twenty-two percent or 4.5 million people), and forced labor exploitation (about sixty-eight percent or 14.2 million people) (ILO, “Global” 14). This thesis will focus on sex trafficking (often referred to as sex slavery), which involves exploitation by the private economy, either by individuals or by enterprises, and in addition to the definition above, also applies to situations where the person forced to perform a commercial sex act is under the age of eighteen (Latonero, “Human Trafficking Online,” 10). Finally, sex trafficking is not to be confused with voluntary sex work or prostitution.

With this knowledge in mind, it makes sense that traffickers would employ the use of the Internet. This vast industry, like any chain of businesses, requires some basic tools to operate and remain profitable; as an illegal operation, it faces the additional challenge of remaining undetected by law enforcement agencies. After all, like any business (criminal or otherwise), obtaining goods, communicating, coordinating, marketing, and connecting with customers are of vital importance for survival, and the Internet provides an unparalleled platform to do so. Traffickers working online have

more powerful means of obtaining at-risk women and girls to exploit (the main topic of this thesis), connecting with local johns (men who purchase sexual services), advertising sex tourism “deals” to international potential buyers, moving women and girls across international borders, selling women and girls to other pimps or brothels (individuals or groups that sell sexual services), and even distributing and selling pornography they may have created. Traffickers take advantage of the Internet at every step of their business process in order to access more women and girls (supply) and more johns and pimps (demand) than ever before possible.

There is one catch, and it is an important one. Every transaction that takes place on the Internet, however fleeting or seemingly insignificant, leaves behind a trace. Like a fingerprint left on the doorknob of a burgled home, this trace is one way that law enforcement agencies are harnessing the Internet to their advantage in an effort to expose trafficking routes, identify and bring pimps and johns to justice, and recover trafficking victims. In fact, law enforcement agencies, non-governmental organizations (NGOs), and leading software development companies (such as Google and Microsoft (U.S. Department, 14)), are developing new and more sophisticated tools and methodologies that can be used to make the Internet safer for us all, track down traffickers, identify johns, and help recover victims of trafficking, all while maintaining the delicate balance of preserving our rights to online privacy. A few of these technologies involve the use of tracking algorithms, language analyses, facial recognition software, and the use of the deep Web.

It is important when thinking about issues such as these to remain mindful that the Internet is merely a tool, and one that humans have created and have the power to modify. Like any tool, it is not inherently evil or good, but how it is used and by whom which should ignite outrage or celebration. It's true that the Internet has a role in the facilitation of sex slavery, but it's also true that it has had huge impacts on spreading awareness of the problem and mobilizing work against it. Similarly, the Internet has allowed for unprecedented levels of stalking and introduced cyber-bullying, but it has also reunited families separated in natural disasters and provided unparalleled access to education for people around the world. While it may seem tempting to simply renounce technology altogether, leading Computer Scientist Ray Kurzweil reminds readers of the impracticality of that notion when he declares:

Stopping computer technology, or any fruitful technology, would mean repealing basic realities of economic competition, not to mention our quest for knowledge. It's not going to happen. Furthermore, the road we're going down is a road paved with gold. It's full of benefits that we're never going to resist – continued growth and economic prosperity, better health, more intense communication, more effective education, [and] more engaging entertainment... (130).

The answer to ending exploitation of technology is not to halt its expansion, but to add elements of mindfulness wherever possible.

Yes, this double-edged sword introduces new dangers, but we can't simply put it away or move back in time to before its inception; the Internet brings far too much potential and opportunity along with it. Instead, the way to move towards a more perfect world, where we are safe surfing the Web, and where all people are treated with dignity and respect, is not to reject the Internet as a whole or become paralyzed by

the terrible things that can happen through it, but to arm ourselves with more responsible software and applications, gain knowledge about best practices, and stay aware. As technologists, we also carry an ethical obligation to deliberately and carefully examine the implications of the technology we unleash, include appropriate safety and security measures wherever possible, and develop more and better ways to use our collective tools in our own favor while intentionally limiting the potential for them to be used against us.

INTRODUCTION

The relationship between human trafficking and the Internet has evolved to levels of incredible complexity over the last several decades. As a tool for discrete communication, even across borders, oceans, languages, and cultures, moving online has introduced unparalleled benefits for traffickers. As a tool that leaves evidence behind, it also presents a golden opportunity and source of hope for law enforcement agencies and non-governmental organizations working to end the horrendous trade. So, what role does the Internet play in enabling and preventing human trafficking? Why is the relationship between online tools and traffickers so important to examine? How can we end this industry which profits from some of the most terrible abuses of human rights? Can software engineers make a difference? To begin answering some of these complex questions and understand the dynamics at play, the focus will be narrowed down to one aspect of the trafficking cycle that has been especially influenced by the Internet.

Currently, at any given point, a conservatively estimated 20.9 million people, or about three out of every thousand people, are enslaved in human trafficking (ILO, "Global" 13). Coordinating and keeping this many people controlled is a need of traffickers that the Internet lends itself to. Since the introduction of the Internet, all forms of human trafficking have in one form or another adopted and been reshaped by this technology. However, the sex trafficking industry is particularly well suited for utilizing the Internet. A team at Microsoft Research identified fifteen key facets of the sex trafficking ecosystem in order to help illustrate this relationship: (Boyd, 3)

1. Prevention and Education
2. Recruitment and Abduction
3. Transit, Housing, and Everyday Control of Victims by “Pimps”
4. Retention of Victims by “Pimps”
5. Advertising and Selling of Victims [including pornography]
6. Searching for and Purchasing Victims by “Johns”
7. Money Exchange, Money Laundering
8. Underground Partnerships and Organized Crime Syndicates
9. Identification and Reporting of Victims and Perpetrators
10. Investigation of Illegal Activities
11. Rehabilitation and Recovery for Survivors
12. Prosecution of Perpetrators
13. Rehabilitation for and Control of Perpetrators
14. Political and Policy Activities
15. Anti-Trafficking Partnerships

All of these aspects have been profoundly and uniquely affected by technology, yet there has been little research to date about the multifaceted challenges and breakthroughs presented at each particular stage. Further exploration could reveal trends or predictions for the role of technology at each step, as well as what actions might be taken in order to implement the most effective harm reduction systems possible.

The stages mentioned above describe the entire sex trafficking cycle, from recruitment to (in the unlikely best case scenario) recovery and rehabilitation of the victim and persecution of the trafficker. These steps include the impact and utilization of the Internet from many different parties at different times; this thesis will focus on the ways in which traffickers employ the Internet in order to recruit and entrap women and girls for the purpose of commercial sexual exploitation through an exploration of traffickers’ use of social media, online classified postings (particularly employment listings), and the deep Web. In other words, it will examine the relationship between

the Internet and the second aforementioned element of the sex trafficking ecosystem, recruitment and abduction, from the point of view of the trafficker, and orient the focus towards female victims. It should be noted that while there are indeed male trafficking victims, they comprise only two percent of individuals trafficked for commercial sexual exploitation (ILO, "Global" 14). For a deeper and more realistic understanding of this complex problem, some common questions regarding the proliferation of sex trafficking will be addressed before moving on.

First of all, why does sex trafficking take place? Like many terrible abuses, money plays a central role. In the simplest terms, sex trafficking occurs as a result of just how lucrative the industry is. Even while the most profitable goods can be sold at an extreme margin, they can only be sold once. A sex slave, on the other hand, can be sold again and again, multiple times a day, and often for years on end, resulting in a return that is all too irresistible to traffickers. Although exact numbers vary, it isn't uncommon for a victim to be forced to have sex with ten to twelve men daily (Latonero, "Human Trafficking" 13). The International Labour Office reports that globally, the average victim of sex trafficking generates an annual profit of about \$37,800. The highest profits per victim come from developed countries, and the highest annual industry profits come from the Asia-Pacific region (due to a larger number of victims enslaved) (ILO, "Profits" 27). For those willing to sacrifice the basic human rights and dignities of others to turn a profit, the sex trafficking industry is tempting indeed. And as the fastest growing criminal industry in the world (Couch), it seems that traffickers are taking the bait.

Taking a closer look, sex trafficking would not be so profitable a trade in the first place if there were no demand for its services. In this way, sex trafficking can be viewed as a problem of supply and demand; if so many men (again, although there are women who pay for sexual services, the vast majority are male) did not want to purchase a woman or girl to perform sexual favors for them, surely the industry would collapse. Men who solicit the services of sex workers are referred to as “johns,” and these johns are what drive the sex trafficking industry as a whole. Like any other business, if customers simply stopped purchasing the goods or services offered, the business would plummet, face unavoidable bankruptcy, and ultimately, close altogether.

Finally, the proliferation of sex trafficking depends greatly on the way in which women and girls are viewed and valued (rather, devalued). As Nicholas Kristof, a leading journalist on global human rights abuses and social injustices, explains simply, “In this world, talent is universal and opportunity is not” (Public). That is to say, when women and girls are granted the same chances and dignities as their male counterparts – when they are valued and given the opportunities to access adequate education, to work for equal wages, and to be treated fairly and with respect – they prove to be equally (sometimes even more) capable of success, independence, and prosperity. Additionally, given these conditions, terrible abuses like being trafficked are less likely to occur. However, it is consistently shown that where women and girls are undervalued, oppressed, and viewed as dispensable or as a commodity to put to work or sell when a family becomes hungry, goes into debt, or simply desires more income, severe human

rights violations such as involvement with sex trafficking are far more likely to take place.

The importance a culture and society places on its women and girls, especially in relation their male counterparts, has huge and direct impacts on the likelihood of their survival and success. Sex trafficking occurs globally and in many different kinds of societies; however, when looking carefully into the causes and pressures of the sex trafficking industry, the common threads of poverty, gender inequality, and lack of education and opportunity can be found time and time again. A society that teaches its boys that they are smarter, more powerful, more valuable and superior to females, which are mere objects to be possessed or controlled, will teach these boys to disregard the equal humanity of females and lead them to accept - even expect - inferior treatment of women and girls while also enabling them to purchase or abuse a woman or girl themselves. Girls in a society that teaches these messages will believe that they are of little or no value other than to serve a man.

ONLINE RECRUITMENT FOR SEXUAL EXPLOITATION

With these understandings in place, it is possible to examine how traffickers use the Internet specifically to recruit and entrap women and girls to exploit; without a general understanding of the larger picture, it is difficult to make sense of the many pieces and the dynamics at play between them. Traffickers are drawn to the Internet at various points in the trafficking cycle, but recruitment is particularly crucial. The Internet has a few characteristics that make it especially attractive to traffickers at this stage; abilities such as being able to reach a large audience or present misleading or unverifiable information while avoiding strict regulation or monitoring make for the right combination of conditions for traffickers to recruit, abduct, or entrap victims. Although there are many venues where recruitment takes place, some of the most common online methods include utilizing social media, creating actual or misleading job listings, and establishing pages within the deep Web (the very large portion of the Internet that is temporary, unlisted, and/or unindexed). Ensnaring victims typically involves a manipulation of trust, threats, false promises, or a combination of these factors.

One of the Internet's most astounding tools is its ability to reach a huge number of people. This is often done through the use of social media, advertisements, and Web searches, to name a few common venues. As of March 2016, there were over 3.3 billion Internet users worldwide, or about 45% of the world's population, with this number steadily and constantly increasing (Internet). Personal and public computers with Internet access (including mobile devices with Web capabilities) are becoming more and

more readily available, even in countries where otherwise few modern services are available. Facebook alone, which is the most widely used social media platform, boasts more than a billion users (Latonero, "The Rise of Mobile" 21). The exponential growth of the Internet and its users has allowed people to connect like never before; this, unfortunately, includes the dangerous ability of traffickers to exploit common online hubs to recruit new victims in unprecedented ways.

Another aspect of particular importance that the Internet offers is anonymity. From chatrooms, comments, and messages to fake profiles and anonymous job listings, the Internet has many ways to interact with others without revealing one's identity. This isn't inherently harmful, but traffickers frequently take advantage of this capability in efforts to recruit victims and evade detection by law enforcement agencies. Anonymity is vital in the recruitment process because it allows a trafficker to communicate with a potential victim while keeping their true intentions and any identifying or incriminating information carefully controlled and concealed; they learn much about the potential victim, while very little is revealed about themselves other than the story that the trafficker has created. This results in an enormous power imbalance, a carefully crafted false sense of trust to lure in victims, and a built-in escape for the trafficker in case suspicions arise (as only they control what is known about their true identity and whereabouts).

Furthermore, being able to present false information, be it their own identity or a false employment opportunity, can be performed online with little to no regulation or verification requirements. In general, there are no established, immediate, or easy

means to ensure that information present on the Web is safe or accurate. The Internet spans the globe without any governing body, and even individual websites often grow so large and span so much area (geographically and otherwise) that monitoring becomes minimal if in place at all. Even organized sites with safety mechanisms in place (for example, YouTube or Facebook) typically take a reactive stance, responding to user reports of flagged, inappropriate, dangerous, or suspicious activity, rather than a proactive stance that prevents these occurrences from happening in the first place. This must be the case, as the Internet or any website is merely a tool; traffickers exploit these very same mechanisms that provide options to and preserve the privacy of and security for all of its users, law abiding or otherwise.

When considering where trafficking recruitment takes place online, it is helpful to examine the places where people, including and especially women and girls, tend to congregate. One of the most common of these online hubs is social media. Not surprisingly, social media also presents one of the most common grounds for entrapping victims of sex trafficking. Popular platforms such as Facebook, Myspace, and Twitter have been especially exploited by traffickers. Although techniques widely vary, the goal of the trafficker is to gain the trust of the potential victim online; this is most commonly done by “expressing love and admiration of the victim, promising to make the victim a star, and providing a ticket to a new location away from the victim’s home” (Dixon 1). Once united with the trafficker, communication will be restricted, and threats or punishments will be put into place to further entrap and isolate the victim. Specifically, the most commonly targeted populations are comprised of vulnerable women and girls

that may be insecure, naïve, facing financial pressures, and/or desperate to get out of another situation.

To gain the trust of potential victims, traffickers often create false profiles on a social media platform and pose as someone else to appeal to the perception of their target (Latonero, "Human Trafficking" 14). This could involve presenting as more relatable, attractive, or "normal" to victims through the use of deceitful profile pictures, employment information, age, location, and/or friend group (such as obtaining "mutual friends" on Facebook). Traffickers recruiting with these methods will communicate with victims, often presenting themselves in these misleading ways, and slowly gain the trust of victims, eventually convincing them to travel away from home, apply for a "promising" job, or otherwise meet the victim and persuade them to leave their current situation. Since trust is a vital piece of this particularly manipulative process, the trafficker tends to place emphasis on wanting to help the victim get out of difficult circumstances or offering a new opportunity for work or fame, but with the motivation of helping the victim as someone they care about. Of course, this trust relationship is exploited only as a means of obtaining a new sex worker to profit from.

Dr. Mark Latonero of the University of Southern California describes two such examples of this method of recruitment. In "Human Trafficking Online," he reports that "In November 2010, Martin Chavelle Epps was sentenced to twelve years and seven months in federal prison for sex trafficking of a minor. According to court documents, Epps contacted the sixteen year old female via Myspace, encouraging her to travel to Sacramento, California, to work for him and then advertising her sexual services on the

Internet from a hotel... Epps described his practices as ‘Y2K pimpin’” (8). Similarly and during the same time, “a local news station in San Antonio, Texas, reported the case of a fourteen year old girl who was recruited through Myspace. The girl reportedly was forced to act as a prostitute in Arizona for six months before she was rescued” (13). In both cases, the theme of exploiting the trust of a vulnerable girl can be found. Pimps posed as someone else, gained the trust of their victim, made promises of false opportunities, and relocated their victims away from their homes to be forced to perform repeated commercial sex acts for the profit of the trafficker.

This disturbing trend is not uncommon, and is certainly not limited to Myspace or to the United States of America. Indeed, as Myspace declines in popularity, established and emerging social media platforms like Facebook or Instagram are exploited by traffickers carrying on the dirty work of recruiting victims of sex trafficking online. With ever increasing access to the Internet and especially social media (in large part via mobile devices with Web capabilities), traffickers all over the world are participating in the same predatory practices. The United Nations Global Initiative to Fight Human Trafficking offers one such example through an examination of sex trafficking recruitment via Facebook in Indonesia. The report describes a fourteen year old girl who accepted a Facebook “friend request” from a man she didn’t know, and after developing a friendly relationship and even meeting in person on several occasions, was abducted, drugged, raped, and held captive as a sex slave. The report further estimated that in 2012, as many as 27 of the 129 (about twenty-one percent)

children reported missing in Indonesia were lured into sex trafficking through their Facebook accounts (1).

Another means of entrapping women and girls into the sex trafficking industry is through the use of online employment searches, which comprises another major online hub. Although many such websites exist, the most common and recognizable venue for these misleading job postings include Craigslist and Backpage. These sites have been criticized not only for their role in the recruitment of victims, but also in their role of advertising sexual services from trafficked women



“Nina” was recruited into sex trafficking at age 18 after accepting a friend request on Facebook from a pimp who, after about a month of messaging, convinced her to travel to Seattle, where he forced her to sell sex on the street. She spent the next four years enslaved, and reports being forced to help her pimp recruit more girls online during this time (Fink).

and girls to johns under their respective “Adult” sections. Although exact websites and details may vary depending on location and circumstance, a common pattern can be identified through this method. Women and girls, often poverty stricken or desperate for work, may come across job offerings online, where a trafficker will typically promise an often “unbelievably” good job, only to ensnare the victim into sex slavery once relocated (Dixon).

The types of misleading employment opportunities included a wide range, but the most common job listings were designed to attract young women or girls with little work experience or education, who were often pressed for money. Positions such as models, dancers, waitresses, or nannies comprised the most common false employment

premises used by sex traffickers to recruit their victims. Again, these advertisements are designed to make calculated targets of vulnerable women and girls in need of money, desperate to get out of an existing situation, or with little work experience. The Chicago Sun-Times reported one such case of a nineteen year old woman who was lured into sex trafficking through these means. The young woman responded to an “Internet ad” (the particular site was not specified) for modeling, but instead found herself being sold for sex out of a hotel (Konkol).

Judge Herbert Dixon, Jr. outlined a few more examples of these recruitment methods throughout his publication in *The Judges Journal* in 2013. He reports that in 2008, “In Denmark, law enforcement authorities noted suspicious advertisements for nannies, waitresses, and dancers on websites in Latvia and Lithuania.” In another case, “traffickers advertised in Japan for ‘nude models’ to work in the United States. Upon their arrival in Hawaii, the supposed “models” were instead forced to perform live Internet sex shows and take part in pornographic videos that would be shown to Japanese audiences.” In both examples, the false promise of employment in a new location lured women and girls into sex trafficking by pimps. The combination of the hope for new opportunity and the desperation to find employment and/or leave a current difficult situation led to the victims’ susceptibility to these manipulations.

The latter example of the trafficked Japanese women and girls also demonstrates how traffickers manipulate the relocation of victims to multiple ends; victims are moved not only to disconnect them from their home and isolate them from resources, but also to circumvent laws of a given country (in this case, the production of

pornography). To maximize profits and reduce the risk of intervention by law enforcement, the pimps in this example transported the exploited women and girls out of Japan, where lawfully produced pornography must censor the genitals of actors, and into the United States, where pornography need not be censored as such. Then, that pornography can be redistributed back into Japan (and anywhere else with an Internet connection) with lowered risk.

When confronted with the reality of how prevalent recruitment (as well as the advertising and selling) of women and girls for sexual exploitation is on a particular site, it becomes apparent that more strategic, mindful, and comprehensive action needs to be taken. Preventative processes certainly need not be limited to the responsible or hosting site; coordinated and deliberate cooperation involving the site, law enforcement, researchers, non-profit organizations, and the government is required. When these bodies work together, real change is made and trafficking rates decrease. However, when these entities look for simplistic, short-term solutions and turn to blame instead of examining the larger problem at hand, nothing improves, and often, conditions worsen.

To explore this point, consider the case study explored in Latonero's "Human Trafficking Online." In summary, Craigslist had been criticized for its role in trafficking and sexual exploitation via its "Adult Services" (formerly "Erotic Services") section since 2007. Although Craigslist made several attempts to increase regulation and security for these sections of their site and continuously cooperated with law enforcement agents, it remained a particular target of criticism from politicians, advocates, and law

enforcement officials, who were determined to shut the Adult Services section down entirely. Following a lawsuit, a disputed research study, and mounting pressures, Craigslist closed all Adult Services sections of their website worldwide by December 2010 (21-22). This closure succeeded in cutting online sex advertisements nearly in half (Louie), but there are some additional considerations before calling this closure a victory.

Latonero expresses some of his own concerns regarding the Craigslist case study, which are relevant here:

“The Craigslist case is striking because of (1) the lack of credible empirical research and aggregate data on trafficking and online technologies informing the debate, (2) the lack of more cooperative cross-sector partnerships and coordination, and (3) a missed opportunity to explore more creative solutions to the problem of trafficking online” (22).

His final point perhaps rings truest for this thesis. In exploring the way forward and designing websites and online tools to reduce, prevent, and recover victims of sex trafficking, the answer is not to close the door altogether, but to think critically for a solution that decreases demand and access for perpetrators while creating lasting improvements and a safer online space to prevent more women and girls from being ensnared into the sex trafficking industry.

By shutting down the Adult Services section of Craigslist entirely, law enforcement agencies and non-governmental organizations have lost access to a plethora of data and a cooperative potential partner in the fight against sex trafficking. It may well be the case that pimps and johns formerly exploiting Craigslist have now simply migrated to other (and more hidden) locations. The closure of one website will

not prevent the problem from taking place, as there are countless other sites that can be exploited even more easily for the same purposes. In fact, following the closure of Craigslist's Adult Services, "although website traffic [on Craigslist] has decreased by 6 percent... website traffic reach has increased for eight of the top ten sex ad competitors: Backpage (12.5 percent), CityVibe (3 percent), MyRedBook (10 percent), TheEroticReview (1 percent), AdultSearch (10 percent), NaughtyReviews (7 percent), SipSap (5 percent), Eccie.net (2 percent)" (Louie).

What's more, the Internet is a vast territory. It's much larger than many of us may realize or can even fully comprehend, and its exponential growth continues with each passing moment. Although the Internet is neither an easy nor straightforward thing to measure (should we consider the number of Web pages, bytes of hosted data, number of distinct servers, number of users, amount of traffic, or some other means?), it has grown so large that a term has been coined to describe the restricted, unexplored, or unindexed majority of it. The "deep Web" refers to most of the Internet; it accounts for roughly ninety percent of the Web, and has not been indexed or made accessible by popular search engines such as Google, Bing, or Yahoo (Greenemeier).

To better understand what the deep Web is, it is helpful to note what it is not. Unlike the "surface Web" – the portion of the Internet that most of us are familiar with, which is comprised mainly of stable websites, hyperlinks, and intricate ties to search engines, the deep Web is largely inaccessible to average users. Google (and most other search engines) builds its search results for us by using what is referred to as a spider, or Web crawler. These spiders travel through websites via hyperlinks (any online element

– usually text or an image – that directs a user to a new location when selected or clicked) while cataloging each page along its ways. By “jumping” or “crawling” from one hyperlink to another – one Web page to another – Google is able to store, organize, and prioritize the content these spiders find on the Internet. When we query something using Google, Google simply pulls the most relevant Web pages from its database. This process is heavily dependent on two factors: the presence of hyperlinks, and that those hyperlinks remain constant. Content on the deep Web may be lacking either or both of these features, which is why they do not appear in the databases of search engines, nor in search results.

So what is actually contained in the deep Web? The majority of the deep Web is believed to be comprised of unstructured data produced and recorded by various devices and sensors connected to the Internet, such as, for example, private or “deleted” Facebook photos, the complete heart rate history of every Fitbit user, and the complete temperature and content history of every smart refrigerator. Beyond this unstructured data, the deep Web contains a large number of temporary and unlinked pages, which is the relevant portion for this discussion. Temporary pages have various uses, but are often employed in illegal activities, including the recruitment and advertising of women and girls for the purposes of commercial sexual exploitation, and are frequently used in conjunction with specialized required software, authentication checks, and/or peer-to-peer connections to restrict access and secure anonymity. Temporary pages on the deep Web serve criminal purposes especially well, as they are

designed intentionally to be removed or relocated before search engine spiders (or law enforcement agencies) have a chance to index or access them.

Considering sex trafficking, the deep Web is used most frequently in advertising and selling victims, either to other pimps or to johns; however, the recruitment of women and girls is also facilitated here. Recruitment via the deep Web typically occurs through a combination of transactions, either beginning in person then moving online, or online within the surface Web (such as on Facebook or Craigslist) and then moving into the deep Web. Since the pages on the deep Web are often only accessible to those who know exactly where and when to look, and have the correct authentication credentials, this method often involves a two-step process beginning with a separate and primary online connection (such as via social media or a job posting) or an in-person connection; again though, the same tactics of gaining trust and offering a promising new opportunity are key factors. Once these pieces are in place, a trafficker may direct a victim to an unlisted website on the deep Web to achieve higher levels of privacy, less monitoring and regulation, and a greater ability for manipulation before meeting the victim in person and attempting their abduction.

The exploitation of women and girls for the purposes of commercial sexual exploitation constitutes one of the world's most egregious atrocities, yet it takes place around the globe and can be found through each of our computer monitors and smart phones. The proliferation of this horrendous and systematic industry, which profits from the violation of people's most basic human rights, depends in large part on the recruitment of new women and girls to exploit; this process provides the stream of

“supply” to traffickers. Much of this entrapment now takes place online, especially through various social media platforms, employment opportunity advertisements, and in conjunction with the deep Web. Indeed, even areas of the Internet most of us consider to be relatively safe, when inspected closely, contain ties to the sex trafficking industry.

Even with this grim understanding in mind, for each way in which a trafficker exploits the Internet to their advantage, an anti-trafficking advocate (whether in law enforcement, a non-governmental agency, a private corporation, or as an individual) is harnessing technology and the Web in an effort to put an end to this horrific industry. The next section will highlight a few of these efforts, provide recommendations for ending this trade altogether, and offer some basic safety practices for the average Internet user. Finally, this thesis will address the role of technologists, both in combatting trafficking and beyond; technologists must work to mindfully create spaces, software, and systems that operate responsibly and proactively in order to provide the most effective and secure product, as well as to minimize the potential of misuse.

LOOKING AHEAD

An issue as widespread, convoluted, and delicate as sex trafficking will not and cannot be solved by any one individual, organization, invention, or country. Ultimately, cooperation from many bodies will be necessary to adequately serve victims and combat the proliferation of the industry. On a basic level, this includes the need for governments to enact and enforce appropriate and effective legislation, law enforcement agencies to identify and shut down brothels, pimps, and johns without incriminating victims, and non-governmental organizations to provide recovery and rehabilitation services to survivors. Next, to be most effective, more research needs to be conducted on the realities of trafficking, methods of recruitment that traffickers use, and the impact of technology in the trafficking sphere. Finally, a realistic solution also demands that that technologists in the public and private sectors not only develop and maintain new and more effective tools for fighting trafficking via technology, but that mindfulness is practiced when developing any websites or software in order to anticipate how they may be used or misused and minimize or eliminate potential harm.

Looking at the larger picture, sex trafficking will continue to exist only as long as the world allows it to. Societal views of women, opportunity and access to education and work, and the general population's awareness of and attitude towards trafficking all play vital roles in determining the survival or demise of this industry. Considering online interactions, traffickers depend heavily on and benefit greatly from Internet users being both uninformed and unprotected. In other words, they exploit that most Internet users are unaware of the trafficking industry's online presence; therefore if they

encounter or witness an incidence of trafficking, it is very unlikely that they will identify or report it as such. Next, they take advantage of the many Internet users that leave themselves and their personal information vulnerable to traffickers - and everyone else - by freely and publicly posting, blogging, sharing, “checking in” (that is, sharing one’s location), and performing all kinds of online activities without regard to adjusting their privacy settings or giving thought to their personal “digital footprint.”

Staying mindful of trafficking tactics and making some adjustments to privacy settings on social media accounts and online behaviors are steps that will make anyone exponentially safer online, without losing any of the benefits of being connected. While there are no guarantees with safety, users can drastically reduce risks by being particular about what they place online, when, and with whom. First, privacy settings can be adjusted on any accounts or information so as to be visible only to a limited and intended audience; most social media platforms are currently public by default –that is, visible to anyone, anywhere. Next, users can remain both vigilant and particular about what information they share, especially when interacting with people they do not know in person. Finally, it bears repeating that even online content listed as private or that has been deleted still exists (often in the deep Web) and remains outside of the original owner’s control; this content can still be accessed given the right tools and determination. Before a user shares, transmits, or uploads anything to the Internet, they would be wise indeed to consider this reality.

In the ongoing effort to end sex trafficking, there have been huge strides in harnessing technology to combat its presence, both online and offline. It is helpful to

remember that the Internet is merely a tool, and the same capabilities it provides to traffickers are also granted to the governments, agencies, and institutions that work to combat trafficking. As previously stated, every online transaction leaves a trace, and these traces can be carefully pieced together, often with the assistance of specialized software, by governments and law enforcement agencies to collect helpful information that could lead to the recovery of victims and arrest of pimps. This type of information includes being able to uncover and track data such as cell phone usage, financial transactions, and locations, as well as identify sellers, recover information about victims, and map patterns of criminal activities (Pundina).

Considering the vast and ever-increasing amount of online data, and with much of it being largely inaccessible (in the deep Web) by common methods, it quickly becomes apparent that assistance is required to locate and process relevant information. In response to this dilemma, software tools such as data mining, data mapping, computational linguistics, facial recognition software, and advanced analytics are being developed and applied to identify patterns in sex trafficking on the Internet (Maza). Many of these software tools, such as data mining (a means of extracting relevant and interesting patterns from huge amounts of data), are first designed and developed for use in business (marketing, in this case) and are then adapted and applied to aid in problems such as sex trafficking.

Other tools are created specifically for anti-trafficking purposes, as is the case for the Defense Advanced Research Projects Agency's (DARPA) Memex program. Memex (a combination of the words "memory" and "index") works by crawling the deep Web

(using a means similar to Google’s “spiders”), with the particular goal of tracing information and patterns related to traffickers luring victims into servitude and promoting their sexual exploitation (Greenmeier 1). Unlike standard search engines, Memex does not just identify occurrences of specified data, but systematically hunts for relevant patterns and relationships from a broader section of the Internet in order to generate data maps and identify a group of Web pages connected to given information, such as an email, phone number, or name (Greenmeier 2). Although still being developed, the Memex program offers a promising model of the power of deliberately creating an effective tool to combat trafficking. As of October 2015, Memex had contributed evidence to at least twenty active sex trafficking investigations in New York alone, and different components were being used throughout the country (Greenmeier 2).

All of these tools demonstrate that the Internet, or any fruitful technology, is not inherently good or evil, but depends instead on how and why it is used, and who it is used by. Indeed, the Internet did not cause trafficking – these kinds of slavery were practiced long before its invention – but it can help or harm efforts to end the trafficking industry. As President Barack Obama stated in his remarks to the Clinton Global Initiative,

We’re turning the tables on traffickers. Just as they are now using technology and the Internet to exploit their victims, we’re going to harness technology to stop them. We’re encouraging tech companies and advocates and law enforcement – and we’re also challenging college students – to develop tools that our young people can use to stay safe online and on their smart phones.

Since that 2012 speech, more research has been done, more sophisticated tracking algorithms have been designed and developed, and more individuals are becoming aware of the outrage and injustice that is human trafficking.

A NOTE TO TECHNOLOGISTS

As the minds responsible for designing innovative websites, developing advanced software, and implementing unprecedented algorithms, technologists shape our modern world and the ways in which we interact with computers, businesses, and most importantly, each other. As such, technologists carry an immense responsibility along with an ethical obligation to add elements of mindfulness and careful consideration of various potential impacts into any software development life cycle. More than simply translating the requirements and specifications of a customer into a prototype and eventually into a working product ready for deployment, it is imperative to think critically and deliberately about the implications of a product, who will be using it, how it could be used or misused, and how it might be made more safe and secure. Realistically speaking, not all possible outcomes or violations can be anticipated entirely, but prioritizing privacy and security while building in safety measures to act as pre-emptive checks and balances can be implemented before a product's release and throughout its maintenance cycles; doing so will result not only in higher quality and more valuable deliverables, but will ultimately make our modern world a far safer place for all of us.

As a professional industry, computing constitutes one of the world's newest and fastest growing fields. Unfortunately, it seems that a widespread discussion of ethical obligations and ramifications have not kept up in pace. Designers and developers who have not been exposed to various ways technology has been and may be exploited are often unaware of there being any problem at all, let alone how to prevent such

occurrences from taking place. This gap in knowledge, between the incredible extent of what we can create and the dangling question of what doing so will mean, is one that must be further explored. Thinking critically about the implications of technology and technology's role in our world should be integrated into any computing education curriculum and discussed regularly in the workplace. Throughout iterations of the software development life cycle, addressing concerns of misuse, privacy, and security are valid and necessary additions that will remedy this gap in knowledge, produce higher quality and more competitive deliverables, and allow clients and users far higher levels of privacy, security, and safety.

The Association for Computing Machinery (ACM) was founded in 1947 and constitutes the world's largest scientific and educational computing society (1). Although not addressed or applied nearly as often, the ACM's Software Engineering Code of Ethics could provide technologists what the Hippocratic Oath offers physicians. In both cases, these texts exist to hold respective professionals accountable for upholding specific ethical standards. The preamble of the Software Engineering Code of Ethics echoes the aim of this thesis when it asserts,

Computers have a central and growing role in commerce, industry, government, medicine, education, entertainment, and society at large. Software engineers are those who contribute by direct participation or by teaching, to the analysis, specification, design, development, certification, maintenance and testing of software systems. Because of their roles in developing software systems, software engineers have significant opportunities to do good or cause harm, to enable others to do good or cause harm, or to influence others to do good or cause harm. To ensure, as much as possible, that their efforts will be used for good, software engineers must commit themselves to making software engineering a beneficial and respected profession (Quinn 413).

In alignment with this Code of Ethics, it is the responsibility of the computing professional to think critically through the design, implementation, and potential misuse of their deliverables before they are unleashed (usually irrevocably) into the world.

This thesis explored the role of the Internet in the recruitment of women and girls for the purposes of sexual exploitation as a means to talk about the ways technology can be terribly exploited. This unfortunate theme, however, is neither isolated nor particularly uncommon. One might also consider how, for example, Jacobus Lentz, a talented data processor, developed an innovative type of forgery-proof identification card that was adopted by the Nazis to more efficiently transport and exterminate Jews and several other groups (Quinn 408). From these identification cards to propaganda websites that promote and organize white supremacist groups to social media platforms that enable anonymous cyber-bullying, issues of Internet and technological exploitation are by no means limited to human trafficking. As technologists, we possess the skills and resources to develop unprecedented tools and ways of interacting with each other; it is up to us to ensure that the products we create benefit humanity and not those who are willing to sacrifice it.

EPILOGUE

As an undergraduate student, I began work on this thesis at the beginning of my junior year, which was also when I began taking courses towards the computer science major. Initially, I had the mindset that I had chosen a topic (human trafficking) that was outside of my field of study, and that I would include the Internet to somehow tie things together. I have always been interested in social justice and especially correcting atrocities like modern slavery, but I viewed these areas as isolated and separate from my studies; I would be the software engineer that coded for some unrelated business during the day and pursue my humanitarian interests via volunteering or some other avenue separate from my day job. Through the research for this thesis, the persistent questioning of my advisor, and the content of the classes I have since taken “outside” of my major, I have come to understand some of the intricate and complex ways in which computer science, and arguably every discipline, is hugely interrelated with many others, including and especially work involving social justice.

During one of the initial meetings of the very first computer science class I enrolled in, my professor, Dr. Becka Morgan, spoke of the need for diversity and inclusivity in computing. She gave an example describing that when some of the first voice recognition software was released, it would largely only recognize the voices of white, cisgender males. This was not a malicious design, it was simply a result of who had developed and tested the software (white, cisgender males). If the development team had included different kinds of people, it would have released a better (and more marketable) product. This example has remained noteworthy to me and in many ways

contributed to the larger goal of this thesis, and an emerging goal for my life: to reduce harm and to be as inclusive and compassionate as possible, with the knowledge that actions and choices (including the ones we don't make) affect everyone involved. The choices we make, and especially the choices a person who creates a product or service to be released into the world makes, have direct impacts on the people who use those products or services.

Undeniably, creating this thesis has included many iterations of researching, writing, citing, editing, and reviewing. However, the true work of this thesis has been understanding the idea that the supposedly disconnected are not at all so. There is often a tendency within disciplines and within life to categorize, organize, and separate. However, this frequently results in a far too simplistic and reductive picture (to say that human trafficking has nothing to do with computer science is to say that music has nothing to do with instruments). For the richest and most valuable understanding, which I suppose is a main purpose of having Honors students write a thesis, one must acknowledge that many factors can work dynamically and simultaneously together, and allow space for the at-times-uncomfortable, sometimes-messy, and often-unsatisfying complexities. This is where knowledge lives.

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