Chapter 12
Grounding Cyber: Querying Social Media Platforms, the Web, and Internet for Geolocational Information

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ABSTRACT
Tying “cyber” entities, spaces, and events to real-world physical spaces is a critical step in de-mythifying cyberspace. This chapter introduces Maltego Tungsten™, a penetration testing tool, as one method to extract geolocational information from social media platforms, the Web, and the Internet—in order to relate online accounts, emails, aliases, and online-discussed events to specific physical spaces. This tool may be used for general research or applied “oppo” (opposition) or “doxing” (documenting) research of targets. This also discusses how the geolocational information may be further used to extract deeper understandings. Also, Network Overview, Discovery, and Exploration for Excel (NodeXL) is applied for some geolocational information extractions.

INTRODUCTION
Contrary to common sense, the popular Western narrative about the WWW and Internet in popular culture has long romanticized the online connectivity. In cyberpunk literature, cyberspace was hallucinatory, magical, and other-worldly, with its denizens pumped up with a kind of supernatural awareness and capability. Back in the day, people would start websites and sell “passports” and citizenship to virtual countries, without any physical equivalency. Early writing suggested that people could experiment with any number of alternate selves without repercussion (an early form of “what happens online stays online”). There was a rhetoric of disembodiment and weightlessness in human representations by email handles initially and later 3D digital avatars in immersive virtual spaces. There was a sense of anonymity, with people hiding in the onslaught of bits and bytes, and this fostered a sense that there was no traceability back to their real-world selves. Virtual communities promised cross-border good will and helpfulness in a new global village with support available 24/7 (Holton, 1998). People could learn from others in a seamless electronic way. The “cyber” trope was used by some to engage in flights

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of fancy and to suspend their own critical thinking and hard-earned knowledge of the real world, and this assumption of otherness in that space left many vulnerable to poor decision-making (such as losing massive sums to “Nigerian princes” and those “seeking business partners.” Many were functioning at a level of imaginative abstraction that was not particularly warranted by the technology, essentially a rudimentary communications network of computers connected over existing phone lines initially. There were mass endeavors reifying cyber and imbuing it with a sense of magical realism. Over time, though, a healthy disillusionment has set in, which has enabled more rational understandings and conversations of real-world phenomena manifesting online.

This new rationality has not hindered the breadth of creative mental linkages to “cyber”—as indicated by a related tags network of “cyber” in Flickr (at two degrees). [A related tags network refers to a clustering of co-occurring folk-tags used to label online contents. This related tags network graph enables the sense of which words are related in collective people’s sensibilities as a somewhat indirect method, since this uses metadata.] This visualization shows a range of evocations from the term cyber based on uploaded photos and videos that were tagged with the term “cyber”. This graph, laid out using the Harel-Koren Fast Multi-scale layout algorithm, shows the penetration of the concept of cyber as used in the tagging of multimedia on the Flickr content-sharing social media platform. The references include a technology section but also go well beyond that domain.

A #cyber hashtag conversation was captured recently as well, which engaged a number of discussants on the microblogging site Twitter. [A “hashtag conversation” on a microblogging site captures the conversations labeled with a particular #hashtag, which is an alphanumeric label prefaced by a #hash to indicate the relatedness of the contents to a larger discussion.] The concept of cyberspace very much a part of the popular parlance even decades after sci-fi writer William Gibson used it in 1984 in a novel. In Figure 2, there are clusters of conversationalists (fittingly, individuals, groups; humans, ‘bots, and cyborgs) engaging this hashtag to label their conversations. The dataset behind the visual includes a verbatim Tweetstream dataset, which may be further analyzed (by machine analysis and / or close human reading) for content analysis.

A keyword search for “cyber” on Twitter showed a number of discussants. [A “keyword search” refers to the collating of all messages which contain the particular keyword and / or stemmed versions of that keyword. This type of extraction collects messaging in which the keyword may be a part—but not necessarily a central part—in the way a #hashtag search may collect conversations purposefully labeled with a particular hashtag.] The user names on the accounts possibly indicative of various interests regarding cyberspace, such as security, news, analytics, law, and other issues in Figure 3. The “keyword” search highlights Tweets with all mentions of “cyber” (not necessarily those linked to a hashtag) and so shows fewer connections between user accounts on Twitter.

Finally, a search of YouTube found a robust “cyber” video network with a wide range of video titles expressed in the vertices of the network in Figure 4. The titles suggest a range of topics for these videos: cyberpunk fiction, conferences, technologies, and contested social spaces like cyberespionage and cyber activism (such as through the Anonymous hacker collective).

Now, several decades in, those in cyberspace are starting to come around to seeing the Web and Internet in more realistic terms: as a communications mechanism grounded in a physical structure of wires, undersea cables, and wired and wireless access points very much in the physical realm (Blum, 2012). They understand communications as pulses of light. They better see the Web and Net as places of human markets and interactions—for high-minded and less high-minded endeavors. They lost some sense of the mystique of the faraway and exotic and maybe gained a sense of the similarities between people.