

COLLABORATIVELY MAPPING MILITARIZED BORDERS AND LAW ENFORCEMENT:

A CROWDSOURCED MOBILE APP

by

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## **Abstract**

This thesis utilizes concepts of computational and watchdog journalism as a means to map border militarization. The study includes the creation of a mobile app that maps the global, “ground truth” (The GroundTruth Project, 2008), or direct and first-hand observations, of the rise of border building and law-enforcement militarization.

## **Introduction**

The U.S. Military’s Low Intensity Conflict Doctrine came home from wars abroad to militarize the U.S.-Mexico Border beginning in 1979 to 1992, leading to systemic levels of human rights violations (Dunn, 1996). The southern U.S. border has become more militarized ever since (Miller, 2014).

The U.S. Border Patrol has grown exponentially from around 450 agents on the U.S.-Mexico border in the 1920s (CBP, 2014), to 4,000 in 1994 to upwards of 20,000 today (Miller, 2014) and the federal government especially up-armored the U.S.-Mexico border after 9/11 (Miller, 2014). Border Patrol agents patrol between ports of entry as an arm of the U.S. Customs and Border Protection (CBP), a sub-agency of the Department of Homeland Security (DHS). CBP is the largest law enforcement agency in the nation (Burnett, 2016) and is among the largest in the world (CBP. 2016).

The United States wasn’t the only government to bulk up its borders in the war on terror after 9/11. Since 2001, the number of border barriers rose to 63, more than a four-fold increase (Granados, Murphy, Schaul & Faiola, 2016). Privately owned businesses behind the buildup are expected to grow. Over the next several years the global border-

security industry could grow at a 7.16% compound annual growth rate to be worth \$52.95 billion by 2022, according to the market research firm Markets and Markets (marketsandmarkets.com, 2016). Fear of terrorism, fallout from war, mass migration and the rise of populist movements have contributed to the justification for such a build up (Granados, et al., 2016).

The war on terror has provided justification for further militarized U.S. borders, as well as local law-enforcement to be militarized across the nation. When President Bush declared the “war on terrorism” in 2001, the military took the reigns away from law-enforcement in counterterrorism. To better address terrorism, local police sought military weaponry, training and ethos, either by their own means or with federal resources (Rizer & Hartman, 2011) such as from the federal Defense, Homeland Security and Justice departments (Chokshi, 2014).

In 2014, images struck the nation of militarized police responding to protests in Ferguson. Police officers filled the streets with fully automatic weapons, armored vehicles, gas masks, sniper rifles, and cameo, among other equipment. In addition to activists’ concerns about diminishing civil liberties due to police militarization, legal experts have warned of a transition in policing from “peace officers” to “soldiers” or “guardians” to “warriors”(Rizer & Hartman, 2011) (Parker, 2014) (Stoughton, 2015). While this thesis focuses on the militarization of agencies under the Department of Homeland Security in the 100-mile border zone, the study and the mobile app are intended to document law enforcement militarization in addition to border militarization. A significant connection between the two is DHS’s facilitation of the up armoring of

local police departments across the country, as documented by the ACLU (Chokshi, 2014).

Borders are no longer simply nation-state boundaries. Two-thirds of the U.S. population lives in the border zone (ACLU, n.d). Border militarization has expanded far away from the border too, partly as a result of regulations that established a 100-mile border zone from any U.S. coast or border “adopted by the U.S. Department of Justice in 1953—without any public comments or debate” (ACLU, n.d.). San Francisco, the state capital of North Carolina, and the entire states of Maine and Florida, for example, are now effectively border communities. Border Patrol agents don’t just patrol the border. They patrol the Super Bowl (Miller, 2014), were deployed to the Dakota Access Pipeline protests in 2016.

Building walls isn’t enough, according to former Secretary of Homeland Security Jeh Johnson. “Today we have the intelligence capability, surveillance equipment and technology to do more. Much of that is already deployed on the border today,” he said in a presentation to the Center for Strategic and International Studies (2014).

Watchdog journalists need to document what this intelligence, surveillance and technological approach means for the border zone in the United States. The expansion of the CBP and especially the Border Patrol has had some negative effects on the public. Reports show inhumane treatment, abuse and a lack of accountability (Kruse, 2016) (Hunter, 2013) as a result of increased patrol/militarization. Agents use lethal force in response to rock throwing (O’Dell, 2016). One agent was indicted after shooting across the border and killing a teenage boy in Nogales, Sonora, Mexico in October 2012 through the slats in the wall (CBS/AP, 2015).

The Border Patrol's use of force also concerns the Southern Border Communities Coalition (Tanfani, 2016). The coalition's director has condemned Border Patrol for sanctioning deadly force in response to rock throwers.

For years the U.S. Border Patrol has rejected borderlands activists' requests that agents wear body cameras (Hennessy-Fiske, 2015). A rejection that persists still as local police across the country have started to wear body cameras after cellphone footage has surfaced many times over of officers killing unarmed black men.

Journalism has played its traditional watchdog role through coverage of the expansion of Customs and Border Protection (CBP), Border Patrol's parent agency within DHS. Todd Miller's book, *Border Patrol Nation*, chronicles the expansion of a militant Border Patrol, the proliferation of its sphere of influence and the border security industrial complex (2014). Other news reports focus on CBP's lack of accountability, Border Patrol agents' excessive use of force, CBP's susceptibility to internal corruption, Border Patrol's short comings in holding agent shootings accountable, a higher rate of CBP arrests than other law enforcement agencies, (Bennett, 2015) and a case of one agent raping and attempting to murder detained migrants before committing suicide (Graff, 2014).

In addition to watchdog stories about CBP and border infrastructure expansion, journalists have used maps as a reporting tool. The first page of chapter one in Miller's *Border Patrol Nation* includes an ACLU map outlining the 100-mile border zone in the United States (2014). *Bloomberg Businessweek* mapped the U.S. border security apparatus along the southern border using data from CBP and the Government Accountability Office (Dvoskin, 2013). *The Economist* mapped nation-state boundaries

where countries around the world have built or plan to build walls or fences (Economist Data Team, 2016). The magazine also mapped the number of undocumented apprehensions made in each sector by Border Patrol in 2000 compared to 2012 using the DHS data (Economist Newspaper Limited, 2013). In addition, the Center of Investigative Reporting mapped walled-off sections of the U.S.-Mexico border using publicly available satellite imagery after CBP refused to grant the center the locations of the walls through FOIA requests (Corey, 2014).

Very little, however, has been done to map the border security apparatuses beyond graphics and data visualizations. Each mapping project lacks an important element of journalism: the ground truth. NASA coined the term “ground truth,” which the media group, The Ground Truth Project, named itself after. When NASA takes measurements by satellite, someone will take the same measurement on the ground. That human measurement is the “ground truth” (The Ground Truth Project, 2008). The CIR mapping project, which goes beyond simple mapping graphics and uses satellite images, still lacks current, on the ground photographic documentation. The crowdsourced photographic evidence, however, that this study’s mobile app offers could be the “ground truth” measurement for border and law-enforcement militarization mapping (The GroundTruth Project, 2008).

This study examined and designed a tool capable of providing up-to-date context to global border building and law-enforcement militarization, through on-the-ground, photographic documentation. Computational journalism research methods were used to create a mobile, crowdsourced, border militarization mapping app. Qualitative research methods were then used to assess it in the field.

Besides mapping border building and law enforcement militarization in the United States, this collaborative mapping tool was designed to fill a global gap in border militarization mapping where border building is occurring, such as in Palestine, India and Australia.

For people living and migrating in the border region, border militarization has resulted in significant social and economic costs (Slack, Martínez, Lee, & Whiteford, 2016). Mapping border militarization remains critical for understanding these costs. Maps are an effective journalistic tool for illustrating the relationship between events (such as militarization) and their surroundings (Wallace, 2016). Increasing awareness of expanding border militarization is a function of watchdog journalism, which includes monitoring growing powers on behalf of society (Richardson, 2005). The crowdsourced journalism that the app employs adds a collaborative element to extend the reach of this investigative journalistic process (Vehkoo, 2013).

This thesis outlines the literature related to theoretical foundations and studies on the impact of border militarization, discusses the utility of maps and crowdsourcing in watchdog journalism, describes the results of the study's computational journalism and qualitative methods and discusses the study's results in the context of current events.

## **Literature Review**

### *Computational Journalism*

Computational journalism is a concept that, simply stated, incorporates computing with journalism. Computers replaced typewriters, for example. Today, however, computational journalism provides journalists with tools to carry out quantitative

methods (Flew, Spurgeon, Daniel, Swift, 2012).

Computational journalism is a small niche in the changing journalism landscape, but it is growing in relevancy and importance. Stanford's Computational Journalism Lab, for example, describes itself as "using computational methods to uncover accountability stories that would otherwise go untold" (Stanford University, n.d.).

In 2010, ProPublica gained recognition doing just this. The independent news organization's investigation into big pharma's financial ties faced a "computational challenge" (Nguyen, 2010). Drug companies were mandated to release data on doctors they paid, but the data they released was inaccessible and lacked transparency. Instead of releasing spreadsheets that could be queried, drug companies released PDFs, or spread-out their data over multiple HTML pages on the Internet. One spokesperson said the data her company released was intentionally "impossible to download" (Nguyen, 2010). In response, ProPublica wrote code to collate the data into spreadsheets. They built the "Dollars for Docs app," a searchable database where patients could see how much money their doctors received from a variety of pharmaceutical companies (Nguyen, 2010).

While Nguyen acknowledged that ProPublica could have used the same amount of resources to hire a manual transcription service, he added that the programs they built would be useful for other journalists in many different circumstances. Nguyen wrote a series of wikis to teach aspiring computational journalists how to collect data in this way (2010).

The Dollars for Docs web app is an excellent example of a computational solution to a journalistic problem. But ProPublica did have help accessing the data in the first place. The companies were required to make their data public (Nguyen, 2010).

Similarly, border militarization data is not accessible in a neat database, let alone on a map. Militarization, however, is seen and experienced everyday by people who live in border communities and beyond. For this reason, this study produced a tool capable of crowdsourcing data collection. This app is capable of receiving Volunteered Geographical Information, a data collection method that is discussed later in this proposal.

While activists have monitored Border Patrol checkpoints (Trevizo, 2016), and journalists publish photos of border militarization in stories and on social media, no central place exists to collect and understand border militarization in a geographical context. This study sought to change that.

Computational journalism invokes changes to journalism from how stories are discovered to how they are monetized. It has the potential to reinforce watchdog journalism by acting in the public interest, and to hold governments accountable. One of the key changes to journalism brought on by computational journalism is how information is accessed. It can triangulate databases or extract information from multiple sources to create new datasets. If journalists and computationalists work together to learn how each other understand data they can create new methods of investigative journalism (Cohen, Hamilton, Turner, 2011). This thesis studies how to combine computational methods with journalism in order to build an investigative journalism tool.

### *Watchdog Journalism*

The theory of watchdog journalism posits that, in a democracy, journalists act as an “adversary to monopoly over power” that creates discussion and investigates abuse and untruths (Richardson, 2005). “The characterization of journalism as a social

‘watchdog’ springs from a classical liberal conception of the power relationship between government and society within a democratic state,” according to Richardson (2005). In practice, a free press shares the responsibility of checks and balances. Edmund Burke called it the “fourth estate,” meaning the press helps oversee the three branches of government, the executive, legislative and judicial. (Richardson, 2005).

Watchdog journalism requires three underlying premises to function: The press must act autonomously, look out for the public interest (not the interests of the dominant class), and have the capacity to influence powerful groups to help the public (Richardson, 2005).

The American ideal of watchdog journalism faces practical challenges. For one, news media is largely not autonomous, but owned by powerful global conglomerates like General Electric or Time Warner, which own NBC and CNN, respectively. Another weakness is that public interest is difficult to define. It can easily be misrepresented when journalists rely too heavily on more powerful sources, such as elite experts. When this happens journalists’ line of questioning might only reflect the thoughts of competing powerful sources (Richardson, 2005).

Edward Herman and Noam Chomsky’s “propaganda model” can help explain this pitfall of watchdog journalism. These scholars argue that journalists’ reliance on sources with corporate and elite interests, undermine democratic ideals by over representing powerful and wealthy interests in public discourse. Five filters bend the news ideologically away from the interests and the welfare of the majority and towards the powerful and corporate elite. As an adversary to watchdog journalism, the “propaganda model” describes lapdog journalism that is antithetical to journalism (Richardson, 2005).

Reporters may propagate the propaganda model when, for example, they report border stories solely through a prism of the “war on terror” and the “war on drugs” that relies heavily on DHS sources, just as the propaganda model warns of reporting from an anticommunism control ideology. Another example of lap dog journalism is reporting on migration from Latin America that privileges political and official voices and overlooks migration push factors such as extreme poverty, natural disasters, or gang violence.

Zita Arocha laments corporate news coverage that parachutes into the El Paso-Ciudad Juarez borderlands. These stories sensationalize the U.S.-Mexico border only to quickly leave and disregard any resulting fallout. “The perpetual black eye this area receives from outside media coverage that focuses almost exclusively on drugs, crime and illegal immigrants jangles the nerves of border residents,” (Arocha, 1999). Yet, other issues important to border residents such as “lack of housing and adequate roads, access to health care, and a dwindling water supply, to name a few concerns” are under reported (Arocha, 1999). She cites an instance where a “parachute journalist” claimed not to have enough time to hire a translator when reporting on the “femicidios” in Juarez, potentially omitting an important source that would branch out beyond elite and powerful sources. Arocha references another instance in 1999 when news corporations such as CBS News over reported the number of bodies found at a ranch near Ciudad Juarez by 192. CBS News reported that 200 bodies were buried there. Then other large media outlets called the ranch “killing fields” (Arocha, 1999) and compared what happened to the genocide carried out by Cambodian dictator Pol Pot. In the days following, however, local newspapers reported authorities had found 8 bodies. While the story was news worthy, the sensational coverage by corporate news outlets illustrated a skewed image of these

border communities, Arocha argues (1999). The mayor of Ciudad Juarez took out a full-page ad in the Washington Post as part of a public relations campaign to defend the city's image by calling the corporate media's portrayal "false, derogatory and unjust" (Arocha, 1999).

This study's mapping app could balance out this hyper focused corporate news coverage on topics mentioned by Arocha, by providing an outlet for border zone residents to report the unprecedented amount of law enforcement policing the border zone.

### *Guard Dog Journalism*

Another challenge to watchdog journalism is "guard dog journalism," a term coined by Donohue, Tichenor and Olien (1995). In this perspective, the press does not protect the community, but rather those in power. The "Guard dog" metaphor does not mean that the press won't criticize those in power, but that "guard dog" journalism may turn on the master, while protecting the house that's crucial to its security and survival. "The guard dog perspective holds that media are not a separate or equal power, but that they provide a means by which the power oligarchy is maintained" (Donohue, Tichenor & Olien, 1995, p. 122). News media focuses its attention, either positive or negative, on dominant groups in the community. "Conflict is reported, but in a constrained way and only on certain issues and under certain structural conditions (Donohue et al., 1995, p. 116)."

Local powers, for example, a factory owner in a manufacturing town, might go unchallenged or even protected by journalists. The press acts as a messaging board for local powers under the guard dog model. Conflicts between local authorities and elites are downplayed and the press keeps watch for intruding powers such as federal

legislation or policies that undermine the local powers' authority. This happens on a larger scale when the media report international news in a framework aligned solely with U.S. foreign policy (Donohue et al., 1995).

In communities with a smaller concentration of powerful actors “guard dog” journalism would oppose outside threats to their power. In 1960s Kentucky, for example, Donohue et al reference an occurrence in which rural newspaper editorial boards were more likely than metropolitan newspapers to trumpet local doctors' opposition to federal Medicaid legislation, despite a large marginalized ageing population that stood to benefit from such legislation (1995).

National and local press similarly risk playing a guard dog role for the U.S. Border Patrol. The Customs and Border Protection is the eighth largest employer in Southern Arizona (Arizona Daily Star, 2015). It employs about 4,200 agents and more than 5,700 total employees there (CPB Tucson Sector Arizona, n.d.). The border security industry also employs the private sector. Companies compete for DHS contracts at expos like the Border Security Expo (Miller, 2014). The money at play is no small sum. The border security industry would generate close to \$18 billion in revenue in 2016, according to the market researchers at Visiongain (2016). Guard dog journalism in this context could happen when news publications run stories that overlook the public interest by relying solely on Border Patrol spokespeople and press releases.

Other militarized efforts, other than the militarization of the U.S.-Mexico border, have been covered by guard dog journalism including Desert Storm (Donohue et al., 1995) and Japanese-American internment (Bishop, 2000). “The submission of media to military restrictions during the 1991 Persian Gulf War has drawn widespread attention to

this tendency to defer to authority, especially where external threats are concerned... the media acted under the assumption of the U.S. administration that the present power arrangements in the world were threatened and that, consequently, national security was at risk” (Donohue et al., 1995, p. 124).

In the case of Japanese-American internment, Bishop argues that while some Journalists encouraged “tolerance” towards Japanese-Americans, the press became “guard dogs” reporting on a threat to national security once the official “alleged ‘fifth column’ activity” (2000, p.65) narrative broke and eventually led to internment.

“How a [guard dog] journalist gathers information and writes stories is shaped by the nature of the structure being served and by whom the dominant groups label a threat” (Bishop, 2000, p.65). This plays out on the U.S.-Mexico border and has negatively affected migrants and border residents that CBP have perceived as threats. Border Patrol agents, for example, have shot and killed two unarmed boys across border divide (Binelli, 2016) (Totenberg, 2017). Additionally, the Border Patrol estimates that 6 thousand migrants have died attempting to cross north in remote areas (Carroll, 2016). Meanwhile the *Border Patrol Strategic Plan: 1994 and Beyond* pushed them to cross in these areas deemed by the strategy to be of “mortal danger.” While “guard dog” journalism spotlights individuals and instances, it accepts the structural framework in which they occur. This study’s app confronts potential “guard dog” journalism on the border by providing an outlet to create a journalistic resource to collaboratively map and document the same powerful actors that have negatively affect marginalized groups.

Citizen journalism “refers to a range of web-based practices whereby ‘ordinary’ users engage in journalistic practices” (Goode, 2009, p. 2), however interpretations of citizen journalism can differ. It is also not bound to the Internet. At times, for example, broadcast and print may use photos or video captured by a citizen journalism of a local event captured (Goode, 2009).

Goode looks at the overlaps of social news and citizen journalism. While being two distinct concepts, they do “overlap.” He argues that more research on their relationship could illuminate their effects on democracy (2009).

Goode notes that citizen journalism has potential to rejuvenate democracy and journalism by permitting citizens to engage in agenda setting. He argues that journalists serve the public interest best by applying their expertise to story and source selection and info gathering skills, but points out that the lack of transparency is the source of undemocratic fallout. The news media are powerful institutions themselves, which the public relies on (2009).

Advertising, ideology, professional and newsroom norms work against transparency. And the factors are also very similar among major news outlets. In such a homogenous news landscape, the audience lacks control over their news consumption other than to walk away from it all together (Goode, 2009).

Citizen journalism opens the field to a wider and more diverse set of resources, hopefully drawing more people in and at the same time allowing them to help define what is in the public interest (Goode, 2009). Goode, however, concedes only a small percentage of the population participates in these projects. A gain in popularity could lead to more influential citizen journalism (Goode, 2009).

He examined Digg.com, which is a social news site that lets users act as gatekeepers to news. The site touts itself as a “news equalizer.” It leaves agenda setting up to the community and away from the elite, but some issues still appear within this communal curating process. “Democratization is equated with popular appeal (a quantitative value) as opposed to the qualitative values of newsworthiness (popularly dismissed as intrinsically elitist, patrician or, at least, undemocratic),” (p. 10) according to Goode (2009).

### *Crowdsourced Journalism*

Crowdsourced journalism takes citizen journalism a step further, according to Vehkoo, “The point of crowdsourcing is to harness collective intelligence instead of merely collecting user-generated content or making use of citizen journalism” (Vehkoo, 2013, p.5). Vehkoo calls the rise of social media a “golden era” for watchdog journalism and highlights the importance technology and networks play in investigative journalism (2013).

Cohen et al. suggest that investigative reporting consists of more mundane computational data crunching than the Hollywood version generally associated with journalism investigations. They argue that data analysis is primarily what uncovers stories that keep power accountable (2011).

The data for data analyses, however, is sometimes not available. The Center of Investigative Reporting’s FOIA requests for the locations of the walls along the U.S.-Mexico border were denied; walls being fundamental elements of border militarization. This study was interested in how residents interact with border militarization in real time.

The tool produced by this study has capacity to show how people interact with border militarization from day to day. This study coupled computational journalism with good ole' fashion shoe leather. Only, it crowdsourced the shoe leather.

Vehkoo notes that crowdsourcing carries its own liabilities. Some in the crowd might send false information to reporters, but a verification system can remedy this. She also looks at what makes investigative crowdsourced journalism successful. Several factors fortified successful projects (2013, p.28):

“Bradshaw and Brightwell identified five key elements in their case study about Help Me Investigate (2012): ‘Alpha users’ (highly active, who drove investigations forward); modularity (the ability to break down a large investigation into smaller discrete elements); publicness (the ability for others to find out about an investigation); feedback (game mechanics and the pleasure of using the site); and diversity.

Journalist and Knight Fellow Wendy Norris lists seven points that made her investigation work:

1. Employ a sense of fun with the request.
2. Make the task discrete and easily accomplished.
3. Explain the purpose as a larger public service.
4. Set a reasonable time frame for task completion.
5. Allow volunteers to overlap tasks as built-in fact-checking.
6. Provide immediate feedback to questions/responses and encourage retweets for additional recruitment.
7. Build public interest in, and anticipation for, the story” (Lavrusik 2010).”

Vehkoo particularly applauds the Guardian newspaper’s success in crowdsourcing investigations. They successfully asked readers to curate troves of a British MP’s expenses that they published online. The editor-in-chief also publicized online that the courts prevented the Guardian from publishing a story about a specific court case known as the Trafigura case. Soon after the public learned about it anyway when revealing documents about the case surfaced on WikiLeaks (2013).

Vehkoo profiles another project that, instead of crowdsourcing readers for what they know, focused on citizens and their concerns. The project “Help Me Investigate” helped citizens collaborate on investigations about topics driven by citizens themselves (2013).

The “Help Me Investigate” project did not focus on the number of its users, but focused on building a participatory culture of people who wanted to help each other investigate topics that were important to them. Participation was not completely open to the public, but users were invited to participate or could request and invite (Vehkoo, 2013). This study, through applied research in computational journalism, created an app to take on a similar objective that seeks to build a strong investigative culture among its users. Among the tool’s journalistic liabilities are lack of accuracy and inappropriate or malicious content. A system of inviting participation focused on an investigative culture, rather than sheer user numbers, modeled after the “Help Me Investigate” project, could help curb these liabilities.

### *Volunteered Geographic Information*

Along with citizen and crowdsourced journalism, citizen geography is an obvious tool for crowdsourced journalism projects. Sui, Goodchild, and Elwood write that “the phenomenon of volunteered geographic information is part of a profound transformation on how geographic data, information, and knowledge are produced and circulated” (2013, p.1). They agree that most people have a geographer within them. Several researchers have noted that a greater accessibility to volunteer geographic information through modern technology can lead to more public participation.

### *Moral Geography & Cultivation Analysis*

The build up of border militarization infrastructure and agents in the Arizona-Sonora borderlands is a manifestation of the moral geography of the region's white hegemony. While moral geography is often defined in an effort to save a region, hegemonic groups often create its definition and act in what they believe is in the public's interest. This result usually further marginalizes groups with less power (González de Bustamante, 2016).

As Opie explains, "A moral geography is an ethical choice made about a particular people and place, and it is also an internal logic that belongs to the particular people and place. Moral geography takes hold when government policy identifies a geographical landscape and its inhabitants in need and deliberately responds to save that region (1998)." The hegemonic moral geography in the U.S.-Mexico Borderlands is built on rhetoric surrounding the U.S. government's wars on terror and drugs. Slack, Lee and Whiteford point out that while scholarship has disproved a connection between immigrants and crime, the fear of terrorism and drugs continue to be used as reasons to criminalize migrants and exclude them from the country by fortifying the border (2016).

### *Cultivation analysis*

Cultivation analysis is a relevant theory by George Gerbner that may help to explain how media helps to form a moral geography. It suggests that the media cultivates a collective understanding or worldview even if fallacious (Baran & Davis, 2015). McKay-Semmler, Semmler, and Kim used cultivation analysis to examine the attitudes of native-born community members in a rural upper Midwestern town towards an influx of

Central/South American and Southeastern Asian immigrants. They found that the regional newspaper and local television covered immigrants pessimistically, while the local newspapers were more optimistic. Their results found that attention to the pessimistic news coverage led community members to be less open to immigrants. They did not find a decrease in receptivity among those who paid attention to the local newspaper's more optimistic coverage (2014).

### *Journalists Acting As Cartographers*

Mike Gasher compares journalists to cartographers. He shows journalist as mapmakers who navigate events and chart the ones they consider important for the audience they serve. "News organizations, that is, target specific markets, markets with both geographic and demographic parameters. The news package they produce will present a particular rendering of the world, produced specifically for its target market" (Gasher, p.129, 2015). He argues that news organizations map out their advertisers, primary audience, distribution grids and outside societal institutions. These maps influence news organizations' perspectives or points of view. Journalists and cartographers must make a series of judgment calls to filter their stories down. Journalism and cartography also both reduce complex situations to highlight specific topics (Gasher, 2015).

This concept of reporters as cartographers seems to show journalism's vulnerability to power and to a hegemonic group's moral geography. By constructing these maps it seems that marginalized communities are the ones most likely to be inaccurately and inequitably represented and covered by news organizations.

This study confronts this vulnerability to hegemonic moral geography. It produced a journalistic tool oriented to cover a subject matter (border and law enforcement militarization) that most affects marginalized communities. And it puts content decisions in their hands.

### *Critical Borderlands Pedagogy and Counter Mapping*

Moral geography has played a role in determining decisions about particular people in the Arizona-Sonora borderlands for some time. The Gila river is a notable geological rift, which separates the concentration of power at the state capital, populated by mostly whites through manifest density, from the newest part of the continental United States, which was purchased from Mexico and inhabited by mostly people of color including indigenous groups and Latinos. For example, the anti immigrant, mostly white state legislator of 2010 passed SB 1070, the “show me your papers” law, which resulted in racial profiling and extended the detention and deportation power of Border Patrol and other federal immigration agents by requiring local police to assess immigration statuses. The historic identity of this region, however, has endured many moral geographic decisions enacted by hegemonic powers, such as mass deportations conducted by Border Patrol in 1954 called “operation wetback” (González de Bustamante, 2012, 2016).

The press helped to inform these moral geographic decisions, first by assisting to colonize the West and Southwest. Newspapers helped to legitimize mining towns and a journalist even minted the term “manifest destiny,” which brought a religious undertone to these developments. One newspaper owner even said his publication would be an “organ for the white people of Arizona” (p.24) in the 1800s. González de Bustamante argues that the press helped shape inaccurate and negative images of Latinos by

reflecting characteristics of oppression, which legitimized political actors' acts of oppression (González de Bustamante, 2012).

González de Bustamante underscores that moral geography can be a useful tool when it's combined with a critical borderlands pedagogy and counter cartography. She concludes that together these frameworks can help journalism improve its coverage by uncovering past mistakes and cultivating improved skills for new journalists (2016). Critical borderlands pedagogy comes from Chicanos/as studies that views the region as far more complex and culturally rich than simply "the border." It rejects the stigma that proximity to Mexico is a liability and understands the borderlands as a place that is culturally marginalized and misunderstood (González de Bustamante, 2016).

The moral geography of a region is defined by the dominant hegemonic group's focus on topics, and in the case of the U.S.-Mexico border, that drive border militarization. González de Bustamante argues that moral geographies of marginalized communities can exist at the same time as "counter cartographies," which use technology and social media to project marginalized groups' voices and counter the dominant moral geography (González de Bustamante, 2016). This thesis project advances a counter cartography of the region by mapping border militarization through crowdsourced geographic information.

While the dominant moral geography legitimatizes border militarization through its war on migrants, drugs and terror, the mobile smartphone app built in this study is a counter cartography tool that complicates the hegemonic narrative. The tool this study produced collects and visualizes photos of border and law enforcement militarization, potentially showing the wide breadth of border militarization that extends far from the

actual international boundary along with law enforcement militarization in communities in the interior of the country. The visualization of the volunteered geographic information that the app collects will potentially draw attention to the fallout caused by militarizing the region, such as an increase in migrant deaths in desert, loss of privacy and family separation. A heightened awareness of militarization may counter the dominant moral geography and lead to a rebalancing of hegemonic narratives that prescribe border militarization.

### *Effects of U.S. Border Militarization*

For this section, it's important to note that Border Patrol was part of the U.S. Immigration and Naturalization Service (INS) until 2003 when it became part of Customs and Border Protection (CBP) under the U.S. Department of Homeland Security (DHS). The INS was discontinued in 2003.

“‘Militarization,’ in its broadest sense refers to the use of military rhetoric and ideology, as well as military tactics, strategy, technology, equipment, and forces”(Dunn, 1996, p.3). Dunn specifically looks at the deployment of the “U.S. military doctrine of low-intensity conflict (LIC)” (p.4) in the U.S.-Mexico Borderlands and the resulting human rights consequences.

The U.S.-Mexico border has a long legacy of a military and security presence. The Texas Revolution of 1836 and the U.S.-Mexico War of 1846 to 1848 (also known as the North American Invasion—*La Invasión Norteamericana*—according to the Mexican government (Secretaría de la Defensa Nacional, 2015)) lead to establishing the border

through military enforcement. Pacification came to the region more than 80 years after Mexico forcibly surrendered half of its territory to the United States in the Treaty of Guadalupe (Dunn, 1996). Extra security forces occupied the region with the creation of Border Patrol in 1924. At that time, the region and beyond was impacted by heightened security forces that facilitated the 1930s mass deportations.

In 1954, the Border Patrol helped carry out mass deportations again through “Operation Wetback” through implementing military strategies. In fact, Attorney General Brownell wanted the U.S. Army to carry the operation out, but the army said it would use too many troops and take away from their other missions. He did, however, appoint a retired Lieutenant General of the army to head the U.S. Immigration and Naturalization Service, of which Border Patrol belonged to at the time. With him he brought past army personal, military terms, strategy and intimidation publicity and media campaigns. The operation relied on “mobile task forces” for its strategy to perform massive round-ups. INS claimed that 1.3 million people were rounded up and deported or fled on their own as a result (Dunn, 1996). “Eight hundred Border Patrol officers swept through the southwestern United States performing a series of raids, roadblocks, and mass deportations,” (Lytle Hernández, 2006, p.1)

From the 1970s through the mid 1980s political discourse started to couple undocumented immigrants crossing the U.S.-Mexico border with drug trafficking and at times, even terrorism. (Terrorism would move to the center of discourse of the next several decades) Prominent media reports described undocumented migration over the Southern border as an “invasion.” And the Regan administration claimed it would get worse if the U.S. halted military support of anti-communism forces in Central America. Such

discourse and media depictions lead to a push for border-control policies in the name of national security. As matters of national security, more militaristic means could be applied to control the border, without, however, a clear definition of what a controlled border would be (Dunn, 1996).

Regan declared drug trafficking a threat to national security in 1986 after the passage of the Immigration Reform and Control Act. Lawmakers and both Regan and Bush sought border-control in the War of Drugs. “For example, in 1988 congress debated requiring the military to seal U.S. borders against all drug traffic” (Dunn, 1996, p. 2).

Dunn describes the recipe of hegemonic moral geography in the U.S.-Mexico Borderlands akin to González de Bustamante’s analysis: “The image of the U.S.-Mexico border region that emerges from these sorts of alarmist portrayals is that of a vulnerable zone in urgent need of numerous, serious security measures—to repel an ‘invasion’ of ‘illegal aliens,’ to win the War on Drugs, and even to counter the threat of terrorism” (p.3). This led to abandoning “less corrosive approaches” in favor of reducing these complex issues to something solvable by military force (Dunn, 1996).

Dunn documents how drug and immigration enforcement took on three subsets of the low intensity conflict (LIC) military doctrine from 1978 to 1992: equipment, operational style, and LIC elements of social-control. The equipment included amassing 58 helicopters by 1992 from INS’s two helicopters in 1980, night vision equipment, ground sensors and infrared radar (1996).

Some notable “LIC operational characteristics” in the border region included the Alien Border Control Committee, a multi agency task force that drew up contingency

plans for mass roundups and deportations; easing of restrictions barring military from collaborating with law enforcement, which lead to an array of joint taskforces and efforts; and training in “reconnaissance, intelligence gathering, & small-unit tactics provided by the military to border-region law enforcement agencies” (Dunn, 1996, p.151).

The social control aspect of LIC primarily targeted undocumented migrants, smugglers and those perceived to belong to these groups, which were primarily people of Mexican origin. The capacity for social control was greatly increased as the number of positions for Border Patrol grew by 92% and congressional funding grew by 317% “in unadjusted dollars” from 1978 to 1992. While the LIC operation characteristics also served as social control, other implementations included the expansion of detention facilities to punish and deter migrants and asylum seekers; and politicians’ liberal use of the loosely defined term, “criminal aliens,” which included misdemeanors (Dunn, 1996).

The operation that brought together the most LIC operational characteristics took place in Lower Rio Grande Valley, the southernmost point of Texas, in 1989 to 1990 when INS rounded up and detained thousands of Central Americans seeking political asylum. Border Patrol agents were sent there to form apprehension task forces and act as security guards at detention facilities. “Among the LIC qualities manifested in this INS campaign were the stark exertion of social control over a specifically targeted civilian population, emphases on intelligence gathering and on quasi-psychological operations, the sharing of intelligence information with various U.S. intelligence agencies, and the enlistment of a private relief agency (the Red Cross) to offer “humanitarian assistance” as part of a larger security operation” (p.154). The Red Cross helped INS detain families in a type of “soft” detention. The INS defended the operation by calling the political asylum

seekers' claims "frivolous." The show of force resulted in broad civil rights violations including overcrowded detention conditions and denial of due process (Dunn, 1996).

Dunn noted that this operation suggested that the INS had the capacity to funnel undocumented migration into a geographic location (1996). Before continuing to describe the LIC of the Lower Rio Grande Valley in the next paragraph, it is important to note that this funneling strategy later became central to Border Patrol's deterrence strategy under DHS, through operations such as Hold the Line in Arizona, which fortifies populated areas to push unauthorized cross border actives, such as undocumented migration, to remote and dangerous terrains. The 1994 document "Border Patrol Strategic Plan: 1994 and Beyond" sought to push migrants out to remote areas where they would face "mortal danger." While CBP praises these operations as an "immediate success" on their website (CBP, 2014), thousands of migrants have died as a result. These border enforcement practices "are fueling a missing persons crises," according to a 2016 report by humanitarian aid groups, La Coalición de Derechos Humanos and No More Deaths. Migrants' families are left without any information about their disappearance. "In the 2015 calendar year alone, the community organization La Coalición de Derechos Humanos opened over 1,200 cases of people who were unaccounted for following an attempt to cross the US-Mexico border" (La Coalición de Derechos Humanos & No More Deaths, 2016, p.4) Since many Border Patrol agents are placed in populated areas, migrants die where Border Patrol is not present. All the while, this strategy increases the difficulty of crossing, which drives the demand for exploitive human smugglers up (Michalowski, 2007).

Since migrants die where Border Patrol is not heavily patrolling it is important to know where border patrol is. The mapping tool this study produced could potentially help give a general idea where border patrol is based on observed past locations.

In 1989 to 1990, “intelligence gathering” another LIC component, was emphasized in the Lower Rio Grande Valley operation. INS documents at the time read: “The INS Intelligence Program will continue on-going liaison with other government agencies, particularly CIA [Central Intelligence Agency], DIA [Defense Intelligence Agency], and the Department of State...” Dunn included this excerpt in his work (1996, p.93). He emphasized This was perilous for Central American political asylum seekers because these federal intelligence agencies worked with their intelligence “counterparts in Central American nations” (1996, p.93) who many of the asylum seekers were fleeing from. The Regan administration backed the conflicts to ward off communism in the region (1996).

In 1990, the Lower Rio Grande Valley hosted another notable show of force by the INS. The agency raided a Catholic church housing Central Americans fleeing war. They said they were searching for “terrorists” from Iraq or India leading up to the Gulf War (Dunn, 1996). Recognition of earlier precedents set by U.S. immigration authorities in their domestic hunts for terrorists is especially relevant today among global xenophobic movements that scapegoat migrants and refugees for terrorism.

Multi-force cooperation, or as Dunn writes “force integration”, especially of military and police forces, is fundamental to the LIC military doctrine. The Alien Border Control Committee (ABCC) was such a committee headed by the INS, that was charged with drawing up a mass round up and deportation contingency plan of undocumented

immigrations. This task force served to carry our recommendations given by then Vice President Bush's Task Force on Terrorism. It was established to remove "alien terrorists and undesirables." Dunn notes that the Regan administration used the term, "terrorists" quite liberally and with popliteal motives. Along with "force integration" the ABCC characterized LIC doctrine with its "peacetime contingency operations and counterterrorism activities" (1996, p.154). Elements in the plan would rely on support from the military for such things as "facilities and logistics." Border patrol would play a central role in its enforcement and it called for local police and Border Patrol integration for routine patrols (Dunn, 1996).

The "force integration" component of LIC doctrine is still relevant today. In April 2010, when Arizona Governor Jan Brewer signed the "show me your papers bill," SB 1070, into law, local police were mandated to call immigration authorities following "reasonable suspicion" cues that someone was an undocumented immigrant. In the 100-mile border zone Border Patrol often responded to calls, in addition to U.S. Immigration and Customs Enforcement agents. These reasonable suspension cues included: not speaking English, being dirty, too many people in a car, acting nervous and not having a driver's license among others, according to an assistant chief of the Tucson Police Department (Devoid, 2015). Such collaboration echoes the "force integration" characteristic of LIC. This type of "force integration" led to mix status communities distrusting police and hesitating to call the police in times of emergency (Devoid, 2015). After Arizona's SB 1070, a string of copycat laws popped-up that mandated similar LIC "force integration." State legislatures across the country introduced 24 copycat bills, while five passed into law in Alabama, Georgia, Indiana, South Carolina and Utah

(ACLU, n.d.). This type of law greatly extended DHS's reach both for Border Patrol within the border zone and ICE further in the interior of the country. In the spirit of "force integration," local law-enforcement act as sensors to alert federal agents not of criminal offenses, but of civil immigration violations, which they themselves could not make an arrest for. Interactions with local police before SB 1070, however, always carried a risk of deportation for undocumented immigrants depending on the officer, staff and undocumented workers of the Southside Workers Center have told me in past journalistic interviews. The chances of deportation increased after ICE implemented the Secure Communities program (Miller, 2014) from 2008 to 2014, which was replaced by the Priority Enforcement Program in 2015. With a heightened risk of deportation through "force integration" and added anti-immigrant discourse, laws like SB 1070 aimed to encourage self-deportation too. These laws exposed five million children to the risk of family separation, the organization First Focus reported (Chen, 2010).

The "show me your papers laws" were held in high regard for many U.S. citizens and can be seen as one of the many precursors for Donald Trump's call for his own mass deportations of the 21<sup>st</sup> century, threatening 11 million undocumented people. It wouldn't be the first time a politician dreamt up such plans since "Operation Wetback" in the 1950s. The ABCC was secretive until Congressman Norman Mineta of California exposed leaked documents during a congressional hearing in 1988. One was named "Alien Terrorists and Undesirables: A Contingency Plan". The congressional hearing was about reparations for Japanese-Americans who were wrongly rounded-up and imprisoned during World War Two. The congressman was alarmed that such plans existed that targeted "certain nationalities for vague national security reasons," he said.

“A camp has been identified in Louisiana, and rolls of barbed wire, cots, tents, et cetera, are all ready on the site, waiting for just such a roundup,” included by Dunn (1996, p. 54). The Camp Mineta referred to is most likely the Oakdale detention facility, which was managed by the INS and the Bureau of Prisons (Dunn, 1996).

Past plans to conduct mass roundups of certain nationalities are especially relevant in the beginning of 2017 with the President’s executive orders that target people from certain nations. Cole and Dempsey point out that the 1989 INS documents presented by Mineta show the ABCC sought to use “secret evidence,” as they describe it, against its targeted population. The document read: “Where criminal prosecution is not practicable for an alien actually engaged in the support of terrorism within the United States, procedures should be developed, utilizing current authorities, if possible, to expeditiously deport such aliens while protecting classified information and the methods by which such information is obtained” (2006, p.45-46).

According to Dunn, human rights violations heightened through the 1980s to systemic levels while the U.S.-Mexico border militarized in accordance with the LIC doctrine. Additionally, Border Patrol became increasingly paramilitarized as the enforcement arm in the “War on Drugs.” The INS and Border Patrol, however, already had a historical record of human rights abuses as documented in the 1980 U.S. Commission on Civil Rights, and especially during the mass deportations of the great depression and “Operation Wetback.” But from 1989 to 1991 The Civil Rights Division of the U.S. Department of Justice received a 57% increase of the number of civil rights cases referred to them against the INS. And the Immigration Law Enforcement Monitoring Project conducted by the Quaker American Friends Service Committee

chronicled 971 human rights offenses by border law-enforcement agencies along the U.S. Southwest border during the same time period. The Border Patrol, INS's enforcement arm, accounted for approximately half of those offenses. The INS in total accounted for 76% of the total offenses. Over the years of the first Bush Administration a diverse array of U.S. federal agencies, Mexican agencies, U.S. human rights watchdogs, the news media and congress had reported offensives such as "beatings, shootings, inappropriate use of firearms, sexual assault, destruction of property, denial of due process, verbal abuse and harassment, inappropriate and illegal searches, substandard detention conditions and reckless high-speed chases" (Dunn, 1996, p.84).

The "low-intensity conflict" waged in the U.S.-Mexico Borderlands (Dunn, 1996) was a military strategy used in the 1980s by the U.S. in Central American wars to keep order, both Miller (2014) and Dunn note. Border Patrol agent Longoria drew from this concept in an interview with Miller to explain the use of "pseudo-specification," a mechanism used dehumanize a populace, in Border Patrol culture. "Tonk," for example, is a term Border Patrol agents use to refer to migrants because that's the sound a flashlight makes when it strikes their head. The name is a result of a militarized culture, Longoria said. "The more the militarization, Longoria claims, the more frequent the use of the word 'tonk'" (Miller, 2014, p.108).

Since Dunn wrote about systemic human rights abuses, it continues to be a relevant effect of border militarization to this day. After conducting the Migrant Border Crossing Study, which surveyed 1,110 recently deported undocumented Mexican migrants and an additional study, which surveyed deported migrants and their families in Puebla, Mexico, Slack et al. argue that evidence shows systemic "abuse and

irregularities” are linked to boarder militarization and “CBP’s mission statement, which constructs undocumented migrants as terrorists and justifies the violence against them” (Slack et al., 2016, p.22)

In 2010, after video captured Border Patrol agents beating and tasing to death Mexican migrant, Anastasio Hernandez, a congressional mandate sot an external investigation into border patrol’s use of force practices. The most critical elements of the results were redacted and only reviled later when the report by the Police Executive Research Forum was leaked. It especially criticized the use of deadly force against rock throwers and drivers (Slack et al., 2016).

Border Patrol lacks a system to deal with complaints of violence perpetrated by agents. Martínez, Cantor, and Ewing found that 97 percent of complaints against agents resulted in inaction (2014).

Within an effort to modernize the border patrol that started in 2014, a board of CBP and Department of Justice and Homeland Security was instated to investigate Border Patrol’s use of force. As of November 2016, it had cleared all it’s cases including an agent shooting at a rock thrower and death by Taser (Tanfani, 2016).

### *Civil Liberty Concerns*

A secretive group of scientists known as the Jasons worked to build “the first real-time, computer-driven surveillance operation program” (Novak, 2015, p.1) in Chokshi an operation called Igloo White during the Vietnam War. They wanted to build a “virtual fence” with sensors and aircraft to separate North and South Vietnam. But on one was the ground to authenticate the information captured by the sensors, which turned out to be a

problem. North Vietnamese soldiers could fool the sensors and the sensors couldn't differentiate civilians from soldiers. As a result, civilians were killed, much like the U.S. Military kills civilians in drone strikes today. While the five year, multibillion dollar project failed, that didn't stop it from coming home to North America along the U.S.-Mexico border. As early as the 1970s, Robert Barkan in the New Scientist reported Border Patrol using similar sensors. Today, along "the US-Mexico border, drones stalk the skies and electronic sensors alert Border Patrol agents to anyone trying to cross into the United States" (Novak, 2015, p.1). But that's not the extent of it. Miller notes that today's "virtual wall" includes state of the art surveillance technology like Predator drones, "towers, cameras, sensors, and radar" (2014, p.40).

In terms of technology,' said Border Patrol agent Felix Chavez, 'the capability of what we have acquired since 2004 is phenomenal.' At an October 2012 conference in El Paso, Chavez vividly described "unprecedented deployment of resources" along the entire U.S.-Mexico border: 377 remote video surveillance systems, 195 local video surveillance systems, 305 large-scale nonintrusive inspections systems, 75 Z Backscatter vans, 261 Recon FLIRs, more than 12,000 sensors, and 41 mobile surveillance system trucks (2014, p.39).

All of this technology extends far from the boundary line, but over the years increased efforts to build a virtual wall have encountered problems. The SBInet system was the latest failure. DHS cut funding for it in 2011, because it was too expensive and could not distinguish wildlife from people. The Government Accountability Office projected it would cost upwards of \$1.6 billion. But Border Patrol continues to use its large

surveillance towers in the desert. SBInet's replacement is the Arizona Border Surveillance Technology Plan, which is testing a "new virtual wall" in Arizona before fully acquiring it, Miller reported (2014).

Part of the Arizona Border Surveillance Technology Plan is the Integrated Fixed Towers system developed by the Israeli company, Elbit systems, which deploys surveillance technology between Palestine and Israel. The plan also deploys "remote video surveillance—day and night cameras for cluttered urban environments where radar is not as effective—and truck-mounted mobile sensors that can be moved when needed" (Moxley, 2016). Not only was the battlefield brought to the border after the Vietnam War, Miller and Schivone chronicle how the border between Gaza and Israel is "a great laboratory" for the border security industry, as a brigadier general for the Israel Defense Forces (IDF) put it in his presentation to a border security conference in 2012 in El Paso along the U.S.-Mexico border. The relationship between Israeli high-tech companies and the U.S.-Mexico border highlights how border militarization runs deeper than the physical technologies deployed on the border. Israeli high-tech companies extended the "laboratory" to the U.S.-Mexico Borderlands. A program called Global Advantage uses the region as testing grounds to develop new surveillance and border building technology where "American academic and corporate knowhow and Mexican low-wage manufacturing are to fuse with Israel's border and homeland security companies," as Miller and Schivone describe it (2015).

Border Patrol's eyes in the sky where are also battlefield tested. They use a military-grade panoramic camera, originally deployed in Afghanistan, which is tethered to an aerostat (Moxley, 2016). CBP Predator Drones also patrol the skies in the

Borderlands. The Associated Press reported that the U.S. government patrols half of the U.S.-Mexico border (2014). Meanwhile, the ACLU has called for regulation of drones and warns that drone use by law-enforcement in the U.S. creates major privacy concerns especially potential surveillance of homes and religious spaces (ACLU, n.d.). The Electronic Frontier Foundation is concerned over Border Patrol lending drones to other law-enforcement agencies, Jeremy Gillula told the New York Times. “The technology makes it easier to conduct surveillance on people when they don’t have probable cause,” he said (Nixon, 2016). The FBI, North Dakota law enforcement and various state agencies across the country have already used DHS drones (Winston, 2015).

The CBP has also planned to increase the presence of drones along the U.S.-Canadian border. “The [US government] will obviously justify these kind of activities with there being a potential threat of terrorists coming into the US but they're not finding terrorists — they're really finding drugs," Don Alper of the Center for Canadian-American Relations and Border Policy Research Institute at Western Washington University, told Vice News. He warned this was a step towards more militarization along the U.S.-Canadian (Hoffman, 2014)

For civil liberties advocates, more CBP drones means more opportunities for U.S. law-enforcement agencies to borrow them. This sparked concerns for the Electronic Research Center’s National Security Counsel. "Customs and Border Protection should conduct a public rule making to establish privacy regulations for their use of drones in the United States," the counsel’s Jeramie Scott told VICE News (Hoffman, 2014).

In 2015, the Department of Homeland Security Inspector General, John Roth audited the CBP’s drone program and found no evidence that they supported Border

Patrols mission in apprehending drugs and migrants, while costing \$62.5 million in 2013 (Winston, 2015). But the New York Times recently reported that CBP is soliciting proposals for smaller drones intended for individual agents (Nixon, 2016).

CBP's Predator drones just watch U.S. borders, but when operated by the U.S. Military or CIA they are armed and have had a history of killing civilians while targeting terrorists in the Middle East. But CBP hasn't intended for its drones to stop at surveillance. The Electronic Frontier Foundation acquired CBP documents that outline drone payload capacities for "'non-lethal weapons designed to immobilize' targets" (Bump, 2013).

The ACLU pointed out that ports of entries are where the most civil liberties are compromised by CBP. Along the border CBP agents don't need a search warrant to perform many types of searches. From 2008 to 2010, "CBP searched the computers, phones, cameras, flash drives, and other electronic devices of more than 6,500 people, more than half of them U.S. citizens" (Miller, 2014, p.277-78). Agents also regularly search non-electronic property such as journals and receipts. Then in 2013, the DHS office of Civil Rights and Civil Liberties issued an executive summary of a "Civil Liberties Impact Assessment" stating that officers do not need reasonable suspicion to search electronic devices along the border (Kravets, 2013). Miller chronicles some of the experiences of travelers who have experienced this, including Pascal Abidor, a French American Islamic studies doctoral student. CBP confiscated his hard-drive and computer because of their content. Content he needed for his doctoral research. "International borders and places of entry, as zones where fundamental constitutional protections can be stripped away, have

become a key element in the U.S. surveillance state's ever-expanding strategy" (Miller, 2014, p.281).

In 1999 Anthropologist Josiah Heyman wrote that the "militarized border society" between the U.S. and Mexico, fueled by fear of outsiders and drugs, sustained an environment where "more and more people either work for the watchers, or are watched by the state." The massive extent of government surveillance, made public by Edward Snowden, was already experienced along the U.S.-Mexico border. Now it is increasingly the reality for residents across the country, Miller argues (2014).

### **Research Questions:**

Based on the research outlined above regarding the borderlands, journalism, and mapping, this thesis asks the following questions:

1. How can computational, watchdog journalism be used to map militarization in the U.S.-Mexico borderlands?
2. What are the possible ethical, security and privacy concerns that must be considered in the development of an app or computational, watchdog journalism instrument?

The formation of these research questions came in the spring of 2016. González de Bustamante's students set out to map border security infrastructure. Students walked through Nogales, Arizona and Nogales, Sonora taking photos and jotting down the cross streets and landmarks where we took them. Collaboratively mapping these photos, however, proved to be a cumbersome task. Some students forgot which photos aligned with their notes and it called for a labor-intensive data entry effort to create a database of

photos. This class project ultimately evolved into a multimedia approach to map border security. The final product included maps, but did not map students' photos. This study, however, sought to solve this cumbersome collaborative process through a computational journalism approach.

### **Methodology**

González de Bustamante's students measured border militarization by documenting the security apparatus in Nogales, Sonora and Nogales Arizona (2016). This outcome of this study would let those students collaboratively map the coordinates of their photos through computational journalism methods.

Nate Silver, editor-in-chief of FiveThirtyEight, has predicted that half his newsroom will soon be computer programmers (Soper, 2014). Multiple leaders in journalism research, education and innovation have also sung the importance of journalists leaning computational skills. But the field of journalism is not alone. Computer programmers are increasingly needed in academia, and not just in STEM fields. According to Meredith Broussard, "as social scientists engage with data in new ways, some researchers will inevitably write computer code" (2016).

This study used crowdsourcing as a means to create a dataset for analysis, rather than merely analyzing existing data. "The computational journalism scholar...may perform research that does not fit into existing qualitative or quantitative categories," according to Broussard (2016). She calls it "applied research in computational journalism." Broussard refers to existing computational projects in social science to point out that "Creating the code is the research. In order to form the conclusions described in

the paper, the researcher had to conceptualize, write, and debug many lines of code. The number of lines of code written depends on the project; some analysis can be accomplished in a few hours using only a few dozen lines of code, and some analysis requires thousands of lines of code written over the course of months. ” The process of writing code is an experiment unto itself (Broussard, 2015).

As such, the core of this study’s methodological approach was to write a mobile app in JavaScript that collects volunteered geographic information and stores it on a server-side database, which displays the data on a map and maintains the privacy of its users all the while.

A focus group was conducted to evaluate how to best engage an active user base. The target audience was border journalists, activists and NGO workers who already have a vested interest in cultivating a better understanding of border and law enforcement militarization. The theme of the focus groups focused on the mobile app’s end user experience. For example:

- What are acceptable trade offs between convenience and security? What about trade offs between convenience and user accountability?
- What features could the app include to increase photo submissions?
- What social elements could the app include to best foster an engaged user base?

*The following is an outline of the computational methods used to build this journalistic tool:*

Smart phones use two main operating systems, Android and iOS. Samsung and Google smartphones use Android and iPhones use iOS. Apps built for these two

operating systems are written in unique programming languages. Android apps are written in Java and iOS apps are written in Objective C or Swift. This presents a significant programming challenge to reach users of both operating systems.

An alternative to learning two distinct programming languages and building two distinct mobile apps is to build a hybrid mobile app using JavaScript. I'll be using a JavaScript framework called Ionic 2, which is built specifically for developing mobile apps. An Ionic 2 app is essentially a web app. While it does have the capacity for offline capabilities, these types of hybrid apps have historically underperformed native apps written specifically for iOS and Android. That's why the program will need to be simple and lightweight: a camera programmed to send coordinates, a photo and a description to the server. A web app will display a map and will communicate with the server to show the crowdsourced data.

This study stores a dataset in a Firebase real-time database account. Normally server-side programming is quite complicated, but with Firebase the computational research for this study could focus on developing the mobile app.

### *Methodological Challenges*

In terms of distribution, there is a constant tug of war in computer science on the continuum between convenience and security when distributing an app to users. "In a nutshell, the more secure the network, the more inconvenient the access becomes for end users" (Cantafio, 2004, p.4).

The app is currently available to test through a platform called Ionic View. That is where the subjects in my focus group accessed the app for testing.

## **Results**

“Creating and verifying the code, and running it on available data, is an important scholarly creative act. This act does not fit into the established paradigm for social science experiments, however. Building a working prototype of a new computational system is an experiment” (Broussard, 2016). This section describes the results of this study’s experiment: functioning software, user feedback and the data user’s generated with the software. The app’s software not only runs data, it collects it too. Subjects to tested the app in a focus group in Nogales, Ariz. and discussed how it could meet their needs and preferences.

### *Computational Journalism*

“Writing complex code is itself an experiment: call it applied research in computational journalism. Such applied research is interdisciplinary, as it draws on computer science as well as social science” (Broussard, 2016). This study’s research yielded a smartphone app by leveraging JavaScript, a computer programming language, to alleviate the cumbersome process of collaboratively mapping photos. The outcome was a tool that students, journalists and the public can use to collaboratively map photos. It solves the underlining problem students in González de Bustamante’s class encountered.

A brief description of the front-end, back-end and how this study’s computational approach tells a journalistic story will precede a break down of the code that this study’s computational research yielded.

User-generated data is the most important element of this thesis project. Computational journalism methods were simply a means to efficiently collect photos of militarization and their location. The study's resulting software collects and displays this data. Every line of code was written to tell a story and the story is in the user-generated data. But that data needed a place to live. The study's app needed a back-end to store photos, coordinates, photo descriptions and timestamps.

A pre-built backend for programmers, called Firebase, houses user-generated data. It stores the data in a JSON (JavaScript Object Notation) format, which is similar to a spreadsheet, but easier for a computer to read. Each data submission is structured as an object, which is a group of related values much like a line on a spreadsheet. Each user-submission generates a new object containing a photo, its coordinates, photo description, anonymous user ID and timestamp.

The front-end of the app is what the user sees and interacts with. Firebase comes with a vast library of code to use in the front-end to facilitate writing and reading data in real-time stored in a firebase database. Since the most important element of this project is the user-generated data, the most important computational research involved writing code to generate the data in the front end, send the data to the back-end and finally read the data stored in the backend on a map in the front end. Once that code was written, the next research objective was to build a front-end that told an interesting story using the data. The code does this by reading the photo objects as Google map markers and info windows.

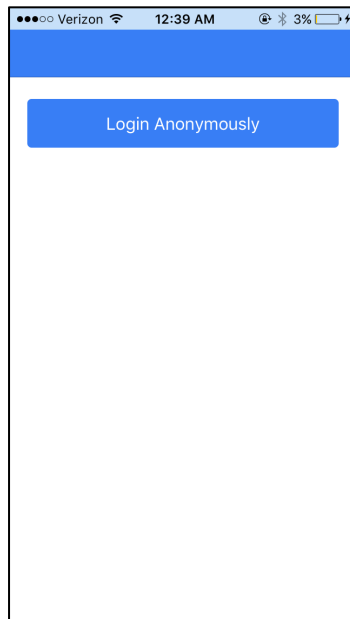
Writing code is an essential part of this study's computational journalism research. Broussard suggests one way computational journalism scholars can report on

code-writing research is to write Pseudocode as part of the computational journalism findings. “Pseudocode is a plain-language description of the steps involved in an algorithm. Programmers often write pseudocode before writing actual code in order to sketch out how a program will work. Because pseudocode is written for human comprehension, not machine comprehension, it is a useful way to explain to another human what is happening inside a computer program,” (Broussard, 2016).

The following the pseudocode of this study’s app :

1. Initialize App
  - 1.1. If app is not yet assigned an anonymous user ID
    - 1.1.1. Load login page
    - 1.1.2. Generate anonymous user ID

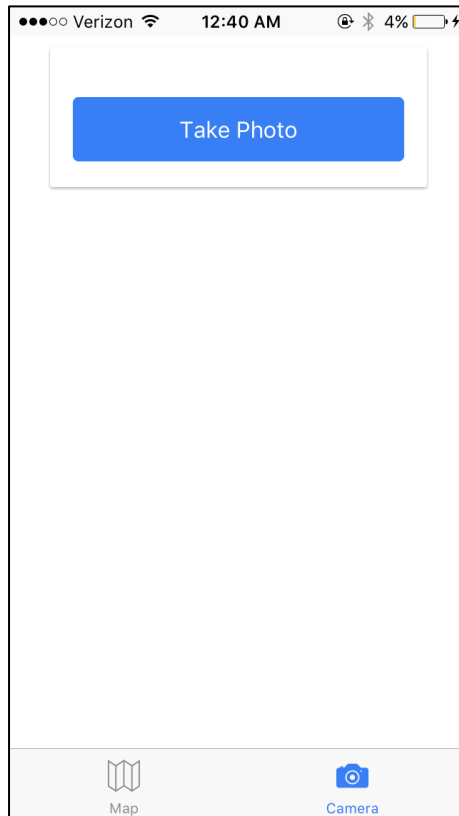
**Figure 1: Anonymous Login Page**



2. Load camera page
3. Tap “Take Photo” button

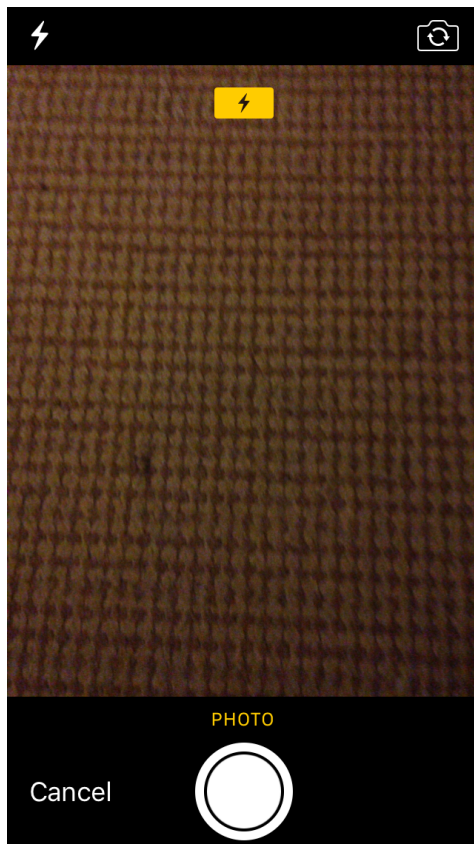
- 3.1. Access smartphone camera
- 3.2. Access smartphone geolocation

**Figure 2: Take Photo Button Loads Camera**



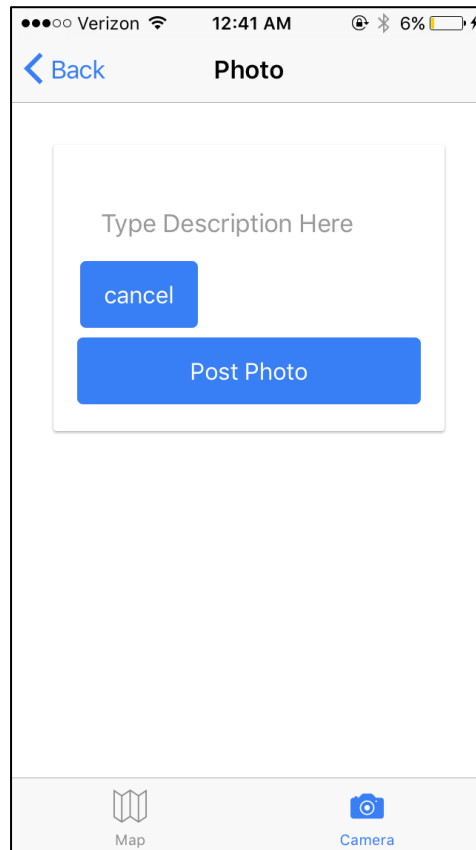
4. Take photo
  - 4.1. Create new object
  - 4.2. Save Base64 formatted photo as a value to the object
  - 4.3. Save photo's geolocation coordinates as a value to the object
  - 4.4. Access photo's timestamp
    - 4.4.1. Format timestamp: Day/Month/Year, Hour : Minuet
    - 4.4.2. Save formatted value in to the object
  - 4.5. Save anonymous user ID as a value to the object

Figure 3: Camera Page



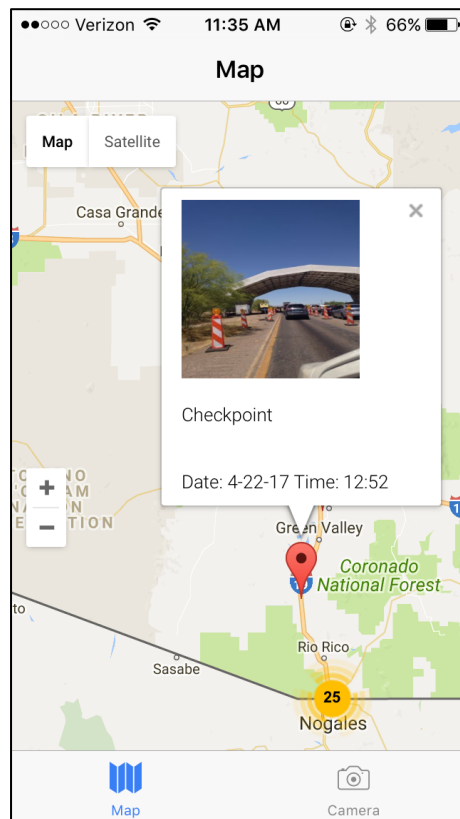
5. Load photo description page
  - 5.1. Type photo description
  - 5.2. Tap “Post Photo”
    - 5.2.1. Save photo description as a value to the object
    - 5.2.2. Send the object to Firebase back-end

Figure 4: Post Photo Button Sends Object To Backend



6. Bring user back to camera page.
7. Front-end code reads back-end object in real time as Google Map Marker and Info Window
  - 7.1. Google Map Marker is placed on Google Map at the object's coordinates
  - 7.2. The object's photo, timestamp and description are displaced in the Map Marker's Info Window

Figure 5: Object Is Displayed In Info Window On Map



8. User can choose to tap “take photo” again or load map page by tapping the map icon
9. Map loads view at user’s geolocation

This pseudocode essentially outlines an algorithm. This algorithm values journalistic accuracy. Crowdsourced journalism projects are vulnerable to inaccuracy when soliciting data to tell a story. This algorithm takes this into consideration by omitting options that increase the risk of falsified or inaccurate data. For example, when taking a photo, the user cannot edit the photo before submitting it. The timestamp is also programmatically generated to prevent inaccurate submissions. An anonymous user ID is also collected with each photo as a safeguard, which can be used to ban users who post malicious or

inaccurate content. A discussion will follow on how the app's community of users can eventually moderate user-generated content as the user base grows.

### *Geographic Information*

This study's resulting software collects and displays volunteered geographic information. The area that this geographic information populates has the potential to be truly global. While users will map border militarization primarily within the 100-mile border zone in the United States, they may map law enforcement militarization photos anywhere in the interior of the country. The same applies for users in border zones and within countries around the world.

This software collects the following information, or layers, that characterize the map of border and law enforcement photos submitted in real time. The following pseudocode of a JSON node explains how this information is structured. Each new submission creates its own 'node' in the JSON database.

- i. New Submission –
  - a. Description
  - b. Photo
  - c. Anonymous User ID
  - d. Latitude
  - e. Longitude
  - f. Timestamp

This user submitted geographic information is not, however, the only information that the map displays. Users can view the map as a standard Google map or a Google

satellite map. This type of map is called Web Mercator and is the standard map for web mapping. The geographic information displayed includes layers such as roads, businesses, schools, government buildings, parks, and international and state boundaries.

### *Focus group*

A focus group was held to assess the app and generate new ideas on how it can meet the needs and preferences of those who use it. Students, journalists, activists, and NGO workers were recruited to join in a discussion about the app and to test it. Two subjects, a student and NGO worker, came to the Nogales Santa Cruz Library to discuss the app and test it with me in Nogales, Arizona. The discussion questions focused on the concept of the app. Subjects shared ideas and preferences for future iterations of the app. The following is a qualitative summary of the responses from each focus group discussion question:

#### How likely are you to use a mobile app to collaboratively map border and law enforcement militarization? Why?

Subjects were very likely to use a Smartphone app to collaboratively map border and law enforcement militarization. The subjects saw the app as a watchdog mechanism to check border surveillance, militarization and law enforcement overreach. One subject saw it as a way to show the border surveillance apprentice that the public is watching it too.

#### Would you like the ability to choose between using the app anonymously and using the app with a Facebook or Twitter login for photo attribution purposes?

Subjects responded positively to a potential option of using social media to authenticate photo attribution. It could be important for public figures to attribute their photos and share them through social media.

Subjects wanted to keep an option to use the app anonymously. They feared if an undocumented person was identified using the app authorities might target them.

What are acceptable trade offs between app convenience and user accountability? For example, what should happen if the site is vandalized with malicious or inappropriate content? Do you have any ethical or privacy concerns about this app?

One way keeping the community accountable could be through community moderation. A method for the community to moderate submissions by region could be a solution. Regional moderators could monitor flagged content with the power to delete submissions.

Ethical problems could arise from using geolocation services. The app Grinder, for example, had a problem of publicizing identifiable information with people's exact location.

It is important to be transparent with users about the inner workings of the app's code and the kind of information it collects. There should be a warning or full disclosure statement so people know what to expect.

What features could the app include to increase photo submissions? For example, is it convenient enough to take a photo within the app as opposed to importing a photo from your phone's photo album?

It could be helpful to access photos from the phone's photo album, but that could mean that users are not posting photos in real-time. In other words users could take a photo and wait to upload it from their photo album. It could be more helpful to send a photo to the app directly after taking it from the phone's native camera.

What social elements could the app include to best foster an engaged community of users? Should users be able to comment on other users' photos? Would you like the ability to share your mapped photos on social media?

A news feed could be helpful to view new photo submissions chronologically. This could be a good way to historically look over photo submissions.

Videos and voice memos are also desirable content for users to submit. It would be helpful to receive push notifications when someone is being detained, if it is being documented in the app.

Comments on posts, however, could open up the door to bullying or create a hostile user environment. In the beginning it might not be an issue, but later on it could be.

Do you have any other concerns not addressed in these questions?

It could be challenging to think through vulnerabilities that come with this technology. Questions surrounding this concern include: How is the app putting a user at risk? How could authorities use the app against those who use it? How could an agency such as Border Patrol push back legally? Will they try to “weaponize” it? Perhaps community moderators could help rephrase posts if posts are problematic.

Do you have any other ideas that could help this app meet any of your needs or preferences? For example, How could this app be made more applicable to your needs and preferences in your day-to-day life?

Notifications of border and law enforcement militarization in an area would be helpful. Also, make the data open and easily accessible for use in other

research, graphics, journalism or organizing. Set up categories and let folks choose what kind of militarization their content falls under.

### *Focus Group Summary*

The subjects provided valuable feedback for future iterations of the app. Their response to discussion questions raised ideas that could be met with computational solutions such as community content moderation, a news feed, push notifications and the implementing photo categories. The challenge will be to meet these requests with computational solutions that maintain the journalistic integrity of the data being collected, which is a major concern in crowdsourced journalism projects as discussed by Vehkoo (2013).

The request to take a photo directly from the phone's native camera and send it to the app is understandable and would make submissions more accessible. It can be cumbersome for a user to take out their phone, open up the app, and take a photo, as opposed to taking the photo in one step from their phone's native camera. In the time it takes to load the app and take the photo, the photo opportunity might be gone. That means increased accessibility could increase the quality of a photo by decreasing the time it takes to take one. Several photos submitted during testing, for example, were far away from Border Patrol vehicles. This happened because the vehicles had driven away by the time the subjects loaded the app to take a photo. It will remain important to ensure that the app's algorithm maintains the inopportunity to tamper with a the accuracy of a photo submission.

Questions of concern over how the app could be used against those who use it highlight the need to include guidelines of best practices while using the app. For example, Users could benefit from being reminded that the First Amendment protects taking photos in public spaces. This type of information could be included on its own page and touch on privacy, data collection, ethical concerns and community guidelines.

### **Limitations**

The focus group was not large enough to be statistically representative of a population who might use the app. Also, while many of the ethical concerns subjects discussed in the focus group had to do with undocumented immigrants safely using the app, undocumented people were there to share their own perspectives.

While testing the app, a significant computational limitation presented itself to the focus group subjects. The geolocation service was not consistently accurate. Several photos were posted in locations nearby where the photos were actually taken. This is an important limitation to smooth out before distributing the app on a larger scale. A potential solution could be to let users manually fix these geolocation inaccuracies. Of course, this solution could also comprise the integrity of the data by letting users choose the location. Future computational research is needed to build a solution to this problem.

### **Future Research**

As the database grows, it could become an open resource for new statistics and graphics about border and law enforcement militarization.

Eventually the app will be available on app stores where a group may create an account if they obtain a verification code. This method of authentication could help grow

a focused and dedicated user base. Passing out on business cards with these verification codes on them could be a potential implementation solution. It is also possible that users could invite to participate, a method that fostered a dedicated user community in the crowdsourced project, “Help Me Investigate” (Vehkoo, 2013). The more dedicated the community, the easier it will be to avoid or flag malicious content.

Future research is needed to give users the option of flagging inappropriate and malicious content in the event that the map is vandalized; much like Facebook allows users to report content. Upon implementation each photo object would contain a counter value to keep track of how many times a photo was flagged.

Other topics could also be mapped on top of this data to tell more complex stories. In this project’s case, the photos are of border and law enforcement militarization. This app, however, could be easily adapted to collaboratively map photos for other journalism projects. Its uses are ranging, which is part of the added value of solving journalistic problems with computational methods. Nguyen wrote that he could have hired a transcription service when working on a big data project at Pro Public, but by solving his problem computationally, his code could be used for other journalistic projects and by other journalists too (2010).

## **Conclusion**

“President Donald Trump said Thursday that his administration’s efforts to remove undocumented immigrants is a ‘military operation,’” Matthew Nussbaum reported for Politico on February 23 2017. This isn’t a new assertion for social scientists. Dunn documented how the U.S. military’s Low-Intensity Conflict Doctrine came home

to roost along the U.S.-Mexico Border, including deportation operations, from wars such as those in Central America supported by the Regan administration in Central America during the 1980s (1996). Since the militarization of the U.S.-Mexico border, a spike in human rights abuses became routinely systemic, which has continued to be documented (Slack et al., 2016) ever since Dunn documented it in his work in 1996. Border Patrol's lack of transparency and accountability has fueled these abuses (Kruse, 2016) (Hunter, 2013).

Sometimes agents act with impunity. The same week Trump declared his deportation efforts a "military operation," for example, the Supreme Court debated whether the Constitution applies to a Border Patrol agent who shot and killed an unarmed 15-year-old Mexican boy across the U.S.-Mexico border. The events were clearly captured on a cell phone camera, but his higher-ups did not discipline the agent nor was he prosecuted in the United States. Mexico charged him with Murder, but the U.S. refused to extradite him (Totenberg, 2017).

Social scientists and journalists have written about and documented fallout from law enforcement and border militarization (Dunn, 1996) (Miller, 2014) (Slack et al., 2016). Both "lap dog" and "guard dog" journalism accept the systemic circumstances and power dynamics it happens in. The literature already shows that human rights and civil liberty violations occur as a result of militarization (Dunn, 1996) (Miller, 2014) (Slack et al., 2016). This "watch dog" journalism project provides an outline to specifically cover and map border and law enforcement militarization. This app can document where people are interacting with these forms of militarization. Not every photo (and eventually video) will document abuse, but it is journalistically important to know where people are

interacting and documenting law enforcement and border militarization to spatially visualize and better understand its connection with abuse.

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