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Glitches in the Digitization of Asylum: How CBP One Turns Migrants' Smartphones into Mobile Borders

Austin Kocher

Transactional Records Access Clearinghouse, Newhouse School of Public Communication, Syracuse University, Syracuse, NY 13202, USA; ackocher@syr.edu

Abstract: As the emerging literature on migration studies has demonstrated, migrants who are seeking asylum around the world are increasingly finding that the process is mediated by a variety of new technologies. While the process of digitizing various aspects of migrant protection may promise improvements, new technologies also risk limiting access to asylum for migrants who are unable to overcome these new digital barriers to entry. This article explores the digitization of asylum by examining the context and consequences of the U.S. government's deployment of a smartphone app called CBP One in early 2023 which suddenly became one of the main pathways for migrants to seek asylum along the U.S.–Mexico border. In doing so, this article makes two contributions to the literature on the digitization of asylum. First, the article shows how CBP One, which was not initially designed for asylum seekers, morphed into a tool that took center stage in border enforcement statecraft during a period of exceptional migration policies. Second, this article examines the range of what have been referred to as “glitches” with CBP One, to demonstrate how the app created new digital barriers to asylum. Rather than accepting glitches as mere accidents, this article argues that these glitches are the result of a political decision to force already vulnerable migrants to rely upon experimental technologies that hinder rather than facilitate their asylum-seeking process.

Keywords: migration; asylum; U.S.–Mexico border; CBP One; digital migration studies; digital borders; Title 42; border externalization



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1. Introduction

Migration and migration controls are becoming increasingly mediated through technology. Existing research has examined how migrants use mobile phones to facilitate the migration journey, save and share important documents, maintain relationships across distances, call for search and rescue services, send and receive money, access medical services, obtain food rations, apply for or renew visa statuses, document abusive state practices, and learn the language of their host country [1–7]. Governments, too, have incorporated technology into migration controls by deploying biometric screening at borders, developing complex regimes of surveillance, and incorporating algorithms and artificial intelligence into decision-making processes [8–16]. These trends have prompted a ‘technology turn’ in migration research reflected in the rise of what is referred to as digital migration studies [17–19], as well as a growing literature on digital borders [20] and digital humanitarianism [21–23].

A central question in this literature is whether, and to what extent, technology is capable of substantively improving humanitarian protections for migrants, or whether technology will be subsumed under militant border restrictionism and the proliferation of policies that limit access to asylum [24–28]. Although examples abound of governments developing back-end systems or using off-the-shelf technologies to manage migration, fewer scholarly analyses exist of examples where governments have developed their own smartphone applications to directly regulate migrants' mobility. However, in 2023, Customs and Border Protection (CBP), the U.S. agency responsible for border enforcement,

began requiring any migrant seeking asylum at the U.S.–Mexico border to register in the agency’s own smartphone application called CBP One. CBP One’s deployment as an asylum management tool emerged at a time of tremendous volatility in immigration policy. Both the Trump and Biden administrations created and terminated a range of policies that restricted access to asylum based on nationality, age, family type, humanitarian urgency, and when and where migrants cross into the United States [29]. CBP One also emerged at a time when the relationship between border enforcement, asylum processing, and migrants’ own use of technology is rapidly evolving [30–32].

CBP One raises significant concerns about the effects of this technology on migrants’ ability to seek protection and reflects fundamental questions at the center of research on digital migration studies, digital bordering, and digital humanitarianism. While the process of digitizing various aspects of the asylum process using mobile phones may promise improvements in access and efficiency, it may also limit access to asylum for migrants who are unable to overcome these new digital barriers to entry. Given the life-and-death consequences for migrants seeking asylum, understanding CBP One’s effects on alleviating or exacerbating existing inequalities in access to asylum is an urgent research question. This article analyzes how CBP One is transforming the asylum process at the U.S.–Mexico border, and, in doing so, grapples with broader questions about how to conceptualize the increasingly complex relationship between border enforcement, asylum seekers, and government technology.

As CBP One is still in its infancy, further research will be needed to fully analyze the technological capabilities of CBP One, systematically assess migrants’ experiences with the app, and evaluate the full range of CBP One’s consequences (positive and negative) for the asylum system. However, by focusing specifically on CBP One’s initial development and release, this article highlights the underlying tensions that erupt when asylum processes become digitized. In doing so, this article makes two contributions to the literature on the digitization of asylum. First, the article shows how CBP One, which was not initially designed for asylum seekers, morphed into a tool that took center stage in border enforcement statecraft during a period of exceptional migration policies. Second, this article examines the range of what have been referred to as “glitches” with CBP One, especially the claim that the app’s facial recognition function fails to consistently recognize migrants with darker skin tones, thus creating racialized barriers to seeking asylum. I argue that while glitches productively call attention to the controversial processes of asylum digitization, representing technological barriers to asylum as “glitches” displaces political discussions about the right to asylum with depoliticized discussions about patching software problems. Rather than focusing narrowly on glitches or ignoring them altogether, this paper conceptualizes glitches as symptomatic of broader geographies of inequality and power [33], and seeks to rearticulate the concept of the glitch back within the broader context of restrictive asylum policies.

The paper proceeds as follows: Section 2 situates CBP One within the context of the literature on digital migration studies, with an emphasis on the growing role that migrants’ smartphones play as an essential yet contested device that states are increasingly infiltrating to achieve their immigration enforcement objectives. Section 3 examines the rise of CBP One, from its initial release in 2020 as a relatively unknown app through its gradual incorporation into humanitarian processing at the border and its eventual position as a digital drawbridge for asylum seekers. Section 4 examines the reported technical difficulties that migrants have faced with the app and specifically how these glitches have undermined the government’s claims that CBP One is a streamlined, efficient, and humane option for asylum seekers. Section 5 argues that glitches, especially glitches with CBP One, should not detract from larger questions about policy, but rather should be understood as being symptomatic of a political decision to force migrants to rely upon experimental technologies that, ultimately, pose additional barriers for them to seek asylum. The conclusion provides a glimpse of CBP One’s contested future and discusses directions for future research.

2. Migrants' Smartphones as Mobile Borders

Before discussing the evolution and impact of CBP One as an asylum management tool, it is important to situate it as one app among many that migrants encounter globally. This section argues for greater attention to migrants' smartphones as devices that are expected to accomplish multiple and often competing objectives by actors including, but also far beyond, individual migrants themselves. This understanding of migrants' smartphones as contested devices draws upon, for instance, Hannah Morgan's call for greater attention to the centrality (and dangers) of migrants' everyday digital practices [34], as well as Martina Tazzioli's concerns about the ways in which digital humanitarianism is exposing refugees to disciplinary and disorienting systems of socio-legal precarity [4]. This section lays the groundwork for assessing CBP One not in isolation but as part of a broader digital and social landscape of migrant control, particularly in the context of the U.S.–Mexico border which has, until recently, received less research attention than the borders of Europe.

Much of the research on migration control and technology tends to focus on sophisticated systems that involve algorithms or artificial intelligence (AI), and for good reason. Automated decision making is already incorporated into Canada's asylum process [16] and in Immigration and Customs Enforcement's immigrant detention determinations [15,35,36]. Biometric technologies have become ingrained in the identification and risk assessment of people crossing international borders [8,9,37,38]. Speech recognition technology is now being used to identify migrants' dialects [39] in citizenship tests in Latvia to evaluate language fluency [40]. Refugees in Jordan access food programs and financial services using an iris scan identification system called IrisGuard [41]. The U.S.–Mexico border itself has also become increasingly saturated with surveillance technology [10,11,13]. Although these controversial technologies are important, this article focuses less on cutting-edge government technologies and more on the embeddedness of seemingly prosaic technologies, such as mobile phones and smartphone apps, within broader social and legal landscapes [42]. This is not to suggest a hard division between sophisticated and mundane technologies. Indeed, data captured through smartphones, including migrants' photos, may feed into algorithms and artificial intelligence models, and come back to haunt border enforcement strategies later. However, this article aims to emphasize that not all border enforcement technologies function at a distance; increasingly, border enforcement tactics are playing out on migrants' phones.

Mobile phones have become integrated into the dynamic processes of global migration in recent years. Migrants use these technologies to, among other things, facilitate the migration journey, save and share important documents, maintain relationships across distances, call for search and rescue services, send and receive money, access medical services, obtain food rations, apply for or renew visa statuses, and learn the language of their host countries [1–3,21]. For asylum seekers in particular, smartphones may be used to store or retrieve evidence that substantiates their asylum claims with the understanding that paper evidence may be lost, destroyed, or stolen along the migrant journey. Evidence may include photographs of physical abuse, screenshots of threatening text messages, or documents such as death records, police reports, or newspaper articles. The WhatsApp messaging service is in widespread use among migrants [2]. Migrants also use mobile phones as part of 'counter-surveillance' efforts to document and publicize controversial and otherwise secretive state practices [7,27]. One prominent example of how mobile phones are being used in creative and impactful ways is Alarm Phone. Alarm Phone is a volunteer-driven project organized by Watch the Med that responds to the emergency calls and text messages of migrants who experience maritime distress while attempting to cross the Mediterranean Sea [6,43]. Through Alarm Phone, migrants and migrant advocates have used smartphones as lifesaving strategies at a time when states were either indifferent to migrants' maritime rescue needs or participated in exacerbating the precarity of migrants attempting to arrive in Europe [44–47].

Mobile phones are not inherently good, however. Migrants along the U.S.–Mexico border, for example, do not adopt mobile phones without skepticism, nor are mobile

phones without their liabilities [5]. Although migrants use mobile phones for a variety of purposes, they also express concerns about the possibility of mobile phones exacerbating the risk of extortion as well as the dangers of electronically exposing oneself to what they imagine to be the U.S. government's far superior surveillance apparatus [5]. Migrants are aware, for instance, that CBP uses a variety of surveillance technologies that make smartphones a potential means of identification and incrimination [5]. Mobile phones may also increase migrants' vulnerability by giving traffickers and kidnappers access to contacts in the United States or migrants' home countries for extortion [19]. Similarly, migrants in Europe may be forced to hand over their mobile phones to government officials, who can use data on phones to verify (or refute) their identity and their asylum claims [31]. In the United States, hundreds of thousands of migrants, including many asylum seekers, are enrolled in an electronic monitoring program that uses a smartphone app called SmartLINK to facilitate virtual check-ins and regular communication between immigration officers and migrants [48,49]. Thus, mobile phones may be a lifeline for migrants navigating the open sea, but that same device may be used against them later when navigating the asylum process [50]. Migrants' smartphones are increasingly absorbing and expanding the functions of border checkpoints both before migrants arrive at the border as well as after they have entered destination countries to seek asylum.

The Janus-faced nature of smartphones, and the multiplicity of apps embedded in them, resists simplistic assessment. This is not to imply that smartphones are neutral devices, only that narrow techno-skeptical or techno-optimistic accounts are unlikely to fully grasp the internal conflicts and contradictions that unfold at the intersection of migration and technology. As Morgan's evaluation of this line of research suggests, "smartphones are becoming technologies of the state: used to control, surveil, or identify subjects"; and yet "we must also remain open" to "everyday smartphone practices" outside of the state [34]. CBP One enters the scene at this complex juncture. As the following section shows, the U.S. government claims that the app will facilitate lawful pathways to asylum and increase the capacity of CBP to process asylum seekers while also shutting off access to asylum through any other route. CBP One therefore raises important questions. How should we assess the government's use of migrants' smartphones as a mechanism for accessing asylum? How does CBP One intersect with other everyday digital practices of migrants? Can an agency whose mission is border enforcement be trusted to create reliable software for migrants at risk of persecution while that same agency expands other forms of surveillance that facilitate migrant exclusion?

Although CBP One's use in this capacity is still new and this analysis is therefore preliminary, the following sections will unpack the recent development of CBP One to provide initial answers to these questions. This section, however, emphasizes that regardless of CBP One's effectiveness, the fact that CBP One exists at all illustrates how migrants' smartphones are becoming increasingly contested devices that open migrants up to both protection and vulnerability. One of the effects of this, as Martina Tazzioli has shown, is that while migrants have always had to navigate complex bureaucracies, migrants are now also compelled to prove themselves as "competent techno-users" by always having their mobile phone on them, always being reachable, and constantly keeping up with "frequent changes of deadlines, criteria and procedures" that accompany the refugee and asylum process [4]. In Tazzioli's framing, these technologies have the effect of "governing through disorientation" as migrants find themselves downloading app updates, seeking technical assistance, and dealing with "glitches" [4]. In short, by drawing migrants' smartphones into various migration management systems, migrants are now exposed to a new and constantly fluctuating disciplinary apparatus tied to migrants' devices. To understand how migrants' smartphones have been drawn into CBP, the following section traces the emergence and growth of CBP One through periods of exceptional policies that undermined migrants' right to asylum.

3. The Rise of CBP One

This section briefly charts the rise of CBP One in relation to migrants' use of mobile phones as well as the constantly shifting landscape of asylum policy at the U.S.–Mexico border. In less than three years, CBP One went from launch to taking center stage in immigration policy—a remarkable ascendance for a smartphone app built by a team inside CBP itself [51]. Although technology has already played a significant role at the border, CBP One is unique in that it is not only an official U.S. government application, but one that became one of the only ways to access asylum at the border. As a result, CBP One was thrust onto migrants' smartphones and into the center of migrants' lives, setting up the app's functionality to become a crucial juncture in the asylum-seeking process.

CBP One was first released in October 2020. CBP succinctly describes the app as a “single portal to a variety of CBP services” [52], a provocatively vague description that accurately reflects CBP One's flexibility and adaptability to demands put upon it by whatever policies are in effect at the moment. Documents obtained by the American Immigration Council (AIC) reveal that the app was initially intended to digitize I-94 forms, which record the entry and exit of certain non-citizens, and allow cargo inspections to be scheduled in advance [51]. However, two Trump-era policies designed to limit access to asylum at the U.S.–Mexico border laid the groundwork for CBP One's transformation into an asylum management tool during the early months of the Biden administration.

The first policy was the Migrant Protection Protocols. In 2018, the Trump administration announced a policy called the Migrant Protection Protocols (MPP) (a.k.a. “Remain in Mexico”) that forced asylum seekers to wait in Mexico until their hearing with immigration judges in the United States, instead of entering the country to pursue their claims [53]. MPP was criticized for undermining the asylum process. Few asylum seekers in MPP found legal representation, even fewer were granted asylum [24], and many of the approximately 70,000 migrants waiting in northern Mexico [54] experienced extortion, kidnapping, and other forms of violence that put them in danger at precisely the moment they were seeking protection [55–57]. Once in office, the Biden administration suspended new enrollments and later terminated the Migrant Protection Protocols [58,59], although a series of protracted lawsuits kept the program limping along for many months.

After the termination of MPP, the Biden administration intended to parole thousands of migrants with pending asylum cases into the country to complete their hearings. Although the government's announcement in February 2021 advertising CBP One as a new app for border crossers did not mention MPP [60], the Privacy Impact Assessment (PIA) released later the same month shows that the government turned to CBP One to manage the parole process for MPP migrants. If migrants with pending MPP cases could still be found (and many of them could not), approved humanitarian organizations such as the UNHCR could register them in CBP One and, if CBP confirmed that they had a pending case, they would be allowed into the United States [61], as shown in Appendix C. This initial foray into using a government smartphone app for humanitarian purposes drew relatively little attention. At the time, spokespersons for the ACLU and the Electronic Frontier Foundation expressed concerns that CBP's collection of migrants' facial images and access to migrant smartphones' geolocation data posed risks to privacy and surveillance [62]. The AIC's analysis of government documents later confirmed that the app's ability to collect data about migrants and schedule appointments at ports of entry was already live by June 2021, although migrants could still not register for appointments in the app without an NGO [51]. Whatever goals CBP may have had for CBP One upon its initial release, the wind-down of MPP was the first time the app was used for asylum seekers. However, it was Title 42 that would really bring CBP One into the spotlight.

In March 2020, during the first month of the COVID-19 pandemic, the Centers for Disease Control and Prevention (at the urging of the Trump officials) introduced a policy known as Title 42, which allowed CBP to expel migrants who arrived at ports of entry or crossed the border unlawfully on public health grounds [63–66]. Title 42 expulsions applied to many, including asylum seekers [67], which meant that Title 42 quickly overtook MPP as

the dominant border policy. Unlike MPP, the Biden administration's waffling position on Title 42—combined, of course, with still more protracted legal battles—meant that Title 42 wouldn't be terminated until May 2023, nearly two-and-a-half years after Biden took office. Despite Title 42's hyper-restrictive posture on migration, it did contain a humanitarian exemption that allowed a limited number of particularly vulnerable migrants to enter the United States at the government's discretion. The Title 42 exemption process was, until CBP One, managed by third-party humanitarian organizations in Mexico who would conduct intake for migrants, prioritize cases for exemption, test migrants for COVID-19, then send migrants to ports of entry to be processed by CBP officers [67–70]. This process already relied heavily on technology: NGOs often used Airtable (and online database software) to handle case intake and data management, and WhatsApp served as the *de facto* communication standard for migrants along the border. However, CBP One would soon replace the coordinating role of NGOs and come to dominate the discussion about tech at the border.

In January 2023, the Department of Homeland Security began requiring migrants to apply for Title 42 exemptions directly using CBP One instead of going through NGOs [71,72]. Using the app, migrants would (allegedly) be able to schedule an appointment at a port of entry where CBP officers would evaluate their request to enter the country and seek asylum [73]. Despite CBP One's framing as a tool that would facilitate humanitarian responsiveness through technological efficiency, CBP One was announced alongside a bundle of largely restrictive immigration enforcement policies that sought to increase penalties for crossing the border unlawfully, even to request asylum, and greatly reduce the number of migrants eligible for asylum. The administration expanded the use of Title 42 and, in February 2023, announced its intention to pass a new rule that would render ineligible for asylum any migrant that had passed through Mexico or other countries without first requesting asylum there—a 'transit ban' that many analysts described as nearly indistinguishable from one that the Trump administration had previously failed to implement [74–77]. Under these new policies, even if a migrant could make it to the U.S.–Mexico border, no asylum claims would be accepted from migrants who crossed the border unlawfully and turned themselves into CBP (a long-time practice). Migrants would also no longer be able to request asylum directly at ports of entry unannounced. Instead, CBP One's appointment system became the only way for migrants to request asylum, placing the app at a crucial juncture in the asylum system at the U.S.–Mexico border. The White House claimed that CBP One would "significantly reduce wait times and crowds at U.S. ports of entry and allow for safe, orderly, and humane processing" [78]. However, as we will see in the next section, grounded accounts of CBP One's real-world failures immediately undermined this claim.

As this section showed, CBP One began its life in 2020 primarily as a tool for digitizing already existing processes at the border, but quickly expanded under MPP and then under Title 42 as a tool to coordinate the limited processing of migrants who had been prevented from seeking asylum due to restrictive and controversial border policies. At the end of 2022, CBP One was about to shift from being one of many options for migrants seeking asylum to being the *only* option for a smaller number of migrants who would remain eligible for asylum after Biden's policies took effect. CBP One would become, with some exceptions, the only pathway for asylum seekers, effectively an *extraterritorial* and *digital* port of entry. This meant that this smartphone application's basic technological functionality would soon become tested as a capricious yet decisive moment in migrants' lives. The possibility of the use of the CBP One app from inside Mexico is another example of the externalization of border controls away from national borders, as well as an avenue to apply for asylum without having to arrive at national shores, airports, or border crossings.

4. Digital Barriers to Asylum

Whereas the previous section examined the trajectory of CBP One from its initial release in October 2020 until January 2023, when its use became mandatory for migrants

hoping to seek asylum along the U.S.–Mexico border, this section discusses the variety of problems that migrants faced with CBP One after the app was released based on publicly available reports from journalists and NGOs, as well as open-source materials online that show CBP One in action. An analysis of these materials finds that the app's functionality and interdependencies (e.g., access to the Internet) created new digital barriers for many migrants seeking asylum even as more fortunate migrants were able to use the app to successfully schedule appointments.

As discussed in the previous section, the Biden administration characterized CBP One as a move towards a more efficient and humane system. A DHS official described the app as a “transparent and accessible way to schedule appointments” [79]. In principle, migrants were required to download the CBP One app, accept the terms and conditions, and install it on their personal smartphones. Migrants would then create an account providing personal information to Login.gov, which provides account management and user authentication services for a wide range of government services. Once migrants created a Login.gov account, they would proceed through the prompts within the CBP One app to identify themselves as a vulnerable person requesting advanced authorization to come to a port of entry along the U.S.–Mexico border. (Note that after Title 42 ended in May 2023, the requirement that a person confirm that they met a category of vulnerability, as required under Title 42, was removed.) Migrants were required to allow the app access to each user's location in order to confirm that the applicant was in Mexico (not in the United States) and near the border, although applicants could be as far south as Mexico City. Finally, migrants also needed to provide a photo of themselves, which the app would then evaluate to confirm that the person was a real person. If migrants could complete these steps and if appointments remained available, migrants would then be able to try to schedule an appointment at a port of entry, at which time they would present themselves and anyone else who registered under the same appointment for screening by a CBP officer. Successful migrants would finally be paroled into the United States and typically given a Notice to Appear at court that enabled them to pursue their asylum case in front of an immigration judge.

Although many migrants did get appointments using CBP One, reports quickly surfaced that many migrants all along the border were experiencing a range of technological issues that prevented them from using the app to schedule appointments at ports of entry. Journalists and migrant aid organizations documented examples online of CBP One crashing, cycling back to the login screen, freezing, and failing to allow users to log in. CBP One limited access to the appointment schedule system only to migrants near the border; yet the app reportedly misidentified migrants as away from the U.S.–Mexico border even when they were near the bridges at the border [80–82]. Seemingly arbitrary factors came to dominate who was able to seek asylum at ports of entry and who was not—factors such as the type of smartphone (or owning a smartphone at all), the quality of internet access, and whether migrants had (or could access) an email account [83–85]. NGOs, reporters, and attorneys provided further evidence of these news reports by posting images and videos of migrants struggling with CBP One on social media [86–88]. Between January and May 2023, CBP released a limited number of appointment slots each morning at 9:00 a.m. EST, forcing migrants in Tijuana to wake up early only to find that the slots filled up within minutes, which disadvantaged families with children who took longer to fill out biographical information for several people [79,81,85]. As a result of this, some families voluntarily separated, sending across whomever they could rather than risk everyone in the family being rejected [83,85]. CBP One was released only in Spanish and English, making the app illegible to many of the large number of Haitian asylum seekers [80]. Although the app was eventually translated into Haitian Creole, advocates suggested that the quality of the translations was low [84]. CBP One was clearly off to a rocky start.

As a result of CBP One's issues, the word that quickly came to most often characterize the app was “glitchy”. In simple terms, a glitch can be described as an unexpected malfunction with a piece of technology. CBP One required asylum seekers to download the

app, create an account, enter biographical information for every person in the family, and upload a picture; only then would migrants be able to schedule an appointment, and only then if any appointment slots remained available. In reality, many migrants reported that the app would not allow them to schedule appointments as instructed, often in ways that appeared unexpected or inconsistent with how normal smartphone applications work. In public reports about CBP One, the term “glitch” was often used in conjunction with “bugs” (a flaw in software design or programming) and app “crashes” (an unexpected closure or quitting of an app), two other terms which further imply a disjunction between the app’s intended and actual operations.

What counts as a glitch is a matter of some debate. What some migrants interpret as a flaw with the app itself may, upon further investigation, be attributed either partly or entirely to factors beyond the app itself or to intentional government policy decisions. In response to concerns that migrants were having trouble logging in when appointments become available each morning, a CBP representative told the media at least some of the difficulties could be attributed to “hardware issues from the end user” and that the agency would “enhance the mobile application as additional improvement opportunities arise” [89]. DHS officials also told reporters that criticisms of the app were inaccurate; officials specifically challenged the assertion that the app “crashes” by explaining the glitchy user experience as a consequence of the appointment slots filling up for the day—although they emphasized that the agency was working to address concerns by providing clearer error messages for users [79]. Thus, based on the limited public reporting on CBP’s responses to concern, the agency framed concerns about the app by connecting them to migrants’ misconceptions about how the scheduling system works, by locating issues outside of CBP One itself, or by characterizing complaints as bugs to be resolved in future software updates.

Competing approaches over how to interpret these glitches is exemplified by controversial claims of racial discrimination within the app’s facial recognition software. During the registration process, migrants are required to take a photograph of themselves that CBP One uses to “provide validation that an individual is present at the time of submission” [61]. CBP claimed that this “facial liveness” test was essential to limiting fraud, but reports surfaced that the app failed to recognize darker-skinned faces as reliably as lighter-skinned faces [90]. Representatives from immigrant rights groups that work directly with asylum seekers, such as *Al Otro Lado* [91], *Haitian Bridge Alliance* [81], and the *Sidewalk School* [85], shared concerns with reporters that Haitian migrants, who make up a significant population of asylum seekers waiting in Mexico, experienced difficulties taking and uploading a photo of themselves that the app would accept [81,85,90,91]. They reported that Black migrants struggled to find sufficient lighting, that the app struggled more often with darker-skinned migrants than with lighter-skinned ones, and that these issues caused the app to crash. Adding to this, as noted above, the app was not available in Haitian Creole when it was released, even though Haitians constitute one of the largest groups of asylum seekers along the border and even though CBP One had been in production for over two years. Whether these claims can be attributed to racial bias in the technology behind CBP One’s facial liveness test or attributed to the racialized economic and social geography of Black migrants—who are, for instance, less likely to be able to afford up-to-date smartphones and have access to high-speed Internet than, say, Russian and Ukrainian asylum seekers—is beyond the scope of this article and would require further research.

The fact that CBP One’s new digital barriers to asylum were also racialized undermined its legitimacy and called into question the agency’s claims that this new process would be fair and efficient. Even as CBP has sought to contain public concerns about CBP One through subsequent app reforms, advocates have criticized the app for its role in undermining human rights. Based on asylum seekers’ experience so far with CBP One, Amnesty International concluded that the “mandatory use of CBP One as the exclusive means of accessing protection by conditioning access to asylum on appearing at a port

of entry with a prior appointment . . . violates international law” [92]. The ACLU also filed suit against the Biden administration’s new border policies, arguing that there is no “exception for someone who lacks the requisite type of phone, access to internet service, to the ability to charge their phone, or the sophistication necessary to navigate the CBP One app” and noting that the app “routinely fails to register darker skin tones” [76]. It is premature to assess the long-term impacts of these critiques and lawsuits, but they forecast ongoing controversy over the role of technology in the migration system.

As this section showed, the initial release of CBP One was accompanied by a variety of tech failures that did not necessarily undermine CBP’s ability to fill up its appointments calendar for asylum seekers but did create barriers to entry for migrants who were less tech savvy, could not access high-speed Internet, were part of larger families, or, either directly or indirectly, migrants who were darker-skinned or Black. It is difficult to quantify precisely how many migrants were affected by CBP One’s glitches; but the invisibilization of these migrants who struggled with the app is, from an enforcement perspective, partly the point. Many asylum seekers did come through ports of entry. Nearly 80,000 migrants made appointments between January and April 2023, and in April alone, CBP processed over 22,000 Title 42 exemptions through CBP One [93]. However, the invisibilization of an untold number of migrants who may have been excluded from entry due to CBP One illustrates the overarching concern of this article, namely that the digitization of asylum cuts both for and against migrants at the same time. Migrants outside of the United States who are excluded from asylum because of a glitch in a smartphone app do not have an appeal in the same (albeit limited) way as migrants denied asylum in front of a judge.

It is also important to note that in May 2023, when Title 42 was lifted, several of the main processes behind CBP One changed. Most notably, instead of all new appointment slots becoming available at a single time each morning, the app allowed migrants to register at any point during the day; then each night, CBP’s system would randomly grant a limited number of appointment slots to a limited number of those migrants who were registered [94]. Although this may represent an improvement for migrants and may reflect responsiveness on the part of the agency to problems outlined above, the ability to modulate who gets asylum by tweaking the software behind an app succinctly evinces dystopian anxieties portended by digital borders.

5. The Politics of the Glitch

The previous section highlighted many of the types of glitches that migrants experienced in the early months of CBP One’s use as an asylum management tool at the U.S.–Mexico border. This section engages more directly and critically with the notion of the glitch in order to push back on the tendency for “glitches” to minimize the political implications of technologies of migration control. Here I draw upon the work of Leszczynski and Elwood [33], who emphasize the importance of theorizing glitches as windows into “digitally-mediated spatialities” (in this case, the spatialities of the U.S.–Mexico border), to conceptualize CBP One’s glitches as symptoms of broader systems of power. This conceptualization reveals important similarities to other contexts (e.g., the borders of the EU) where asylum seekers are compelled to navigate and endure the use of untested technologies that purport to be motivated by humanitarian concern [4].

CBP One’s glitches productively draw attention to the process of digitizing asylum at the U.S.–Mexico that may have otherwise gone unnoticed. Glitches are signs that government technology breaks down; it fails to function as intended or expected; it is fallible. Most importantly, glitches reflect the underlying ad hoc, cobbled together dimensions of governance regimes, rather than their coherence. CBP One mirrors other border enforcement technologies which, to draw on Claudia Aradau, are constructed through “improvisational” border practices which often function “*without* protocol” [emphasis in the original] through a constant cycle of experimentation [42]. Little information exists yet about how CBP One was developed inside CBP; but as discussed in Section 3, its evolution from an app that digitized routine border crossings to one that served as the exclusive method for seeking asylum

(as well as its buggy release) suggests that CBP One's capabilities are being developed and adjusted in real time. On the one hand, this level of responsiveness is unique within the U.S. immigration system where the amount of migrant-facing technological innovation is rare. Yet innovation is often accompanied by a foreseeable amount of instability. As Mirca Madianou argues, innovation in the refugee space is linked to "experimentation and risk-taking, which is particularly problematic when applied to vulnerable populations" [23]. Representing CBP One's issues as mere glitches, therefore, problematically reframes the problem of asylum access from a question of legal and ethical obligation to a question of software functionality.

What is needed, therefore, is a rearticulation of the notion of the glitch back within a political register that can at least acknowledge, and eventually account for, the emergence of glitches as well as the uneven effects of glitches on various populations. This section interprets the idea of the glitch more expansively by calling into question tidy boundaries between app and non-app, and by emphasizing the embeddedness of CBP One within a broader network of interdependencies that reflect recognizable social inequalities. This approach draws on Leszczynski and Elwood's [33] view that although glitches are often represented as mere idiosyncrasies, glitches should be understood as symptoms of broader systems of power. In their words, glitches "designate instances where inequalities present as banal by-products of seemingly innocuous digital design flaws in ways that functionally obscure their genesis in systems of oppression" [33]. This conceptualization of glitches as techno-political ephemera is useful in this context, since CBP One's emergence as an asylum tool is inseparable from policies that aim to limit access to asylum, and any so-called bugs with the app, are likely to exacerbate the plight of asylum seekers (regardless of whether they directly connected to the underlying software or due to contextual factors such as poor cell phone reception in the region).

A significant consequence of the proliferation of smartphone apps that attempt to manage the migration process is that migrants are exposed to predictably routine tech issues that might be normalized in a consumer context but could have far more serious effects in the context of asylum seekers. On the one hand, this article is not a case of techno-skepticism. States do not need smartphone apps to create arbitrary and inefficient migration processes, and antiquated paper systems create their own forms of bureaucratic violence [95,96]. This article remains open to the possibility that additional research and data on CBP One may indeed show that it does more good for more asylum seekers than previous approaches to asylum processing at the border, even if it is also embedded within a larger restrictive policy context. On the other hand, uncritical techno-optimism obscures or ignores the fundamental role of politics in shaping the digitization of asylum [18]. The early failures of CBP One, possibly shaped by inadequate testing and insufficient appreciation for the easily observable and foreseeable real-world technological challenges that migrants face along the border, suggest that migrants are viewed as a population that should be compelled to rely upon experimental technologies.

As this paper aims to illustrate, glitches themselves, as well as the debate over how to interpret glitches, reveal important political questions over what is at stake in efforts to digitize asylum restrictions. CBP One has faced criticism for propagating a variety of glitches, bugs, and crashes; yet that framing also implies that the solution is troubleshooting and software updates rather than a more fundamental reevaluation of the policy posture of the administration.

6. Conclusions

This paper discussed how CBP One, which was designed as a general-purpose border-crossing tool, transitioned to also being used as a tool to manage the asylum process, first by facilitating the parole of a relatively small number of asylum seekers excluded under the Migrant Protection Protocols (MPP), and second by expanding to include all asylum seekers as part of a broader set of restrictions on asylum. Rather than resolving previous tensions within the humanitarian systems at the border, CBP One introduced new technological

barriers to asylum even as it became the mechanism for other migrants to pursue asylum. Through CBP One, migrants' smartphones are functioning increasingly like new mobile borders. The characterization of CBP One's issues as "glitches" provides an analytical foothold into thinking about the ways in which government technology—even technology as seemingly mundane as a smartphone app for scheduling appointments—is embedded within a political and geographic context.

Glitches, as this article argues, are not merely technological, but also political in the sense that they do not arise in an apolitical vacuum, they do not affect everyone equally, and, especially in the case of asylum seekers, they can have life-and-death consequences that exceed their portrayal as mere software bugs. The current range of technological issues and glitches with CBP One may well be ironed out by CBP and possibly replaced by new ones. The central thrust of this article, however, does not depend on the specific types of glitches. Rather, it advances a more general critique that the introduction of technology into the asylum process alongside restrictive policy changes means that migrants will be forced to grapple with an expanding set of physical and virtual barriers, including the physical border wall [97–99], digital borders [20,100,101], and a deluge of technologies on their smartphones which could hold the power over life and death.

More research is certainly needed to identify and understand the full range of consequences of using migrants' smartphones for immigration enforcement. Systematic empirical research is essential to analyzing how CBP One and other apps shape migrants' behavior, how apps enable or discourage migrants from seeking asylum, and how apps extend U.S. border control deeper into Mexico. Yet, regardless of the future of CBP One itself, the adoption of technological solutions should not undermine or distract from more fundamental questions about the government's commitment to abiding by its lawful obligations to provide a meaningful path for migrants to request asylum. CBP One may have allowed some migrants to use an app to schedule appointments, but it created a barrier for others, many of whom were migrants of color, who did not have access to the latest smartphones or a fast Internet connection. CBP may be attempting to address these glitches through software updates and changes in the registration system, but when the question of who has access to the fundamental human right of seeking asylum is answered with successive rounds of glitches and software updates, we have, to quote Alison Mountz, "lost the moral compass of what is at stake" [25].

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