International Journal of Communication 19(2025), Forum 1836–1843 1932–8036/2025FRM0002

# Affective Experiences of Error

MEGAN FINN
American University, USA

YOUNGRIM KIM
Rutgers University, USA

RYAN ELLIS
Northeastern University, USA

AMELIA ACKER
University of Texas, Austin, USA

BIDISHA CHAUDHURI
University of Amsterdam, The Netherlands

STACEY WEDLAKE
University of Washington, USA

This article uncovers a case of sociotechnical error in the production of COVID dashboards. Our broader study included interviews with 79 people who participated in developing and maintaining COVID dashboard projects in the United States and India during the first 18 months of the pandemic—workers we call COVID "data builders." We report on a subset of our interview data, focusing on participants' affective experiences of error involving two U.S.-based dashboards. The case examines how data builders created an error in COVID data early in the pandemic. The error, a typo in the data, was propagated through various COVID data infrastructures and led data builders to question their place in the COVID data ecosystem as they interpreted how data was being harvested, accessed, reused, and repurposed and how their work was valued in the mainstream media. We show how the data builders' affective experience of the mistake, and its propagation emerged from ongoing encounters with racism and pandemic vulnerability and led to feelings of jealousy and anger in their data labor.

*Keywords: sociotechnical error, glitch, COVID, critical infrastructure, data work, affect*

The lack of stable, accurate, and accessible COVID data motivated numerous people, many of whom were unpaid volunteers, to invest substantial time, effort, and emotional engagement in COVID data projects. We interviewed the people who worked on these projects and broadly refer to them as "data

builders," employees or volunteers on COVID data projects who collected COVID data from public health offices and other entities, aggregated it, and published it, mostly on dashboards. Data builders did not robotically move numbers—they *felt* their work. They were depressed about the COVID numbers that they worked with, they felt buoyed by their team, and they felt anxiety about producing mediations of the pandemic that met their and their users' expectations of accuracy. In this brief article, we focus on the ecology of affect for data builders by exploring a single sociotechnical error. We follow Roberto Barrios's (2017) *Governing Affect* about disaster and recovery: "[Bodies] emerge in relation to socially structured and meaning-laden relationships with people and things in what I can an ecology of affect" (p. 6) and show how the affective experiences of sociotechnical error emerged from the specific challenges of the pandemic and life in America.

While our interlocutors shared how challenging it was to work during a pandemic and told us the story of dealing with endless spreadsheets of bad-news numbers tracking COVID cases and deaths, they also expressed a sense of pride and joy in collaborating with their teams and producing something useful in difficult times. The team's work was emotional, taking care of each other as they worked through the dreadful data. For those being paid, it was described as "passionate work" (Hong, 2022). By entering data into spreadsheets every day, building the infrastructure to share their data, and communicating with their audiences, data builders felt they were creating an order, helping people, and contributing to knowledge during a period of extreme uncertainty and disturbance (Ellcessor, 2022). In this article, we focus not only on these everyday negotiations and affective experiences with data (and knowledge) about the pandemic but also on the larger political economy of influence, resources, and credit that shaped the affective experience of COVID data builders by examining one sociotechnical error.

We trace how a single data entry error traveled through the sociotechnical COVID data infrastructure—in this case, the networked propagation of error from one COVID dashboard to another and to other news media. This error could be called a mistake or a small typo. But we show that this error was more than a mistake or a typo—it was a glitch. We build on Sareeta Amrute's (2019) call to "attune" to "techno-affects" and her focus on what queer and feminist scholars call "glitches." Glitches are "a break in a digital system where business as usual pauses, comes undone and shows its imperfections" (Amrute, 2019, p. 67). We show how the glitch (a typo, an error, a mistake) is illustrative of systematic discrimination that was amplified during the pandemic. The data builders' understanding of the glitch and its propagation was interpreted through their experiences of racism, vulnerability, and pandemic isolation, which led to feelings of jealousy and anger.

This story of sociotechnical error is from our broader study that interviewed 79 people who built and navigated the complexities of COVID dashboard projects in the United States and India from March 2020 to November 2021. We focus here on a subset of this data, interviews with 13 participants who worked on two of the dashboards—1Point3Acres Global COVID Tracker (1P3A) and the Johns Hopkins University's COVID-19 Dashboard (Hopkins' Dashboard). Both the Hopkins' Dashboard and 1P3A Tracker attempted to track COVID across the United States, focusing on a range of pandemic data, including COVID cases, testing, and fatalities. The Hopkins' Dashboard was first developed by engineers and public health researchers at Hopkins and then run by the Applied Physics Laboratory (APL), with the prodigious intellectual and computing resources of the university and lab. The Hopkins' Dashboard was funded by

Bloomberg Philanthropies and the Stavros Niarchos Foundation, and in the United States, the Hopkins' Dashboard was widely used by people in government and the media. Smaller than the Hopkins project, the 1P3A Global COVID Tracker was started by 1Point3Acres, a popular Chinese-language website for the North American Chinese community to talk about working and studying in the United States. Their Global COVID Tracker team included some 1P3A engineers and employees but was mostly run by volunteers. Despite their different resources, organizational structures, and audiences, these projects both collected data from numerous public health websites to make dashboards about COVID in the United States. These projects were collecting data in various ways, often from similar sources; they were sometimes sharing data with each other, sometimes knowingly and sometimes not.

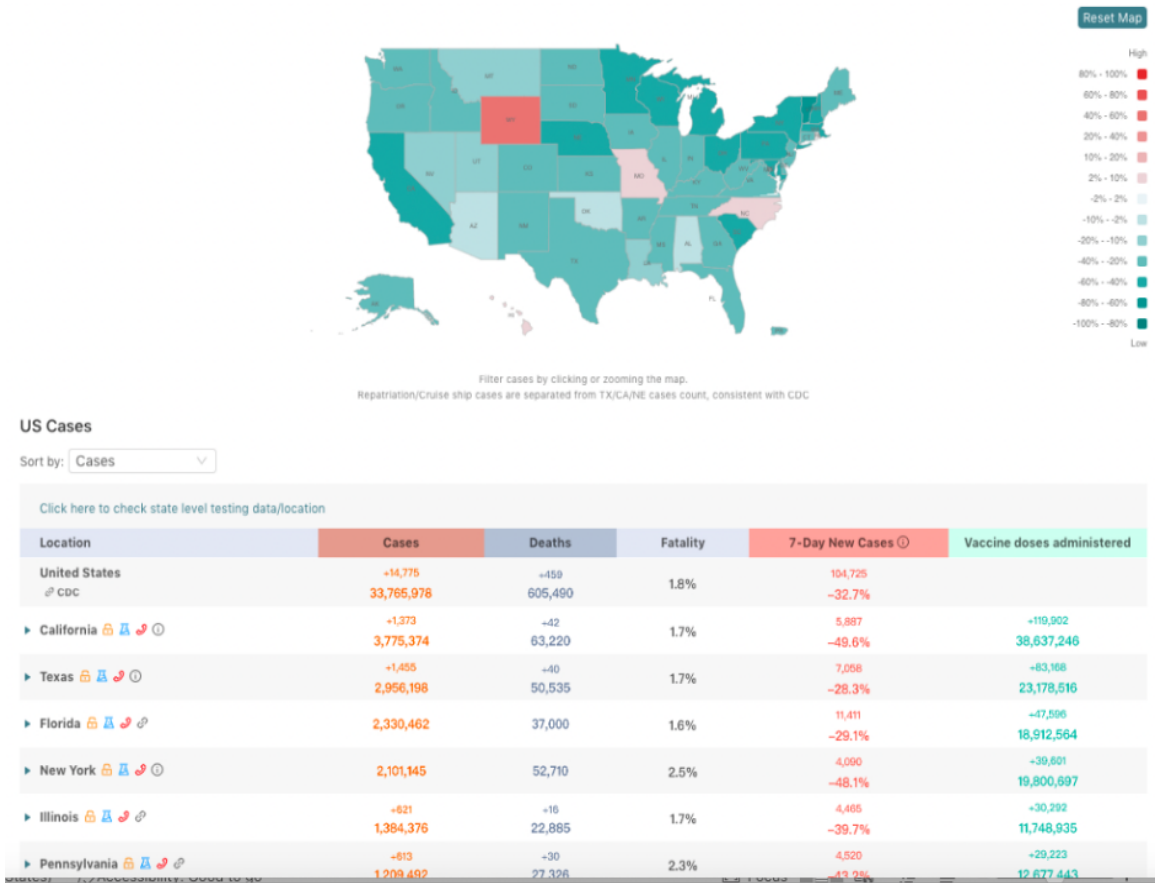


***Figure 1. Partial screen shot, 1Point3Acres, June 5, 2021.***

**The Glitch**

The two dashboards that we discuss here—Hopkins' Dashboard and 1P3A—changed over time, but eventually settled on using automated scripts to scrape data from public health websites around the country, using this data to create visualizations for their respective audiences. Before they did this,

though, they visited websites individually, listened to media reports on COVID data, and manually entered data in Google spreadsheets. Both automated and manual techniques created errors.

One 1P3A glitch illustrates the competitive dynamics of COVID data dashboard making: 1P3A workers began to suspect that their data was being used by Hopkins' Dashboard and had their suspicions confirmed when they noticed that a small slip-up they made while creating their system was reproduced by the Hopkins' Dashboard.

> I don't know if they do this in [a] proper news report, and I think they try to not mention it too much because it's slightly embarrassing, but Johns Hopkins actually posts our data, and so does [the] CDC to a certain extent, and there was this one funny incident…This is a little bit anecdotal, this is as far as I know. Take it with a grain of salt. There was one day one of our volunteers entered the number in a Florida county wrong. I think she was trying to change a number from 104 to 105 for number of cases. She ended up typing 104105, so one hundred and four thousand, one hundred and five. So that was on our database for about 30 to 40 minutes before our users ticketed that. But that was, what, a 100x increase. And then that got, in those 30 minutes, it got pulled to Johns Hopkins, and CDC and other major news sources. . . . And this got resolved. We thought it was okay, but we didn't check other places. We thought it's okay. By the time we got up, I think some of the major news outlets in other countries, while we were sleeping, published this and tried to pull back their articles. (Xavier, interview, 1P3A, 2021)

In the next two sections, we explore how this glitch—a volunteer entering numbers in Florida wrong—reveals the "imperfections" of the COVID data ecosystem by exploring both subsequent changes to data access practices and the 1P3A's experiences with the U.S. media.

## The Glitch and Data Access

Copying and aggregating data were foundational work for both Hopkins and 1P3A. These data projects always relied on other data sources collected and processed by data builders. Data could be copied in several ways: manually copying it by hand, as the volunteer from 1P3A did when copying data from Florida; scraping a website with a crawler; or retrieving it through specific programs such as an Application Programming Interface (API). The ease of copying and propagating data in a networked environment meant that mistakes, such as the volunteer entering wrong numbers, could quickly scale. When their data entry mistake showed up in other dashboards, they understood that their websites were being scraped, prompting them to redesign their infrastructure and reflect on how competitors reused their data without appropriate attribution from 1P3A's point of view. The glitch exposed that Hopkins' Dashboard had been copying their data. In response to the glitch, 1P3A data builders reconfigured their system:

> I think that's the time that Johns Hopkins admitted that they were pulling from our dataset. [Interviewer: They didn't say they were pulling from your dataset before then?]

> Very indirectly, saying they were just referencing. But referencing can be anything from fact-checking to directly scraping. We had to actually implement anti-scraping to a certain extent, because that's eating too much into our bandwidth. (Xavier, interview, 1P3A, 2021)

One major change that followed the glitch was developing an API to enable data access that was less costly from a bandwidth perspective than data scraping: "Before we made the data API available to the public, there were people scraping the site, causing a lot of traffic, which would incur a pretty large cost" (Yu, interview, 1P3A, 2021). Another change following the glitch was to build algorithms to try to detect big changes in the data and notify 1P3A participants in Slack: "So there's a really big mistake. So then they developed a new program to check if there's any unusual data change" (Jia, interview, 1P3A, 2021).

Scholars have shown how "errors" reveal organizational practices (Lin & Jackson 2023) and tacit rules about the "right" way to use data (Ananny, 2023). 1P3A data builders were happy to share data, but they wanted to do it through an API. For some of the data builders who worked on the 1P3A COVID dashboard, the glitch highlighted that Hopkins' Dashboard had been copying their data by scraping and this instigated them to implement new techniques to ensure that their data was being accessed in a way that was not computationally expensive for them, through their API.

## The Glitch and U.S. Media

The glitch revealed how hugely influential the Hopkins' Dashboard was compared to 1P3A as 1P3A data builders watched their small typo widely discussed "in other major news sources." This was doubly frustrating because while the U.S. media lauded the Hopkins dashboard, the work form 1P3A was always received through the prism of ethnicity:

> It just came to a point that it's just not meaningful to engage mainstream media, because that's inviting humiliation ourselves. It's not worth the effort. . . . This is a country that prides itself on being meritocratic, seeing people's talent and you can make it whatever you want to be, but at the end of the day we are judged by our face and our ethnicities before we are even being judged by our data quality. (Xavier, interview, 1P3A, 2021)

The 1P3A team, which we were told included mostly people of Chinese descent, many of whom were citizens of countries other than China, found that while people on social media praised their work, U.S. press queries focused on Chinese Communist Party politics—not their work informing the American public about COVID. 1P3A data builders' affective experiences of the glitch emerged not only from their work with COVID data but also from anti-Asian racism in the United States and their experiences with a xenophobic American press. Members of 1Point3Acres recounted how they were dealing with anti-Asian hate in their everyday lives while working on the dashboard: "And even just any Asian-looking person in the US was discriminated against because they wanted to wear a mask or because they're just themselves on the streets. That was just, to me, wild," (Lai, interview, 1P3A, 2021). Coupled with their experiences of

anti-Asian hate in the United States, the team felt that the U.S. media inquiries were "humiliating" because their work was reduced to their ethnic identities.

While 1P3A COVID data builders saw the U.S. media as too racist to take their work seriously, some interviewees explained that their connections to China and experiences in China were precisely what gave them important insights into how to deal with pandemics—not only because of early experiences with COVID starting in December 2019 but also from their experiences with SARS. Their work on the 1P3A dashboard was an attempt to bring their knowledge to the United States:

> I think for the Chinese international students, international, Chinese Americans, I would say and Chinese Canadians and Chinese born US living individuals like us, it's a chance to contribute as much [as] we can because . . . we've been through this once. Because our connections back home, because we saw how terrible it can be, and how information is so valuable during this time. And I think that's why people felt the urge to advocate for transparency and data . . . so that we can be more cognizant of what's going on. (Lai, interview, 1P3A, 2021)

COVID data builders who worked on Johns Hopkins' COVID data project had a dramatically different experience with the U.S. media: "We were also addressing inquiries, like from the media, 'What's happening here? Why did this data, these number of cases jump?' and that sort of thing. It was a lot of moving parts trying to handle the scalability" (Tamara, interview, Hopkins' Dashboard, 2021). Hopkins' Dashboard data builders felt that the impact of their work on governments and its reach in U.S. mainstream media was one of the best parts of their experiences:

> The best part of this work I would say is making an impact, being able to see that this kind of data is being used and seeing the impact it has. It's really gratifying and it does make it very motivating to make sure that you're running at 100% all the time. (Sheri, interview, Hopkins' Dashboard, 2021)

Not only did the Hopkins' Dashboard builders understand that their data was being used, but laudatory news articles about the project also explained how a Chinese-born Hopkins graduate student with ties to Wuhan had started the dashboard and how his advisor's lab had started working with it (Block, 2020; Harris, 2020; Rogers, 2021).

While the people we spoke to from 1P3A felt gratitude for how their hard work had helped people in their networks and on social media, they were frustrated about their interactions with U.S. mainstream media and how the media treated their work differently from other larger projects that they praised and publicized. Not only were their data taken and reused unethically by supposed colleagues, but the glitch showed that the media attributed their work to an institution that did not present as ethnically Chinese (even if people who worked on the Johns Hopkins COVID data were Chinese, as our 1P3A interviewees noted).

## Conclusion

This story of the glitch unveiled which COVID data builders and institutions received credit for producing critical knowledge and information about the pandemic. By tracing the propagation and significance of a seemingly minor typo, we illustrate how the work of creating and sustaining COVID dashboards was inextricably intertwined with a maze of networked data and values about how it *should* be copied and accessed. A glitch originating from the 1P3A dashboard shows how people and work are valued in radically different ways. For 1P3A dashboard builders, the glitch was more than a mistake or a typo; it was a sociotechnical phenomenon that prompted feelings of denial, disappointment, and jealousy. In some sense, this was symptomatic of the politics of belonging that many Asian American and Pacific Islander communities faced during the pandemic. The glitch reflected the traumatic experiences of rejection, discrimination, and forever-foreign status of Asian Americans in the United States but also offered them an opportunity to reconsider and reimagine the publics their own dashboard serves.

## References

Amrute, S. (2019). Of techno-ethics and techno-affects. *Feminist Review, 123*(1), 56–73. doi:10.1177/0141778919879744

Ananny, M. (2023). Making mistakes: Constructing algorithmic errors to understand sociotechnical power. *Osiris, 38*, 223–241. doi:10.1086/725146

Barrios, R. E. (2017). *Governing affect: Neoliberalism and disaster reconstruction*. Lincoln: University of Nebraska Press. Retrieved from http://muse.jhu.edu/book/51277

Block, M. (Director). (2020, April 13). Meet the team behind the coronavirus tracker watched by millions. *NPR*. Retrieved from https://www.npr.org/2020/04/13/833073670/mapping-covid-19-millions-rely-on-online-tracker-of-cases-worldwide

Ellcessor, E. (2022). *In case of emergency: How technologies mediate crisis and normalize inequality*. New York: New York University Press.

Harris, A. (2020, August 4). *Johns Hopkins's COVID-19 dashboard alerted us to trouble ahead: Meet the woman who made it*. Retrieved from https://www.fastcompany.com/90525437/most-creative-people-2020-lauren-gardner

Hong, R. (2022). *Passionate work: Endurance after the good life*. Durham, NC: Duke University Press.

Lin, C. K., & Jackson, S. J. (2023). From bias to repair: error as a site of collaboration and negotiation in applied data science work. *Proceedings of the ACM on Human-Computer Interaction, 7*(CSCW1), 131. doi:10.1145/3579607

Macnamara, J. (2014). Emerging international standards for measurement and evaluation of public relations: A critical analysis. *Public Relations Inquiry, 3*(1), 7–29. doi:10.1177/2046147X14521199

Rogers, K. (2020). Johns Hopkins' dashboard: The people behind the pandemic's most visited site. *CNN*. Retrieved from https://www.cnn.com/2020/07/11/health/johns-hopkins-covid-19-map-team-wellness-trnd/index.html