



ETHICAL CHALLENGES IN THE FIGHT AGAINST GUN VIOLENCE

CONTROVERSY OVER THE SHOTSPOTTER GUNSHOT DETECTION SYSTEM

Given that the United States has an unusually high rate of gun violence – especially when compared to other wealthy countries around the world– it is understandable that many Americans would be concerned about

reducing gun-related crime (IHME, 2022). One company, ShotSpotter Inc., has promised to “proactively address gun violence” by “bring[ing] the power of digital transformation to law enforcement” (ShotSpotter Inc., “Community Safety” and “Company Overview,” 2022). According to the ShotSpotter website, “Police rely on the community to call 911 if gunshots are fired, but only 20% of incidents are ever reported on average... creat[ing] a situation where police departments have a large data gap that makes it difficult to be able to effectively ‘serve and protect’ when it comes to gun violence” (ShotSpotter Inc., “ShotSpotter Respond FAQ,” 2022). Their flagship product –the ShotSpotter Respond– then “fills the gap with a network of acoustic sensors” installed throughout the cities that adopt the system “that can detect, locate, and alert police to nearly all gunshot incidents” (ShotSpotter Inc., “ShotSpotter Respond FAQ, 2022). Having been implemented in more than 120 cities in the U.S. – such as Pasadena, California (Calayag, 2022), Houston, Texas (McGuinness, 2022), and Mobile, Alabama (Fingert, 2022)– ShotSpotter Inc. claims their system is the “leading gunshot detection, location, and forensic system” working to make “cities safer and restor[e] law enforcement as a trusted guardian of the community” (ShotSpotter Inc., “Company Overview,” 2022).



Despite the potential good this system could do to decrease gun-related crime, ShotSpotter technology has recently been criticized by the American Civil Liberties Union (ACLU), *Vice News*, and the *Associated Press*, among others. Indeed, these outlets have argued that the ShotSpotter is too inaccurate and inconsistent to be used reliably by law enforcement. For example, on May 31, 2020, Michael Williams was charged with murder after police claimed he killed 25-year-old Safarain Herring (Feathers, 2021). A crucial piece of evidence was a ShotSpotter alert for the same time and place that Williams’ car had been seen on video (Feathers, 2021). However, the ShotSpotter alert turned out to be inaccurate, and the *real* location of the gunshot was a mile away from Williams’ car (Feathers, 2021). Sadly, Williams was imprisoned for almost a year before a judge dismissed his case (Mendoza et al., 2021). While a mile difference may not seem like much, clearly it had severe consequences for Williams – an innocent person who happened to be at the wrong place at the wrong time.

However, inaccuracy is not the only problem with the ShotSpotter. The MacArthur Justice Center reports that the system is deployed “overwhelmingly” in minority neighborhoods (Stanley, 2021). This is a problem because marginalized communities “already disproportionately bear the brunt of a heavy police presence” and “the placement of sensors in some neighborhoods but not others means that the police will detect more incidents (real or false) in places where the sensors are located” (ACLU, 2022). Not only can this “distort gunfire statistics and create a circular statistical justification for over-policing in communities of color” but



“send[ing] police on numerous trips (in Chicago, more than 60 times a day) into communities for no reason and on high alert expecting to potentially confront a dangerous situation... is a recipe for trouble” (ACLU, 2022). Ultimately, while acoustic gunshot detection systems like ShotSpotter do “not significantly affect the number of confirmed shootings” they may “increase the workload of police attending incidents for which no evidence of a shooting was found” (Ratcliffe et al., 2018). With such severe consequences linked to the deficiencies in the ShotSpotter system, it is easy to see why there is some push back against its widespread use in law enforcement.

In the face of these criticisms, ShotSpotter Inc. has released a public statement to “set the record straight” against “false and misleading statements” in the media (ShotSpotter Inc., “ShotSpotter Responds to False Claims,” 2022). Arguing against accusations that the system is mainly deployed in minority communities, the company said that such a “false narrative is not based in reality and ignores the pain many communities are suffering from,” affirming that they work with “local law enforcement agencies and cities to determine coverage areas based on historical gunfire and homicide data to assess the areas most in need of gunshot detection... regardless of race or geographic location” because “residents who live in communities experiencing persistent gunfire deserve rapid police response, which gunshot detection enables” (ShotSpotter Inc., “ShotSpotter Responds to False Claims,” 2022). Moreover, the company emphasized that “there is no evidence supporting the claim that ShotSpotter alerts result in police arriving on scene ‘hyped up’ potentially creating dangerous situations,” and the technology –if anything– actually “equips police officers with enhanced situational awareness (such as ‘the number of rounds fired, whether there are automatic weapons, or multiple shooters’) prior to arriving at the scene of a gunshot incident” (ShotSpotter Inc., “ShotSpotter Responds to False Claims,” 2022).

Moreover, some studies show the ShotSpotter detection system is, for the most part, accurate. For example, when the ShotSpotter system was installed in Redwood City, California, the Police Department fired blank rounds into the air from various sites to test the system’s precision and found that the ShotSpotter system was able to correctly detect gunshots at 81% of the locations (Watkins et al., 2002). More recently, the company has claimed that “ShotSpotter has a 97% accuracy rate, including a 0.5% false positive rate” (ShotSpotter Inc., “ShotSpotter Responds to False Claims,” 2022). These statistics, ShotSpotter claims, are not only “derived directly from police department reporting,” but also are “independently confirmed by Edgeworth Analytics, a data science firm in Washington, D.C.” (ShotSpotter Inc., “ShotSpotter Responds to False Claims,” 2022). Furthermore, the Houston Police Department noted the ShotSpotter’s usefulness in a presentation which documented various “success stories” (Houston Police Department, 2021). One of these examples involved a situation in May of 2021 where officers responding to a ShotSpotter event were able to detain some “Most Wanted” individuals who had “committed a gang-related shooting” (Houston Police Department, 2021). As its defenders might argue, even if ShotSpotter (like any technological system) is not 100% perfect, it still has shown itself to be a useful tool to law enforcement agencies aiming to decreasing gun-related crimes. Despite all of these considerations, many find themselves asking: should law enforcement use such technology even when it has been shown to risk significant flaws and ethical tradeoffs?



Discussion Questions:

1. What ethical values conflict in the decision to implement the ShotSpotter system?
2. Do you think the pros of the ShotSpotter outweigh its cons or vice versa? Why do you think this?
3. How should the values of safety, privacy, non-biased policing, and beyond be balanced in the actions of police in urban areas?
4. What guidelines for implementation and use would you suggest (to the company, to law enforcement, to cities, etc.) that could improve the use of ShotSpotter so it retains its benefits and removes its ethical concerns?

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Image: ShotSpotter Logo screen capture from [ShotSpotter](#)

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