Episode 30: Automated Facial Recognition in Policing: Balancing Effectiveness and Equity

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Intro:

Welcome to the NCJA Podcast. This podcast series explores promising practices, provides guidance on strategic planning, and discusses how the Byrne Justice Assistance grant program, or Byrne JAG, contributes to improving justice systems across the country. We hope you enjoy it.

Amanda Blasko:

Everyone, and welcome back to the NCJA Podcast. My name is Amanda Blasko, and today I'm thrilled to be joined by two very special guests, Dr. Thaddeus Johnson and Dr. Natasha Johnson. In today's episode, we'll discuss the research study the duo embarked on, which explored the connection between facial recognition technology and racial disparities in arrests. We'll start with an overview of what facial recognition technology is, and how it's used by law enforcement, move into some specific findings from the study, and offer some additional ideas for building out the body of research in this space. Before we dive in though, I'd love to turn it over to you both just to have you introduce yourselves and maybe share a little bit about yourselves.

Natasha Johnson:

Well, hello, my name is Natasha Johnson. I am a clinical instructor of criminal justice and criminology in the Andrew Young School of Policy Studies at Georgia State University.

Thaddeus Johnson:

Hi, I'm Thaddeus Johnson. Thank you for having us. I'm a senior fellow with the Council of Criminal Justice and also assistant Professor of Criminal Justice and Criminology at Andrew Young School of Georgia State University with Natasha as well. We're really excited to be here with you today.

Amanda Blasko:

Thank you for being willing to be a part of the podcast. I'm very thrilled for this discussion. Before we dive into our true discussion, I'd like to begin by defining facial recognition technology or FRT for those listeners who might not be super familiar with it. What is FRT and how does law enforcement typically use this technology in their day-to-day lives?

Natasha Johnson:

Yes, so acronyms, right? FRT stands for facial recognition technology. It's a biometric technology that compares digital facial images to determine whether or not they belong to the same person. How law enforcement uses FRT, they use it in their day-to-day activities for criminal investigations. They often use it for forensic purposes. FRT can be used to identify suspects by comparing live images, still pictures, and videos obtained from various sources. It offers the potential for reliable and fast ways of identifying criminals, which leads to revolutionizing criminal investigation.

Thaddeus Johnson:

I think it's really important too, to separate the technology from the process. You have the technology, but you also have the process which consists of it is multifaceted multiple stages, which includes video surveillance and the automated analysis of pictures in a database. That's what makes facial recognition technology a little bit different and special relative to other types of AI based softwares and technologies that police in the fact that it's AI assisted surveillance technology. That makes it a little bit different. The one thing I would say too is that many times people think, "Well, facial recognition, it's a match. It's a one-to-one match."

They'll get Natasha's image and they'll run it and it comes back, "Oh, here's the match." But that's not the case. They do one-to-many searches, meaning that they check a captured image against a number of images, and then this technology, the algorithms put out a similarity score. Well, of course, the higher the score means the more similar the features are in the two images and the lower means that there's less similarity. It doesn't put out a certainty score, it's more of a probability score that these two images are indeed a match.

Amanda Blasko:

Thank you for that overview. That was very helpful. Now, that we're all on the same page about what FRT is and how it's generally used by law enforcement, I wanted to just know or have our podcast listeners know, how did you both become involved in researching policing and FRT in particular?

Thaddeus Johnson:

That's a really great question, and I'm going to just kick it off and let Natasha, I'm not going to speak for Natasha, but from what I know about her and us working together is the fact that neither one of us expected to be a policing, race scholar. We definitely didn't have in our plans when we started grad school on this path that we'd be looking at artificial intelligence and police technologies that along with facial recognition. I was doing work looking at college requirements for my dissertation, but we planned to focus on justice system disparities and their processes and how these systemic inequities really contributed to crime and criminogenic factors that perpetuate a cycle with values that we see in many about underserved communities. Natasha tell you more about it. We both were social justice centered but not police centered. Even though I'm a former officer, I was trying to run as far from policing as I wanted to, but we had the pandemic, then we had George Floyd, had Breonna Taylor, and so duty called.

We're trained in examining various proposed reform mechanisms, not just in CJ and policing, but just in general. That's our background. We really want to understand the effectiveness and equity of outcomes associated with reform measures. We did this with policing, we did this with tech, and all these news stories saying that does not identify Black people and women as well. These news stories and anecdotes about false arrests, we wanted to see the data. Mind you, the growing staffing crisis in policing at CJ. Also, we have the crime issues and challenges that jumped up after the pandemic. We have to find ways to do more with less officers. Facial rec is one of the conversations that kept coming up. We had the opportunity to do some work with the university through a collaborative grant, public interest technology university network grant. That really got us started and we was like, "Wow, there is no research whatsoever in this space." I'll shut up and let Natasha say, but I don't think she had plans to do this either.

Natasha Johnson:

It was the partnership with the university that really kick started revving up our conversations about the use of facial recognition technology in policing. But thanks to Thaddeus's background in policing, that was really where we began in the first place. I'm aging us now, but when we first met in 2008, he was the officer next door and I was the teacher next door. Justice and that frame was something that we identified as our communal frame from the very beginning. It made sense that as our conversations evolved and as we evolved, and the importance of staying ahead of a lot of these national conversations, making sure that the information is valid, that it's vetted, that it's lucid, and in these ways we just have been able to advance our conversations via our research.

Thaddeus Johnson:

Let me just hop in and just add on to that real quickly. We talked about 2020 that really kicked off our police-centric work, all our op-eds and those things doing this, we found that we've been using this technology for a long time and that there wasn't any research in it. This also was percolating as well in the news when January 6th attacks on the Capitol building. We started talking, we wouldn't have to use facial recognition technology, and that was one of the first times that people were talking about the public safety potential of facial reg versus just the inequitable consequences associated with facial reg. Those are some of the reasons why we've been on this pathway when it comes to this particular research agenda.

Amanda Blasko:

Thank you for that. You both have such unique backgrounds and I feel like they work really well together to do this work, which is really cool. It's also... Can I just say it's so amazing to me that no one has done any of this research before and by amazing, I mean scary, but also thank you for answering the call and doing this. It's very, very important.

Thaddeus Johnson:

We appreciate it. That means a lot.

Amanda Blasko:

I'd love if you could paint a picture of the landscape and scale of FRT use by law enforcement. How long has it generally been in use or when and where did it start and how many police departments roughly or using this technology and how often, I guess?

Natasha Johnson:

Yeah, I'll speak by speaking more broadly about just the general use of FRT in law enforcement. As we know, it has been widely adopted by law enforcement agencies. We're going back to about the turn of the millennium. It's been increasing and rapidly within our recent years. Today it's an important tool for investigating crimes committed both online and offline, gathering intelligence about organized crime, and investigating runaways and online crimes. The landscape has grown and it is vast and it is really diverse. There is no single model of the use of FRT, which continues to be a challenge today. Many agencies use it to gather and share information in real time, but however, as we know, the use is highly discretionary and unfortunately infrequently tracked.

Thaddeus Johnson:

Yeah, and we've been, and Natasha mentioned that since the turn of millennium, we've seen that Pinellas County, Florida Sheriff's department in Florida, they began using this technology after getting the grant in 2001. Then the first large public surveillance exercise with facial recognition technology was carried out at a Super Bowl in Tampa in 2001. Some estimates say that a quarter to a third of police agencies access large facial recognition networks, and about half of federal agencies with an enforcement arms, they use it as well. Now, mind you, these are the agencies that may deploy this technology. We're not talking about mutual aid agreements where also the spillover benefits of other jurisdictions doing investigations that may have access to it.

Or also many agencies, they don't have the technology themselves. They may partner with the State Bureau of Investigation, they may partner with a larger agency or a smaller agency. That's a really, really bold estimate of the amount. It could be a lot more than that. That's really the state of it being used. It's not to mention that where they draw these images from, driver license repositories, it's more than just mug shot databases, right, from social media sites, from passport sites. The truth be told, most Americans are probably have their image in a facial recognition database and we don't even know it. That gets to some of the privacy concerns that people may have about where do we get these images from? Are using these images permissible? How are these images being used? Yeah, we've been using this for over 20 years now, and with most things, the research has been outpaced by the actual use. You've seen not only in policing with this, but you see this in many other fields, education, healthcare as well.

It's just unfortunate that we have matters of equity and things that can really be life or death that we don't really know how it's being used. Some places say , "We use this as investigative leads, that's it." Some people say, "Well, only the detectives, they utilize it." But places like New York that said they only use it for serious crimes, some reports found out they were using it for minor things like shoplifting. It's really the wild west out there on how all this technology is being used. That's a gift and a curse. But I think with technologies like this, Natasha may agree that it may be more of a curse and a bad thing, get some uniformity first, and then we can start having some variability from it. But this is a challenge, because this technology is well embedded in our society and not just policing.

Natasha Johnson:

There is no normative standard yet across the board.

Amanda Blasko:

Can I just ask, can I state my own curiosity? What were the goals of using FRT during the Super Bowl? I was just curious about that.

Thaddeus Johnson:

That's good. A lot of stadiums... If you go into the airports now, some place airports, you may notice, "Wow, I get through security a little bit easier." Or if you come to stadiums like in Atlanta, Georgia, not the Georgia Dome, but Mercedes-Benz Stadium will be having it, all right. They have no detectors, but they have facial recognition technology to scan. You're looking for if there's a person who may be on terrorist watch lists, a person who may be wanted, you are looking for a person who may be displaying suspicious activity. You are looking to try to see if there are certain bulges around their waistline, are they carrying weapons, these type of things. You're really trying to get a lay of who are coming in.

It's mass surveillance and mind you, it's a way to surveil with less staff with less of a workforce doing so. It's just really of a monitoring. Also, you use it if a fight breaks out in the stands or if there are some

unsavory activities going on, they're able to identify and surveil people as well. We're using this a lot at many of our sporting events, many of our malls shopping centers, we're using these technologies. It's ubiquitous.

Amanda Blasko:

Wow. Yeah, that's interesting, also, because I feel like the general public probably has no idea that this is even happening, but maybe they do. I don't know. What is your thought on that?

Natasha Johnson:

Most certainly in public spaces. I think because we have this general social contract that we all subscribe to, we understand that there isn't an expectation that your life is private when you are operating in public spaces. We know this about the airport and other places like that, but I do think we tend to forget the Super Bowl. Even when you're driving those public cameras that catch cars when they run the light, for example. Malls, there are spaces, public parks, you don't have an expectation of privacy in these places. It is important for people to just understand the differences between those spaces and who you are and how you operate and how FRT impacts the things that you are able to do even when you're in these spaces.

Thaddeus Johnson:

Yeah, those are really great points, Natasha, too, because I'm thinking back to 2001, we first started using what happened in 2001?

Natasha Johnson:

9/11.

Thaddeus Johnson:

9/11, right? The Patriot Act, when the Patriot Act came along, Americans were willing to give up some of their privacy for national security and safety. What we find, despite of all of these issues that we've seen about facial recognition technology, the latest Gallup polls and things show that the public supports the use of facial recognition technology. That makes sense that we see that because they did this poll after the crowd spike for the pandemic. It's another time that shows that people are, if they're more aware of it and more conscious of it, and those who may not know, that's one thing, but those who know, they are willing to be surveilled more, they are willing to deal with some of the possible unintended consequences in the name of keeping them and their communities safer. Again, you've seen this throughout where "Well, why would people be willing to be surveilled more," where certain events happen, where we are willing to sacrifice a bit of our fourth amendment rights in order to try to procure a safer environment.

Amanda Blasko:

You both embarked on a landmark research study that aimed to investigate the connection between FRT and racial disparities in arrests. Can you describe the study framework in broad terms and then talk a little bit about what you found?

Thaddeus Johnson:

Okay, I'll hop in on this one. It's great. This study, let me first say, this study was cross-sectional. Now, we have another study that's longitudinal in nature that hopefully we have time to talk about, and it gave us some insights into this study that we'll return to. But we use a Doubly robust propensity score a model, and we use data from BJS, FBI, UCR report, Census Bureau, right? We use public facing databases for this study. This is what we found. Now, mind you, we looked at overall arrest, total arrests for Black people from White people. We did it for adults and we did it for juveniles. We did it for adults and juveniles because also some research has shown that facial recognition technology does not work well in recognizing juveniles either.

That has to do with development during that stage. You take a picture of a juvenile at 12, at 13, 14, they could look like completely different people. We broke it up like that. What we saw was that the use of facial recognition technology contributed to increased racial disparities in arrests. This was underpinned by when the ACU's facial recognition technology was associated with a massive increase, almost a fifty-five percent increase in Black arrests rates. I believe I'm saying this correctly, maybe a twenty-two or twenty-some odd percent decrease in the White rate. You see the increase in the Black rate, decrease in the White rate that shows why that gap grew.

What we found was that the adult models, the adult rates, this was really driving it because the effects were more prominent for adult arrest rates. This is why this particular study is important. This is not about demonizing the artificial intelligence, the facial recognition technology, what we tend to do, mind you, as the user technology interface. These imbalances, we can't pinpoint and say that they were due to flawed technology. We believe there's some deeper aspects and already existed systemic inequities and operations that may contribute to what we found.

Natasha Johnson:

Let me add that one of those things is the background, the race, the composition and makeup demographically of software programmers, those who are behind the development of artificial intelligence and other technologies. It is important that we're human beings. We are not void of bias. We are not a void of the things that lean, particularly that skew our outlook and skew our contact and our relationship with others and the world around us. Why that's important is because there are connections between the positive use of facial recognition technologies and how that connects to the background of programmers. If we go anywhere in the world, if we go to Asia for example, you're going to see the same thing. You're going to see lean versus here in America where you have faces that reflect a particular demographic in a background. The point is we're talking about bias largely, but we have to talk about it, but also connect it to the actual demographic of the people who are creating these technologies.

Thaddeus Johnson:

We cannot exclude that this was part of it, the lack of diversity among software programmers. In America, facial recognition technologies are better able to identify White males versus everyone else. One part of it is the transmit of own race bias into the software where you see that young White males are the ones who are developing this software. You see, she mentioned the East Asian study. With East Asian developers, guess what? It recognized and performed better for people of East Asian background. It really shows particularly in places like the US where we have such diverse populations that we need to make sure that we have diversity among that. If I may, let me just add on. When I told you that we didn't pinpoint the find this on the fly software, we couldn't pinpoint it on discrimination.

What we also were mindful of that already police operations are concentrated, surveillance is concentrated in Black, Brown, and poor communities. They have disproportionate police contacts. If we're ramping up these technologies and use of it in these areas, we haven't even talked about it as false positives. If it's false negatives, if it performs correctly or not, if we don't pay attention to the backgrounds of who we are operating, technologies like this may codify these inequities and exacerbate already exist inequities and how we operate and how we deploy police resources. It goes again to show why it's so important to dissect this and it's very complex and it's many layers, but start exposing these many layers so we can start researching and really understanding how we should or should we be using these technologies.

Amanda Blasko:

Yeah, that's great. Yeah, because I feel like it is important to distinguish, yes, it is like the FRT use and officer discretion that... As we've been talking about contributing to racial disparities, but also ultimately the programming itself, which I feel like a lot of people view AI as neutral and infallible. I think that's starting to change, but I would say that's just my perspective, coming from a White person as well. But I think also as you talked about earlier, the FRT is having a potential to really automate officer discretion. I was just wondering if you could expand on that, especially because I think for some people they might not necessarily view the FRT as having a discretionary component. I want to expand on that if you could.

Thaddeus Johnson:

Yeah, I can just kick this off real quick. Now, mind you, to be clear, the final discretion and decisions rest with the end users, or in this case, police officers and investigators. Let's be clear, we're human beings, and Natasha mentioned this earlier, including police officers, they're prone to making recognition errors, image quality, sensitivity, and implicit bias. We all are slaves to these things. The potential for bias also arises from the processing of human algorithmic inputs. The research shows that algorithmic regulation or technologies that help automate decision making and government bureaucracies, what this means is it minimizes worker discretion. Now, some people may say in policing and CJ, maybe minimizing the discretion is a good thing. I will argue against that because this is a tool that you need to well responsibly in order to curate individualized justice when you're dealing in these spaces.

A big part is that we just blindly trust that artificial intelligence is smarter than us. We blindly trust that artificial intelligence makes better decisions as us, right? Now, mind you, police officers deal with heavy cognitive loads. They're working double shifts, they're working overtime. It's not that they're being lazy, it's what we do as human beings. By automating discretion, automating or optimizing the decision making process, it makes actors, I.E. police officers, less likely to view or even see contradicting information or search for additional facts even when contradictions may be hitting you right in your face. That's a big part of it.

Another last thing, and I'll shut up, is that it creates a moral psychological buffer or barrier between you and the people that you're working with. We cut the shortcuts, we blindly trust this, and now we have a barrier where we're not really seeing the people that we're dealing with as human beings because we're doing through the lens of technology. Now, the ethical disengagement may cloud our awareness and biases and other collateral harms from our decision making or automated decision making. Research even shows that we all suffer from biases and we're stressed out, have a high cognitive burden that we can sometimes also adopt algorithmic guidance that matches preexisting stereotypes about certain people, or in this case, Black criminality.

Natasha Johnson:

Let me piggyback on what Thaddeus said, because in policing and criminal justice in particular, the decisions that are made here really have the potential to impact people's lives, their life course, their trajectories. This is the reason why it's important to get this right. Automated decision-making, FRTs, just AI in general can also lead to the automation of officer discretion. What this means is that the use of algorithms and automated systems can really limit the ability of officers to exercise good judgment and make discretionary decisions. As we mentioned before, while AI might often be perceived as neutral and infallible, it can actually have biases, but also it does not have the human traits necessary to offset those biases for effective law enforcement. It's so important to use caution. It's so important to consider the potential impacts on discretion, the need for human involvement and decision-making processes because again, the decisions made here can be the difference between life and death.

Thaddeus Johnson:

I have to say that's a great point because that even lends itself to the AI itself may not be biased. We, as human beings and users, are biased. If we have these psychological moral barriers, if we automate the discretion to err as human, we're automating that err part of it. It's really important that we have policies in place, proper oversight. But that's really powerful what you said, Natasha, is that the fact that we are the ones in the interface that are biased. We often take the stance that even with world-class technologies in AI with the best systems in the world, that it still can lean itself to exacerbating inequity for all the reasons that both Natasha and I just mentioned.

Amanda Blasko:

Yeah, thank you. Those are all really, really great points. Speaking of guidelines or policies, you mentioned before, there's really no model or standard way of doing or using FRT. I'm assuming there's also no policies or guidelines except for maybe some that might be created by individual police departments or something to that effect. From your perspectives, what guidelines or restrictions should be imposed on law enforcement use of FRT?

Natasha Johnson:

I know that Thaddeus will delve into this more deeply, but more broadly, I'd say from a general perspective, guidelines particularly for law enforcement use of FRT, they really should include tangible considerations for privacy, for accuracy, for vetting, again, the information that is received and not just taking it at face value, guidelines for transparency and accountability. It's important that these things are clear, because clear policies, having those in place can really offset and counter and address potential biases. It's important to protect individual rights. These conversations that we're having now can really lead to the prevention of misuse of facial recognition technologies by law enforcement agencies.

Thaddeus Johnson:

Yeah, no, those are great points. Natasha, and again, I've use this term before, it's the wild, wild west, and you're absolutely right. State and local officials are left to their own devices. We know we've had some states and cities who've outright banned this tech for government use, while others have left it to departments to develop policy. Some places like New Orleans and others who originally banned this technology when studies came out about the disparity and the equity issues, crime spiked. Staffing challenges and shortages, they went right back to these technologies. Other states have done these

same things. We need to have some state laws in place, have local laws and ordinances in place. Natasha mentioned we need policy for transparency, but we also need to know in that transparency policy, say when FRT was used to develop probable cause and if arrest and subsequent evidence collection was assisted by this technology, we need transparency in whether FRT-aided evidence was used in court cases and if this evidence was shared during discovery.

Also, we need to establish similarities for thresholds. Amazon and Microsoft, two of the developers, they tell agencies, "Here are the thresholds you should use," but it's not enforceable. We have to also make sure that we properly supervise. We not all Willy-nilly officers all have access to it. It needs to be vetted. A supervisor needs to sign off on it, and we need officers who are trained in using this technology, but also making sure that you are trained in the maintenance and the calibration of these technologies as well. Those are just a couple of key areas where we can focus on. I will say we have emerging research that we'll soon submit for publication review that really shows that there are some public safety benefits to it. It may also just allow us to pinpoint where are we more likely to see inequities and arrests flowing from the use of facial recognition technology as well.

Natasha Johnson:

Yeah, the actual development of the technology itself, the effects of algorithmic racism are well-known among software professionals, but to date, we have no consensus on how to effectively address that problem in software engineering. As we continue to talk about addressing disparities, and we may not get it right every time, but really the goal is to ensure fair and equitable outcomes. It's important that there's technical training, even social strategies that really speak to structural racism and the role of software professionals in getting it right with the advent of technologies.

Thaddeus Johnson:

No, absolutely. Right. I was speaking to more with government and those things, but you're right, we use this thing in statistics. You have the best models and statistical models in the world, but garbage in, garbage out. We need to make sure that have policies to help and programs to help diversify software programmers. Now, we're going beyond policing, but STEM, developing STEM programs to get non-traditional people and create non-traditional pathways to STEM. Yeah, we mentioned own race bias and far as and the development of it, but part of that also flows to is the fact that their own race bias means that when you train the algorithms, you're probably going to train it on faces that look like yours. We all fall victim to this, right?

Mind you, if you have young White males who are training algorithms on the faces of other young White males, it does not face the race profile in the databases, particularly police mugshot databases that they're going to be used for actually in real time. You are absolutely right, Natasha, establishing policies to help bolster that pathway as well, so we can have more culturally responsive and responsible software development because that's going to be a part of this fight to ensure that we have the most accurate software available to police departments who have good policy, who have good oversight, who don't automate discretion. That's the type of conditions you want when you using this type of technology.

Amanda Blasko:

I really liked what you said, Natasha, about putting guidelines in place regarding the accuracy or requiring some threshold of accuracy. I guess I was just wondering, would you prefer to keep that broad

or is there anything like a specific percentage? How accurate should it be? What do you think the standard should be?

Thaddeus Johnson:

It's not really a hard number. Now, places like Amazon have put forth certain thresholds that they would need to fit within to move toward at least ninety-five percent accuracy in performance. These software developers, they have recommendations, but those recommendations are with a lowercase R. I do think departments and governments need to work with these software developers when they're implementing and developing these policies for a best practices of sorts. Look, it may be times that you need to increase the probability score or adjust it or lower it depending on conditions, but you need to have policy to say, "Well, this is the threshold that we use for these cases. If it's purely exploratory and looking for leads, these are the processes and the thresholds that we use." It needs to be more mapped out than to pose just one solid number. Does that make sense?

Natasha Johnson:

Yeah. I'd say interviews at the front end when organizations are looking to hire programmers. It would be important to have conversations with them about those initial steps, about this person's approach, about how they respond to racial disparities in the use of AI. But we need to be having these conversations before we start trying to employ AI and facial recognition technologies.

Amanda Blasko:

Yes. Thank you. That's really helpful. Now, I want to dive into your new research. Your new research, as I understand it broadly that it illustrates FRT reduces homicide rates and also provides some additional context for your original study. If you're able, would you mind discussing those new findings?

Thaddeus Johnson:

No, absolutely. We're so excited to discuss this, because mind you, our studies on the arrest disparity was it's still the only empirical study that looks at the impact of police use of facial records and technology on crime control outcomes. But mind you, a big limitation was it was one year of data in 2016, and about 2013 to '18 is when we started seeing improvements in this technology. It really didn't capture the newly improved technologies well. This new study goes from 1997 to 2020, 268 largest US cities, and we conduct them. Dare I say we moved into the causal realm of analysis because we conduct a generalized difference in difference to take it advantage of this technology stack and implementation.

I think some places, 2001 on forward, they started adopting this technology around '13 to '16, you started the explosion and agencies gravitating toward this tech. This is what we found. We found that police deployment of facial recognition applications facilitate reductions in felony violence overall, and particularly in homicides. In fact, we saw that when agencies adopted this technology on average, they saw a 14% lower rate of homicide. This is what we found. We found that they were able to do this without increasing the rate of arrest. It didn't have any changes to arrest efficiency, so it can help reduce crime and homicides without exacerbate no policing or disparities in arrest. We also found that among those that adopted this technology earlier, between 2000 and '07, the effects were doubled. It shows that the public safety benefits of this technology gradually appreciates over time. These are really, really big findings.

Let me just close with this part. There's a limitation where we can tell it wasn't because it arrested more people. It wasn't because it was a better arrest efficiency. We surmised deductively that it is a quicker,

at least a quicker time between the crime committed and arrest and conviction. It helps bolster and build a stronger evidence caseloads for courts and prosecutors. It has these other aspects that it really helps with. But this is what we also surmise. The data that we use for UCR is not necessarily about the number of people arrested. It's the number of incidents of arrests where we know that a small percentage of people are responsible for the very serious crimes.

If you're able to identify and arrest the most egregious offenders who are responsible for the bulk of crimes we see in our communities, for example, in DC, at any given time, about 200 people in the whole city are responsible for the vast majority of crimes that we see in Philadelphia. 1% of the population is responsible for about sixty-seven percent of the serious crimes. If FRT is being used more judiciously following evidence-based practices, and they're using it to impact the quality and not quantity of arrests, we surmise that perhaps the use of FRT help bolsters the celerity and certainly aspects of deterrence which have been deemed to be more important in that whole concept than the severity of punishment.

Natasha Johnson:

With time, it just speaks to law enforcement and the use of facial recognition technologies and their commitment to getting it right and getting it right the first time.

Thaddeus Johnson:

I think that's a good point, Natasha, because we have to [inaudible 00:36:36] our own biases in this research, and that's the beauty of research. It allows us to filter that and try to come with some very... We thought about all those matters, and so it made us, when we saw that it didn't impact disparities in violent arrests. Now, mind you, we know that there are racially equities where Black people are being disproportionately more likely to be involved in violent offending and also being victimized. You may expect that there will be disparities picked up in the arrests, but we didn't see it. When we said, "Well, this contradicts our first finding," we went back and ran for property crimes. What we found was that the disparities... Now mind, there's well, more property crimes than violent crimes in our... Thank God.

What we saw was that the disparities in arrests were really, the study hadn't come out yet. This is our next study was really concentrated among burglary and motor vehicle thefts, right?

Natasha Johnson:

Crimes of convenience.

Thaddeus Johnson:

Crimes of convenience. That's what we believe the property crime, because we didn't break it out by violence or property overall arrests in the 2022 we study published. We believe that what was driving those, but we were picking up on was property offending. What our study shows that... This is one study, but it's a natural experiment that we can use this technology to keep people safer without exacerbating inequities, but that's for violent offending. Now, we have to see what does it mean for property crime, particularly when we start seeing motor vehicle thefts on the rise, we start seeing retail theft being an issue. We need to really get a good grasp of it, like Natasha said.

Amanda Blasko:

That's super interesting. I also love how you were like, "Oh yeah, the new study contradicted the study we did before. Let's investigate why." That's just cool. That's what I love about research and people who

are really dedicated to the specific space of research. I just think that's really cool. I wanted to highlight that.

Thaddeus Johnson:

No, thank you. It's funny, we looked at each other like, "Oh shoot, we basically rebuilt the data and models for that study to make sure we didn't screw up, and then we worked from that because this is the thing, we screwed up. We have to make it... Acknowledge it publicly, it's not about us. Our research is much bigger than who we are, so it's important that we get it right, even at times if it means finding that we may contradict ourselves. It is a myriad of things, it could be the method, it could be that we use cross-sectional versus over time, but we had to investigate that because law enforcement and CJ is not as sexy as it once was. There's a lot of other competition out there. With that being said, we're going to be using these technologies a whole lot more.

It's not just facial rec, you have predictive risk-needs assessments. We did that for NIJ challenge. It's hard to predict future behavior and do it equitably, right? Do you ever talk about facial recognition technology? But I think this has implications beyond this tech and also beyond the US, because I think about 64 nations actually deploy facial recognition technology. This work has implications for that as well. We have to get it right. I thank you for applauding that, but I think that's something that researchers should be doing anyway. It should be part of how we do the process.

Amanda Blasko:

We've already delved into some of this, but your research has both eliminated major findings and also pointed toward additional areas of study, like we talked about the probability scoring, and we talked about FRT use not having to be declared during discovery. What are the other key areas that you think need further research study or understanding within this space?

Natasha Johnson:

The impact of police use of FRT and these applications on these aspects of punishment, it remains complex and there's so many dependent factors, agency policies, database quality, officer training, the type of software being used and similarity score criteria. While celerity impacts can be identified with measures for the time taken to resolve cases and apprehend suspects, assessing the effects of FRT on the certainty of arrests, it really requires both the assumption that people are rational and measures capturing whether people are fully aware of the material consequences of breaking the law.

Thaddeus Johnson:

That being said, we need future studies that evaluate the perceptions about, but also these other factors along with indicators about the duration between reporting crimes and the arrest of suspects. One thing I say too is that it's possible that we underestimated the effects of FRT in our study. They could be bigger. This is why I say police investigations do not fit neatly within jurisdictional boundaries, right? Potential spillover effects, as we mentioned earlier, could aid crime control efforts in cities beyond, or areas beyond the city limits, which may result in improved outcomes and places without this technology. You can imagine being a place like, I'm going to use Memphis, and then you have a smaller agency that's able to take advantage of it. It could be a bigger effect than we think. It could also not only for the public safety benefit, but also for the possibility of increasing inequities.

We looked at arrests, we did look at traffic stops. Data availability is funny when it comes to that, but we have to get past it and collect these data. Then the last thing is we did the city level. We know that crime

is concentrated in certain areas, so the granularity of our analysis needs to be teased out and look at how victim characteristics include those measures, neighborhood features, witness cooperation, and look at case clearances and not just arrests. We need to do some precinct level, neighborhood level work. We need to also see many agencies have body worn cameras. Can you imagine an agency that has body worn cameras on officers and automated facial recognition technologies? My God, are we moving to a Minority Report or a Robocop, right? That means that theoretically in real time, you can pass somebody on the street, you can scan your face and see your background.

Is it a fourth amendment violation? Does that increase stops? Does it increase arrests? Does it have any benefit? Then I think a final thing is when we look at this technology, we have to look at, we wrestled this next study that we're going to publish has 15 outcomes, five for violent crime, five for those arrest types, and five for the disparities in it. We wanted to remove it to make it simpler, but that's all part of the same story. Luckily we didn't have to make the decision of, well, it increases disparities in arrest, but it reduces crime and homicides because does that lead to a conversation of what are we willing to give up, like I mentioned earlier, for public safety? We need more research just in those areas and beyond.

Amanda Blasko:

Yeah, that's super interesting, especially about the body worn cameras because... I don't know. I didn't even think of that, but that is really, really scary.

Thaddeus Johnson:

We also, we have smart cities. For instance, Natasha mentioned the technology in cities. You have ring cameras now beyond the public surveillance. Ring just said they're not going to allow law enforcement to use it. But you have other types like that where we're surveying all around us. We need to also understand if you're in a city that's smart or areas smart that keep you safer or willing to exacerbate disparities. We have to really dig down and hopefully this podcast, our research inspires others to take on this research agenda because it's so much that we don't know, and we hate to make broad assumptions based off a couple of studies, but they're rigorous and there's something else out there. It's better than innuendo and anecdotes.

Natasha Johnson:

Thaddeus, you mentioned smart cities and the use of Ring cameras, and it's just important to reinforce that AI and particularly facial recognition technologies, they don't stand alone. They don't trump that human aspect. They don't trump relationship. They don't trump officer connection with the community. Something that really is important, I think to reiterate is the fact that the victim-offender overlap means that if we only focus on offenders, we don't focus on the very victims who very generally look like it's the same demographic, the same information, the same background, these victims. We can't over-focus on arrests and on perpetrators that we aren't listening to the victims themselves.

Thaddeus Johnson:

No, I'm sorry, I keep saying no, but that's such a great, great point because mind you, if the technology has issues identifying certain races, yes, one thing about having false positives and false negatives for people who offend, but what about witnesses and victims that we can identify? Because the beauty of this technology is it should allow us to also pick up on crimes that have not been reported, because we know crime is vastly unreported in communities most impacted by violence. It allows us to get at those

factors, too. I wonder even if these technologies are potentially missing perceptions, if it makes the relationships between police and citizens better.

I think these are things that we have to think about, particularly as we use technologies like this to amplify the force given the staffing issues. It's just the more I talk about it, the scarier it gets, but the more I talk about it, the more I realize the need for work in this area. We have a lot of work available. We have data that we have already, but we need so much other data that we need to collect. This is for any doctoral students out there or fire researchers, you have a full career ahead of you trying to answer these questions.

Amanda Blasko:

I think that's a beautiful place to wrap up the episode. I just wanted to say thank you both so much, both for doing this important research and also coming on the podcast to talk about it. This is such a fascinating but also critically important subject that I still feel like it's getting more attention, but not enough at the same time.

Natasha Johnson:

Thanks to you as well, Amanda, and we look forward to continuing to have these conversations with you in the near and distant future.