Negative Brief: FRT School Surveillance

By David W. Helton

**Resolved: The United States Federal Government should substantially reform the use of Artificial Intelligence technology.**

The AFF case cuts federal funding from K-12 schools who use Facial Recognition Technology (FRT), in an effort to end the use of FRT in schools. There’s a couple of problems with this. First, federal funding only comprises 8% of K-12 budgets, and what funding the federal government does give to schools goes to things like libraries and low income students. Second, FRT is increasing school security. Third, the claims that FRT is biased and inaccurate are false, and any harm on student privacy is non-unique.

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Negative: FRT School Surveillance

MINOR REPAIR

Good FRT algorithms exist that are accurate / without bias. Let’s improve oversight to make sure we’re using them

Congressional Research Service 2020 (Kristin Finklea - Coordinator Specialist in Domestic Security.  Laurie A. Harris - Analyst in Science and Technology Policy. Abigail F. Kolker -  Analyst in Immigration Policy. John F. Sargent Jr. -  Specialist in Science and Technology Policy.) October 27, 2020 “Federal Law Enforcement Use of Facial Recognition Technology” <https://fas.org/sgp/crs/misc/R46586.pdf> (Accessed 24 July 2021)

A December 2019 NIST study of both one-to-many identification search algorithms and one-toone verification algorithms found that FRT algorithms’ accuracy rates can vary by demographic factors such as age, sex, and race. For example, false positive rates tended to be higher for Asian and African American faces compared to those of Caucasians, which may be due to the data used to train the algorithm; an explanation that the NIST study did not explore. However, NIST noted that there is wide variation among algorithms, with some producing significantly fewer errors, and errors of different types, than others. Policymakers may wish to exercise oversight over the specific FRT algorithms employed by federal law enforcement agencies, and the data on which those systems are trained, as they evaluate the accuracy and use of facial recognition. They may also debate whether or how to provide legislative direction aimed at maximizing the accuracy of FRT algorithms used by federal law enforcement entities. In attempting to maximize accuracy, developers and users of FRT must weigh the consequences of errors (false positives and false negatives) for different communities and decide which error measure is of higher priority to minimize, depending on how the threshold is set.

HARMS / SIGNIFICANCE

FRT has benign uses in schools

Ellucian 2017 (Software company based in VA. Ellucian is a cloud-based software provider that helps higher education institutions with professional solutions to create a connected campus) (article is undated but references material published in May 2017) “Facial recognition can give students better service (and security)” <https://www.ellucian.com/blog/facial-recognition-campus-benefits-security-risks> (Accessed 23 November 2021)

A facial recognition system can help institutions enhance the student experience in ways both simple and complex. A face is used as an index of identity, and it can be used for recognizing students and completing a service without requiring an action or gesture by students. A student need not swipe a card, enter a key code, or sign a sheet. Integrated camera systems can automatically recognize a student and make a database entry. In a crowded lecture hall (or a crowded online space), and in the case of accounting for all students present in a class, this can be done rapidly for every student present in a crowded lecture hall (or a crowded online space).

FRT is far better at identifying suspects than humans are

Jan Lunter 2020 (the co-founder and CEO of Innovatrics, which has been developing and providing fingerprint recognition solutions since 2004. He is also author of a fingerprint analysis and recognition algorithm that regularly ranks among the top in comparison tests (NIST PFT II, NIST Minex); graduated from the Télécom ParisTech Univ. in France.) October 20, 2020 “Beating the bias in facial recognition technology” <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7575263/> (Accessed 22 July 2021)

A 2001 analysis of police cases found that cross-racial identifications carried out by humans were correct a mere 46% of the time – far below even the least-accurate facial recognition algorithms. In short, it's important to note that while reducing bias in FRT remains a key priority, the technology already significantly outperforms witness-based methods of identification.

Big improvements in FRT accuracy have been made in recent years (now over 99%)

Sujit Raman 2020 (Nearly a dozen years as a federal prosecutor, former Associate Deputy Attorney General at the U.S. Department of Justice. Advisor to the Attorney General and Deputy Attorney General on cyber-related criminal and national security investigations and prosecutions) 15 Sept 2020 "Five Principles That Inform the Justice Department’s  Use of Facial Recognition Technology" <https://www.justice.gov/opa/speech/associate-deputy-attorney-general-sujit-raman-delivers-remarks-community-oriented> (accessed 22 Aug 2021)

We have a moral obligation to study demographic differentials in connection with Facial Recognition Technology.  We must approach this issue honestly, and with due regard for evidence-based reviews.  We in the federal government will continue to ensure that demographic differentials and inaccuracies are constantly being tested, quantified, and mitigated using an evidence-based approach.  In fact, it is precisely that approach that led to the progress reflected in the 2018 NIST Face Recognition Vendor Test, in which top algorithms experienced a failure (i.e., a false positive or a false negative match) on NIST-provided data inputs only 0.2% of the time, compared with a 4% failure rate in 2014 — an improvement by a factor of 20 in only four years. Through its partnership with NIST, the FBI in 2019 upgraded its NGI IPS algorithm; the selected vendor’s facial recognition algorithm performs at an accuracy rate that exceeds 99%. Going forward, the FBI plans, in collaboration with NIST, to test its NGI IPS facial recognition technology annually.  Much work remains to be done.  But the remarkable progress we have seen in the accuracy of FRT in just a few years is cause for optimism.

FRT is improving

Congressional Research Service 2020 (Kristin Finklea - Coordinator Specialist in Domestic Security.  Laurie A. Harris - Analyst in Science & Technology Policy. Abigail F. Kolker -  Analyst in Immigration Policy. John F. Sargent Jr. -  Specialist in Science & Technology Policy.) 27 Oct 2020 “Federal Law Enforcement Use of Facial Recognition Technology” <https://fas.org/sgp/crs/misc/R46586.pdf> (accessed 24 July 2021) (brackets added)

With respect to its 2018 FRVT [Face Recognition Vendor Test], NIST reported that: The 2018 FRVT tested 127 facial recognition algorithms from the research laboratories of 39 commercial developers and one university, using 26 million mugshot images of 12 million individuals provided by the FBI. The 2018 FRVT measured the accuracy and speed of one-to-many facial recognition identification algorithms. The evaluation also contrasted mugshot accuracy with that from lower quality images. The findings, reported in NIST Interagency Report 8238, showed that massive gains in accuracy have been achieved since the FRVT in 2013, which far exceed improvements made in the prior period (2010-2013).

Bias is being eliminated in FRT

Clare Garvie and Jonathan Frankle 2016 (Garvie - a law fellow at the Center on Privacy & Technology at Georgetown Law. B.A., Barnard College, Columbia University; J.D., Georgetown. She is also an Adjunct Professor of Law. Frankle - staff technologist at the Center on Privacy & Technology at Georgetown Law. He is a fifth-year PhD student at MIT.) April 7, 2016 “Facial-Recognition Software Might Have a Racial Bias Problem” <https://www.theatlantic.com/technology/archive/2016/04/the-underlying-bias-of-facial-recognition-systems/476991/>  (Accessed 28 July 2021)

The National Institute of Standards and Technologies (NIST) conducts voluntary tests of [facial-recognition vendors](http://www.nist.gov/itl/iad/ig/frvt-home.cfm) every four years. In 2010, NIST [observed](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=905968) that accuracy rates had improved tenfold between each round of testing, a dramatic testament to the technology’s rapid advances.

A/T “FRT is racially biased” - miniscule difference

RecFaces 2020 (a software development company focused on enterprise-class multimodal biometric solutions to meet actual and future needs of various industries. They also provide software product biometric facial identification for security purposes with using video stream.) November 5, 2020 “How Accurate is Facial Recognition Today?” <https://recfaces.com/articles/how-accurate-is-facial-recognition#3> (Accessed 23 November 2021)

However, NIST’s report published in January 2020 has refuted the former assumptions about the algorithms’ bias. In fact, the leading FRT systems did not show signs of a significant demographic bias. Research has shown that 17 of the best FRT neural networks have demonstrated very similar recognition accuracy, regardless of skin color and gender. The figures have shown false-negative rates of 0.49% or less for black females and no more than 0.85% for white males. Besides, NIST’s Face in Video Evaluation (FIVE) study, dated March 2017, has shown that the highest accuracy of FRT algorithms nowadays is achievable with the cooperation of humans and technology.

A/T “FRT is racially biased” - FRT is highly accurate regardless of race

National Institute of Standards and Technology 2021 (a physical sciences laboratory and non-regulatory agency of the US Dept of Commerce.) July 13, 2021 “NIST Evaluates Face Recognition Software’s Accuracy for Flight Boarding” <https://www.nist.gov/news-events/news/2021/07/nist-evaluates-face-recognition-softwares-accuracy-flight-boarding> (Accessed 23 November 2021)

Demographic differences in the dataset have little effect. The team explored differences in performance on male versus female subjects and also across national origin, which were the two identifiers the photos included. National origin can, but does not always, reflect racial background. Algorithms performed with high accuracy across all these variations. False negatives, though slightly more common for women, were rare in all cases.

A/T “FRT is inaccurate” - Up to 99.97% accurate

Leor Melamedov 2020 (Content Manager at Lightico. Former Non-commissioned Officer in the Strategic Division at the Isralei Defense Force. BA in Literature and philosophy of language from Sarah Lawrence College.) “ID Verification: How Accurate is Facial Recognition?” (article is undated but references material published in April 2020) <https://www.lightico.com/blog/id-verification-how-accurate-is-facial-recognition/> (Accessed 23 November 2021)

According to the Center for Strategic and International Studies (CSIS), verification algorithms such as these have accuracy scores as high as 99.97%, making them just as accurate as iris scanners. This means that even financial institutions that have extremely high stakes can use it for identification purposes.

A/T “Abused data” - Data is deleted

Dalvin Brown 2019 (the Innovations reporter for The Washington Post's Financial section. He is also pursuing a master’s degree in business and economics reporting at the Craig Newmark Graduate School of Journalism in New York) May 30, 2019 “Public school district in New York starts using facial recognition to stop mass shootings” <https://www.usatoday.com/story/tech/2019/05/30/new-york-school-district-testing-facial-recognition-technology/1285676001/> (Accessed 25 November 2021)

The Lockport City School District will pilot its Aegis system over the summer and will expand the technology to each of its eight schools before classes resume in the fall.
**[END QUOTE. HE GOES ON LATER IN THE ARTICLE TO WRITE QUOTE:]**

Recorded video is saved for 60 days before it is erased from the server. In addition to the facial recognition software, the district is hiring armed security guards in some of the schools and increasing the number of staff members who are counselors, social workers and behavior intervention specialists.

A/T “FRT is expensive” - Offered to schools for free

Carolyn Thompson 2018 (Associated Press journalist) July 23, 2018 “Western New York schools eye facial recognition technology to boost security” <https://www.sun-sentinel.com/local/broward/parkland/florida-school-shooting/fl-reg-eye-facial-recognition-school-security-20180723-story.html> (Accessed 26 November 2021)

The surveillance system that has kept watch on students entering Lockport schools for over a decade is getting a novel upgrade. Facial recognition technology soon will check each face against a database of expelled students, sex offenders and other possible troublemakers. It could be the start of a trend as more schools fearful of shootings consider adopting the technology, which has been gaining ground on city streets and in some businesses and government agencies. Just last week, Seattle-based digital software company RealNetworks began offering a free version of its facial recognition system to schools nationwide.

SOLVENCY

Federal funding is a small portion of education funding

National Center for Education Statistics Last Updated: May 2021 (part of the US Dept of Education's Institute of Education Sciences that collects, analyzes, and publishes statistics on education and public school district finance information) Last Updated: May 2021“Public School Revenue Sources” <https://nces.ed.gov/programs/coe/indicator/cma> (Accessed 26 November 2021)

In school year 2017–18, elementary and secondary public school revenues totaled $761 billion in constant 2019–20 dollars. Of this total, 8 percent, or $59 billion, were from federal sources; 47 percent, or $357 billion, were from state sources; and 45 percent, or $345 billion, were from local sources. In 2017–18, the percentages from each source differed across the 50 states and the District of Columbia. For example, the percentages of total revenues coming from federal, state, and local sources in New Hampshire were 5 percent, 31 percent, and 63 percent, respectively, while the corresponding percentages in Vermont were 6 percent, 90 percent, and 4 percent.

Federal funding goes to important school activities

US Department of Education Last modified 2014 (Cabinet-level department of the US government.) Last modified September 19, 2014 “10 Facts About K-12 Education Funding” <https://www2.ed.gov/about/overview/fed/10facts/index.html> (Accessed 26 November 2021)

ESEA authorizes grants for elementary and secondary school programs for children of low-income families; school library resources, textbooks and other instructional materials; supplemental education centers and services; strengthening state education agencies; education research; and professional development for teachers.

DISADVANTAGES

1. Decreased school security

Link: FRT improves school security. Helps potential victims avoid harm and speeds law enforcement response

Tristan Greene citing Lisa Falzone 2019 (Greene - covers human-centric artificial intelligence advances, quantum computing, STEM, Spiderman, physics, and space stuff. the editor of The Next Web's Neural. He is a veteran who served in the Navy as an Information Systems Technician and as a Leading Petty Officer in an engineering environment. Falzone - CEO and co-founder of Athena Security.) February 1, 2019 “Politicians have failed us, it’s time for AI to stop school shootings” <https://thenextweb.com/news/politicians-have-failed-us-its-time-for-ai-to-stop-school-shootings> (Accessed 26 November 2021)

Falzone said Athena Security’s system can integrate with existing safety systems, not just in that it works with almost any off-the-shelf camera system, but a gun alert, for example, could trigger safety locks in all the classrooms and at hallways — effectively confining a shooter to a specific area, for example. Within seconds of detecting and isolating a shooter, the same AI informs law enforcement and emergency responders. It can then provide up-to-the-second information on the location of every person on campus (at least those within sight of a camera).

Impact: Crime and public safety.

Congressional Research Service 2020 (Kristin Finklea - Coordinator Specialist in Domestic Security.  Laurie A. Harris - Analyst in Science and Technology Policy. Abigail F. Kolker -  Analyst in Immigration Policy. John F. Sargent Jr. -  Specialist in Science and Technology Policy.) October 27, 2020 “Federal Law Enforcement Use of Facial Recognition Technology” <https://fas.org/sgp/crs/misc/R46586.pdf> (Accessed 24 July 2021)

FRT can be a powerful tool for law enforcement in protecting public safety—potentially assisting law enforcement in identifying a criminal suspect, crime victim, or other person of interest. The adoption of FRT can also increase the efficiency of certain government processes. FRT is deployed, for instance, at international borders to verify individuals’ claimed identities, reducing the need to manually check paper travel documents.

Impact: School shootings. FRT can thwart school shootings like Parkland, Florida

Carolyn Thompson 2018 (correspondent at Associated Press.) July 23, 2018 “Western New York schools eye facial recognition technology to boost security” <https://www.sun-sentinel.com/local/broward/parkland/florida-school-shooting/fl-reg-eye-facial-recognition-school-security-20180723-story.html> (Accessed 26 November 2021)

The idea behind the Lockport system is to enable security officers to quickly respond to the appearance of expelled students, disgruntled employees, sex offenders or certain weapons the system is programmed to detect. Only students seen as threats will be loaded into the database. Officials say it is the first school district in the country to adopt the Canadian-made system it is installing. Administrators say it could thwart shootings like February's attack in which expelled student Nikolas Cruz is charged with killing 17 at Marjory Stoneman Douglas High School in Parkland.

Impact: Violence, weapons and bullying undetected in schools

David Santiago writing for Safe and Sound 2021 (Safe and Sound Security is a modern security system installation and low voltage cabling company serving residential and commercial customers for over a decade.) June 24, 2021 “School Security Cameras and Video Surveillance in Schools” <https://getsafeandsound.com/2021/06/school-security-cameras-and-video-surveillance-in-schools/> (Accessed 23 November 2021)

School districts are expected to offer a safe and secure learning environment for students, parents, teachers, and staff. This requires keeping weapons, violence, and unpleasant behavior out of school buildings.  With bullying on the rise and gun violence becoming more common, you can’t assume your school’s current security system is up to the task.  When it comes to safety and security, schools need all the help they can get. Security cameras and video surveillance play an important role in the security posture of a school. In this article, we’ll cover the benefits and challenges of security cameras and video surveillance in schools.

Impact: Criminals and threats undetected

David Gargaro 2021 (Freelance copy editor and content writer. He has been providing content writing and copy editing services for more than 20 years. BA from Univ. of Toronto.) July 20,  2021 “The pros and cons of facial recognition technology” <https://www.itpro.com/security/privacy/356882/the-pros-and-cons-of-facial-recognition-technology> (Accessed 21 November 2021)

Facial recognition also helps improve safety and security in non-retail spaces, like airports and banks. It’s been a regular part of airport security screening for years. Similar to identifying criminals that come into shops, the software has helped identify criminals and potential threats to airlines and passengers.

A/T “FRT won’t stop a shooting” - no system can solve every problem

Carolyn Thompson 2018 (correspondent at Associated Press.) July 23, 2018 “Western New York schools eye facial recognition technology to boost security” <https://www.sun-sentinel.com/local/broward/parkland/florida-school-shooting/fl-reg-eye-facial-recognition-school-security-20180723-story.html> (Accessed 26 Nov 2021)

District officials acknowledge it won't stop a determined attacker from coming through the door, nor will it warn against someone who is not a known threat. But "there's no system that's going to solve every problem," LiPuma said. "It's another tool that we feel will give us an advantage to help make our buildings and our communities a little safer."

A/T “FRT doesn’t benefit schools” – Saves time

Ellucian 2017 (Software company based in VA. Ellucian is a cloud-based software provider that helps higher education institutions with professional solutions to create a connected campus) (article is undated but references material published in May 2017) “Facial recognition can give students better service (and security)” <https://www.ellucian.com/blog/facial-recognition-campus-benefits-security-risks> (Accessed 23 November 2021)

Attendance tracking is a time-consuming manual process for institutions that still implement the practice for many reasons that include meeting academic requirements, compliance with Federal aid requirements, or measuring the engagement levels of students. For as long as this process has been the norm, faculty and the students (whether remote or in person) spend the first few minutes of each class recording attendance. Facial recognition technology offers a streamlined and automatic way to do so.

A/T “Other ways to secure schools” - Metal detectors + officers are more vulnerable

Tristan Greene 2019 (covers human-centric artificial intelligence advances, quantum computing, STEM, Spiderman, physics, and space stuff. the editor of The Next Web's Neural. He is a veteran who served in the Navy as an Information Systems Technician and as a Leading Petty Officer in an engineering environment.) February 1, 2019 “Politicians have failed us, it’s time for AI to stop school shootings” <https://thenextweb.com/news/politicians-have-failed-us-its-time-for-ai-to-stop-school-shootings> (Accessed 26 November 2021)

There’s also the fact that metal-detectors can’t detect certain kinds of firearms, track a suspect through hallways, or shutdown specific areas of a school to save lives. Not to mention, as hard as it is to stomach, we know that a motivated shooter with an AR-15 has an advantage over a security guard with a handgun. You can’t shoot AI.

A/T “Other ways to secure schools” - Cameras less intrusive

Tristan Greene citing Lisa Falzone 2019 (Greene - covers human-centric artificial intelligence advances, quantum computing, STEM, Spiderman, physics, and space stuff. the editor of The Next Web's Neural. He is a veteran who served in the Navy as an Information Systems Technician and as a Leading Petty Officer in an engineering environment. Falzone - CEO and co-founder of Athena Security.) February 1, 2019 “Politicians have failed us, it’s time for AI to stop school shootings” <https://thenextweb.com/news/politicians-have-failed-us-its-time-for-ai-to-stop-school-shootings> (Accessed 26 November 2021)

These solutions are nascent, and dependent upon each school’s design and layout. But they’re promising. “People don’t want metal detectors and security guards at all the doors in their schools, it makes it seems like a jail. Cameras are less-intrusive,” says Falzone.

A/T “Harmed privacy” – Cameras are necessary

David Santiago writing for Safe and Sound 2021 (Safe and Sound Security is a modern security system installation and low voltage cabling company serving residential and commercial customers for over a decade.) June 24, 2021 “School Security Cameras and Video Surveillance in Schools” <https://getsafeandsound.com/2021/06/school-security-cameras-and-video-surveillance-in-schools/> (Accessed 23 November 2021)

School security cameras increase emergency response and send a strong statement that the school places a high importance on safety. Additionally, some of the benefits of school security cameras include:

* Helps deter crime and school violence in general.
* Gives educators a tool to monitor and address ongoing bullying issues.
* Discourages vandalism and trespassing.
* Makes monitoring the hallways, entrances, and school grounds more efficient.
* Greatly helps in the event of an incident in terms of documentation and evidence.