

Restricting Photographic Evidence in the Courtroom: A Response to Technological and Cognitive Vulnerabilities

Kiana Aliabadi

Department of Psychology, Simon Fraser University

Correspondence: kaa56@sfu.ca

Abstract

Once regarded as an objective form of evidence in criminal trials, photographs are now under growing scrutiny, as digital alteration and psychological biases can mislead jurors and shape their perceptions of guilt or innocence. This paper examines how photographic evidence can distort legal outcomes through implicit, cognitive, and confirmation bias. The use of artificial intelligence (AI)-enhanced images in suspect lineups heightens the risk of misidentification, while the rise of deepfake technology enables the fabrication of evidence for political, legal, or personal agendas. Even without malicious intent, these practices can reinforce systemic flaws and compromise the integrity of the legal process. This paper argues for restricting photographic evidence depicting suspects in criminal trials unless it undergoes expert digital forensic analysis to detect alterations and is submitted exclusively in digital form to preserve metadata and integrity. Implementing these safeguards would strengthen the reliability of photographic evidence while protecting the justice system from technological threats and psychological biases.

Keywords: *Implicit bias, digital forensic analysis, deepfake technology, wrongful convictions.*

Introduction

In the pursuit of justice within criminal trials, the imperative task of maintaining a fair and unbiased legal process is crucial. Among various forms of evidence, photographic evidence demands careful scrutiny due to its susceptibility to biased interpretations and manipulation. This is particularly important considering the subjective nature of interpreting visual information, which can sway perceptions of guilt or innocence.

Bias can influence perception by altering the content of perceptual experiences, shaping

beliefs based on past experiences, and determining the beliefs formed in response to perception (Siegel, 2020). Furthermore, courts play a crucial role in shaping perceptions of fair governance, often aligning their agendas and public policy objectives with the preferences of both political elites and the general public. Thus, systemic vulnerabilities within the legal system are often amplified by reliance on photographic evidence, especially when judges, jurors, or law enforcement unknowingly operate under biased assumptions.

Although photographs may appear neutral because they are often perceived as objective

representations of reality, they can still reinforce preexisting narratives and influence how certain issues are perceived in court, thereby affecting the course of a trial (Yates et al., 2005). In the domain of artificial intelligence (AI) and photo editing, current laws inadequately govern the use of image editing software in photo identification procedures. Law enforcement's growing use of these tools to standardize photo lineups increases the risk of misidentification when altering a suspect's photo to match witness descriptions (Drews, 2021). This vulnerability reflects broader weaknesses in legal procedures, where AI-altered photographs may be introduced through routine practices that fail to detect bias.

To reduce the risk of misidentification in eyewitness trials, courts should restrict photographic evidence depicting suspects unless it has undergone expert digital forensic verification to detect any AI alterations or manipulations.

The Influence of Bias and Altered Images

Biases (encompassing implicit, cognitive, confirmation, and contextual bias) exert a profound influence on the legal system. Implicit bias, which stems from unconscious attitudes that shape decision-making, significantly impacts jurors during deliberation (Faigman et al., 2012). This bias may lead to unconscious stereotyping of witnesses and defendants, risking improper assessment based on stereotypes rather than a comprehensive evaluation of their testimony.

As lay individuals without specialized forensic training, jurors are particularly vulnerable to visual cues and may be unintentionally influenced by altered images that reinforce their existing viewpoints or objectives (Feigenson, 2010). This vulnerability connects to the broader impact of visual evidence, which not only shapes emotional responses but also has the potential to cloud juror perception and judgment.

A particular concern involves the preparation of photographs for eyewitness identification. In an effort to create uniformity, law enforcement may edit lineup photos by removing tattoos, altering hairstyles, changing clothing, or adjusting accessories (Drews, 2021). Standard

adjustments like cropping, contrast correction, or adding identical markers (e.g., black bars to cover tattoos) across all images are generally accepted within law enforcement protocols to promote consistency across photo lineups.

However, material alterations intended to help a witness focus on facial features can unintentionally increase the risk of misidentification, especially when they align closely with a witness's description of the suspect. These visual adjustments can interact with cognitive biases, such as confidence inflation, where jurors overestimate the reliability of eyewitness identifications (Drews, 2021), and confirmation bias, where lineup administrators' prior knowledge about the suspect can influence how they present or manage the lineup (Artemenko et al., 2025). When photographs are edited in ways that accentuate certain features or mirror the witness's description, these cues can reinforce existing beliefs and distort the identification process.

Although stronger digital chain-of-custody protocols could offer some protection, such measures may not keep pace with the speed of technological change or address the legal system's limited understanding of AI manipulation. Without safeguards against edited photographic evidence, the fairness of eyewitness testimony evaluations cannot be reliably upheld.

Standardization in lineup preparation is intended to reduce bias, yet photo-editing practices introduce inconsistencies that can undermine this goal. The filler-control method, which involves selecting innocent fillers that closely match the eyewitness's description of the suspect, is designed to prevent the suspect from standing out (Quigley-McBride & Wells, 2018).

However, editing practices vary across jurisdictions, and image manipulation software can be used to alter a suspect's photo more extensively than the fillers. For example, while fillers might only receive minor adjustments such as lighting correction, a suspect's image may be altered to remove tattoos, change hairstyles, modify clothing, or adjust accessories. These edits are intended to prevent a suspect with distinctive features (e.g., facial tattoos or scars) from standing out in the lineup,

but they have also been used to modify a suspect's appearance to resemble a witness's description of the perpetrator. Such changes can make the suspect more noticeable and potentially influence an eyewitness's decision (Drews, 2021).

The use of police lineups in eyewitness trials underscores the importance of standardization in eyewitness identification processes. As technology continues to evolve, it is imperative for legal systems to adapt and establish robust measures to prevent the misuse of digital tools, ensuring the reliability and accuracy of evidence presented in courtrooms.

Political and Personal Manipulation via Deepfakes

In the era of advanced technology, increasingly deceptive photographs are created to serve political or propagandistic objectives. Those with harmful intentions may try to exploit the legal system's nuances and loopholes to advance personal agendas or fulfill vindictive goals. This manipulation often involves deepfakes, AI-altered images that convincingly portray individuals engaging in actions they did not commit (Okolie, 2023). Motivated by ideological goals, some individuals or groups create or use images that appear to be credible evidence, even when staged or manipulated. These images are then strategically used to shape public opinion (Morris, 2015).

With the progression of AI, generating fake media involving public figures will become effortless in the next decade, posing significant societal risks. This accessibility means anyone can create fabricated content featuring politicians and share them widely on platforms like Instagram or Facebook. The rapid distribution of such deceptive content online could have unforeseen repercussions, potentially leading to the downfall of political careers or affecting international relations, and even sparking conflict (Pantsev, 2020).

In the courtroom, manipulated images may gain traction when supported by testimony that reflects shared beliefs or biases, regardless of intent. Additionally, courts lack clear procedures for introducing deepfake evidence, and current authentication standards fall short due to their preexistence before the technology

emerged (Delfino, 2022). A notable example is the long-standing dispute over a photograph depicting Prince Andrew, Virginia Giuffre, and Ghislaine Maxwell, which has been central to both media narratives and legal proceedings. Despite its repeated use in public discourse, the original file has never been produced, its chain of custody is unverified, and expert opinions remain divided on whether it was staged or altered (Wjst, 2025).

This uncertainty has persisted for more than a decade, allowing the image to shape public perception without definitive authentication. Thus, politicians and legal systems are placed in a difficult position when facing manipulation or extortion cases involving AI-altered photos, as they lack established procedures to address these challenges. With the progression of technology, the widespread use of deceptive photographs in court becomes an increasingly urgent and ongoing threat, especially regarding political manipulation.

In the modern age, abusers can exploit advanced technology to manipulate and control victims, perpetuating cycles of harassment through covert means. In domestic abuse cases, particularly during divorce proceedings or custody battles, offenders may alter images of themselves or their victims to present themselves more favourably or to undermine the victim's credibility.

Such manipulation is often facilitated by images obtained through discreet surveillance, documentation, or acts of intimidation, threats, and harassment (Dodge & Johnstone, 2018). These tactics extend beyond physical harm, with many victims continuing to face pressure before trial through phone calls or text messages from jail, leading up to 80% of them to recant their statements or withdraw from proceedings (Bonomi & Martin, 2021).

To sustain pressure on victims, offenders can send AI-generated photographs that look authentic but are fabricated, convincing the victim that such images could be introduced in court. In cases where the victim's eyewitness account is central to the prosecution, the fear that jurors might believe these false depictions can be enough to deter them from testifying at all (Tarling et al., 2000).

The growing accessibility of deepfake creation, often discussed and even practiced

within online communities, raises particular concern for non-consensual sexual or incriminating images used as threats, blackmail, or abuse (Lucas, 2022). This is especially problematic in trials that rely heavily on eyewitness testimony, as jurors often place significant weight on photographic evidence, which can heighten the perceived truthfulness of statements and enhance the credibility of witnesses (Derksen et al., 2020; O'Neill Shermer et al., 2011).

Restricting the admission of unverified photographic evidence depicting suspects, unless authenticated through expert digital forensic analysis, would remove one of the most effective tools abusers could use to threaten victims. By eliminating the risk that manipulated images could be presented in court, victims may feel more confident that a verdict will be based on credible evidence, making them more willing to proceed to trial and less vulnerable to intimidation.

Legal Framework and Authentication Challenges

The debate over whether to restrict photographic evidence in court requires a closer examination of its specific role in the legal process. Unlike DNA or fingerprints, which typically establish that a person was present at a scene, photographs can document injuries, depict the condition of physical evidence, or capture identifying features such as clothing, tattoos, or facial expressions that may be relevant to witness descriptions (Birngruber et al., 2020). In Canadian courts, photographs are frequently introduced in cases involving use of force, physical assault, or suspect identification, where they often serve as primary corroborative evidence rather than supplementary support (Carter, 2010; Porter, 2011).

Photographs can convey specific and immediate forms of information that cannot always be replicated through scientific testing or verbal testimony (Feigenson, 2010). In identification cases, mugshots, lineup photos, and surveillance stills are routinely admitted to support eyewitness accounts, sometimes forming the backbone of the Crown's case when no physical evidence is available (Porter, 2011).

However, the very qualities that make photographic evidence persuasive also make it vulnerable to bias and technological manipulation. Jurors may interpret images as inherently objective and truthful, even when they are selectively framed or subtly altered (Porter, 2011). In a legal environment where photographs often carry decisive weight, the risk of misuse is especially concerning. This paper does not argue for eliminating photographic evidence from courtrooms altogether, but rather for imposing safeguards in high-stakes identification procedures where its susceptibility to distortion poses the greatest risk.

In Canadian courts, photographs are admitted into evidence when they are shown to be accurate and relevant to the case (Carter, 2010). A photograph is usually introduced through a witness who can confirm that it fairly represents the subject as they appeared at the time it was taken. This witness is often the person who captured the image or someone who was present when it was taken.

If the authenticity of a photograph is challenged, courts may require additional evidence to prove that the image is a true and accurate representation of what it claims to show. This often involves testimony from the individual who created or stored the record, or from someone who is familiar with the system that produced it, to confirm that the process was reliable (Chasse, 2010).

In cases involving digital photographs, this process could include testimony from the photographer, input from a qualified digital forensics expert, and an examination of system logs or metadata to determine whether any changes have been made. These steps ensure that the party submitting the evidence can establish its authenticity to the civil standard of proof, which is based on a balance of probabilities, before the court allows it to be admitted (Chasse, 2010).

While current procedures aim to promote reliability, they depend largely on human testimony and basic technical checks, which are not always capable of detecting advanced digital alterations (Carter, 2010). As image-editing tools become more accessible and sophisticated, this limitation poses a growing challenge for the legal system.

Given the weight that photographs carry in court proceedings, specialized digital forensic analysis should be a standard part of the authentication process. Digital forensic experts are trained to identify, collect, preserve, and analyze data using repeatable, scientifically validated methods that meet admissibility standards (Miller et al., 2022). In the case of photographic evidence, they can review image metadata (information about the image), verify file integrity, and detect any signs of manipulation with a level of precision that traditional methods cannot match.

The value of expert testimony extends beyond the technical analysis itself. One of the most persistent challenges in court is presenting complex digital evidence in a way that is both accurate and understandable. Trials often face authentication disputes, particularly when highly technical image analysis is involved (Miller, 2023). Legal experience alone does not guarantee the ability to assess the reliability of photographic evidence, and even experienced legal professionals can misjudge its accuracy without specialized guidance (Wahlberg & Dahlman, 2021).

To make this process as effective as possible, photographic evidence should be submitted exclusively in digital form. Digital files preserve a complete record of an image's history, including any edits, and allow forensic experts to conduct detailed analyses that cannot be replicated with printed copies. Standardizing this requirement would give courts access to the most reliable version of the evidence and ensure that it has been thoroughly examined before being admitted.

Conclusion

Exploring the challenges surrounding photographic evidence in the criminal justice system highlights the need for a careful reassessment of how such material is handled. The accessibility of deepfake creation, requiring minimal technical skill or equipment, allows virtually anyone to produce and distribute AI-altered photos (Karnouskos, 2020).

Combined with inherent biases and the tendency for judges and jurors to overestimate the objectivity of photographs, these risks underscore the need to reform current authentication practices. This approach calls for a more nuanced and equitable legal system that recognizes the limitations of photographic evidence and embraces alternative options.

Strengthening authentication practices by integrating specialized digital forensic expertise and requiring photographs to be submitted in digital format would help ensure that courts work with the most reliable version of the evidence. The goal is not to remove photographic evidence from trials entirely, but to acknowledge its vulnerabilities and implement measures that address both technological threats and cognitive biases.

Adopting this approach would enhance the fairness and credibility of court proceedings, enabling judges and jurors to make more informed decisions while protecting the justice system from the growing threat of falsification in the digital age. The debate over photographic evidence restriction extends beyond the courtroom, urging society to reevaluate the fundamental mechanisms of justice to ensure fairness, credibility, and protection against manipulation.

In this evolving judicial landscape, the pursuit of justice requires a thoughtful reassessment and a commitment to a balanced and inclusive approach that can withstand the complexities of the modern era.

References

Artemenko, E., Zhitkova, A., & Terpilowsky, M. (2025). In the blink of an eye: Behavioural correlates of the confirmation bias effect.

Cognitive Processing.

<https://doi.org/10.1007/s10339-025-01268-7>

- Birngruber, C. G., Martinez Peña, E. G., Corrales Blanco, L., & Holz, F. (2020). The use of tattoos to identify unknown bodies: Experiences from Jalisco, Mexico. *Rechtsmedizin*, 30(4), 219–224. <https://doi.org/10.1007/s00194-020-00396-y>
- Bonomi, A. E., & Martin, D. (2021). Domestic abusers: Expert triangulators, new victim advocacy models to buffer against it. *Journal of Family Violence*, 36(3), 383–388. <https://doi.org/10.1007/s10896-020-00156-2>
- Carter, R. G. (2010). “Ocular proof”: Photographs as legal evidence. *Archivaria*, 69, 23–47. <https://archivaria.ca/index.php/archivaria/article/view/13260>
- Chasse, K. (2010). The admissibility of electronic business records. *Canadian Journal of Law and Technology*, 8(2). <https://ojs.library.dal.ca/CJLT/article/download/4941/4449>
- Delfino, R. A. (2022). Deepfakes on trial: A call to expand the trial judge's gatekeeping role to protect legal proceedings from technological fakery. *Hastings Law Journal*, 74(2), 292–348. <https://doi.org/10.2139/ssrn.4032094>
- Derksen, D. G., Giroux, M. E., Connolly, D. A., Newman, E. J., & Bernstein, D. M. (2020). Truthiness and law: Nonprobative photos bias perceived credibility in forensic contexts. *Applied Cognitive Psychology*, 34(6), 1335–1344. <https://doi.org/10.1002/acp.3709>
- Dodge, A., & Johnstone, E. (2018). *Using fake video technology to perpetuate intimate partner abuse*. Without My Consent, 1–9. <https://withoutmyconsent.org/perch/resources/2018-04-25deepfakedomesticviolenceadvisory.pdf>
- Drews, N. (2021). Picture perfect: Reforming law enforcement use of image editing in eyewitness identification. *George Washington Law Review*, 89(2), 429–460. <https://www.gwlr.org/picture-perfect/>
- Faigman, D. L., Kang, J., Bennett, M. W., Carbado, D. W., Casey, P., Dasgupta, N., Godsil, R. D., Greenwald, A. G., Levinson, J. D., & Mnookin, J. (2012). Implicit bias in the courtroom. *UC Law SF Scholarship Repository*, 59, 1124–1186. <https://law.ucla.edu/news/implicit-bias-courtroom>
- Feigenson, N. (2010). Visual evidence. *Psychonomic Bulletin & Review*, 17(2), 149–154. <https://doi.org/10.3758/PBR.17.2.149>
- Karnouskos, S. (2020). Artificial intelligence in digital media: The era of deepfakes. *IEEE Transactions on Technology and Society*, 1(3), 138–147. <http://dx.doi.org/10.1109/TTS.2020.3001312>
- Lucas, K. T. (2022). Deepfakes and domestic violence: Perpetrating intimate partner abuse using video technology. *Victims & Offenders*, 17(5), 647–659. <https://doi.org/10.1080/15564886.2022.2036656>
- Miller, C., Epstein, B., Remy, J. D., & Peters, R. J. (2022). *All the pieces matter: Evaluating digital forensic expert witnesses*. Trauma-Informed Prosecutor Project. <https://ojjdp.ojp.gov/publications/all-pieces-matter-evaluating-digital-forensic-expert-witnesses>
- Miller, C. M. (2023). A survey of prosecutors and investigators using digital evidence: A starting point. *Forensic Science International: Synergy*, 6, 100296. <https://doi.org/10.1016/j.fsisyn.2022.100296>
- Morris, D. (2015). Interpreting photographic evidence. *Contemporary Legend*, 5, 77–91. <https://scholarworks.iu.edu/journals/index.php/cl/article/view/35104/38294>
- Okolie, C. (2023). Artificial intelligence-altered videos (deepfakes), image-based sexual abuse, and data privacy concerns. *Journal of International Women's Studies*, 25(2), Article 11. <https://vc.bridgew.edu/jiws/vol25/iss2/11>
- O'Neill Shermer, L., Rose, K. C., & Hoffman, A. (2011). Perceptions and credibility: Understanding the nuances of eyewitness testimony. *Journal of Contemporary Criminal Justice*, 27(2), 183–203. <https://doi.org/10.1177/1043986211405886>
- Pantserev, K. A. (2020). *The malicious use of AI-based deepfake technology as the new threat to psychological security and political stability*. In H. Jahankhani, S. Kendzierskyj, N. Chelvachandran, J. Ibarra (Eds.), *Cyber defence in the age of AI, smart societies and augmented humanity* (pp. 37–55). Springer Cham. https://doi.org/10.1007/978-3-030-35746-7_3
- Porter, G. (2011). A new theoretical framework regarding the application and reliability of photographic evidence. *The International Journal of Evidence & Proof*, 15(1), 26–61. <https://doi.org/10.1350/ijep.2011.15.1.367>
- Quigley-McBride, A., & Wells, G. L. (2018). Fillers can help control for contextual bias in forensic comparison tasks. *Law and Human*

- Behavior*, 42(4), 295–305.
<https://doi.org/10.1037/lhb0000295>
- Siegel, S. (2020). *Bias and perception*. In E. Beeghly & A. Madva (Eds.), *An introduction to implicit bias: Knowledge, justice, and the social mind* (pp. 99–115). Routledge.
<https://doi.org/10.4324/9781315107615>
- Tarling, R., Dowds, L., & Budd, T. (2000). *Victim and witness intimidation: Findings from the British Crime Survey*. Great Britain Home Office.
- Wahlberg, L., & Dahlman, C. (2021). *The role of the expert witness*. In C. Dahlman, A. Stein & G. Tuzet (Eds.), *Philosophical Foundations of Evidence Law* (pp. 53–66). Oxford University Press. <https://dx.doi.org/10.2139/ssrn.3758820>
- Wjst, M. (2025). *Constructed realities? Technical and contextual anomalies in a high-profile image*. arXiv:2507.12237v2.
<https://doi.org/10.48550/arXiv.2507.12237>
- Yates, J., Whitford, A. B., & Gillespie, W. (2005). Agenda setting, issue priorities and organizational maintenance: The US Supreme Court, 1955 to 1994. *British Journal of Political Science*, 35(2), 357–368.
<https://doi.org/10.1017/s0007123405000207>